



## Antenna acknowledgment

Customer name: Guangzhou xingdongzhe

Customer part number: ①D1502000004

②D1502000005

Material code: ①ATWE-01-0596-010

②ATWE-01-0597-010

Product name: ①M20T-Pro-L 2.4G antenna

②M20T-Pro-R 2.4G antenna

Date of issue: 2024-04-28

### Vendor recognition field:

| Fiction | Structure audit | Give permission to |
|---------|-----------------|--------------------|
| 庾仪      |                 |                    |

### Customer recognition field:

| Verify | Examine | Give permission to |
|--------|---------|--------------------|
|        |         |                    |

Manufacturer:Antmicro Communications Intelligence (Shenzhen) Co., Ltd.  
1/F, Building 55, Dayun Software Town, No.8288 Longgang Avenue, Longgang  
District, Shenzhen



**ATWE intelligent Communications(shenzhen)CO.,Ltd**

# **Catalogue**

|                                   |            |
|-----------------------------------|------------|
| Admit the cover.....              | Page 1     |
| Directory list.....               | Page 2     |
| Change log.....                   | Page 3     |
| One、Bibliographic.....            | Page 4     |
| Two、Product material.....         | Page 4     |
| Three、Antenna test data.....      | Page 5-9   |
| Four、Reliability test report..... | Page 10    |
| Five、Structure drawing.....       | Page 11    |
| Six、Method of packing.....        | Page 12-13 |

Prepare/revise and change resume

| Prepare/revise<br>and change<br>resume Version | Date       | Change<br>description | Remarks |
|------------------------------------------------|------------|-----------------------|---------|
| V0                                             | 2024-04-28 | First edition         |         |
|                                                |            |                       |         |
|                                                |            |                       |         |
|                                                |            |                       |         |
|                                                |            |                       |         |
|                                                |            |                       |         |
|                                                |            |                       |         |
|                                                |            |                       |         |
|                                                |            |                       |         |
|                                                |            |                       |         |
|                                                |            |                       |         |
|                                                |            |                       |         |
|                                                |            |                       |         |
|                                                |            |                       |         |
|                                                |            |                       |         |
|                                                |            |                       |         |
|                                                |            |                       |         |



## One、Purpose:

1.Through the description of product characteristics and inspection standards in this acknowledgement, better communication can be carried out with customers.

Reach a consensus to avoid product quality disputes caused by inadequate communication。

2.When our products need to be used in your outsourcing factory, please contact your outsourcing company with the content of this acknowledgement.

3.Environmental considerations:

The FPC antenna is designed for general use environment (0 ~ 25 degrees Celsius temperature, 30% ~ 70% atmospheric pressure). When used for a long time, the quality of the product will be reduced in the following occasions. Please pay attention when using:

- 3.1.Reductive gas (C12, H2S, NH3 etc.) 。
- 3.2.Volatile/alkene gas environment.。
- 3.3.Direct contact with water or high humidity dew place。
- 3.4.The place of oil, medicine liquid and organic solution。
- 3.5.A place of vibration。
- 3.6.A place in direct sunlight。

## 4.Storage and use

In order to prevent discoloration, deterioration of solderability, and abnormal foaming during assembly, the following storage conditions should be observed。

4.1.High temperature and high humidity will lead to discoloration of the product, it is recommended to manage and keep in a constant temperature and humidity environment。

4.2.The PI film of FPC is very easy to absorb moisture. If the temperature changes sharply in the hygroscopic state, it will produce foaming phenomenon.

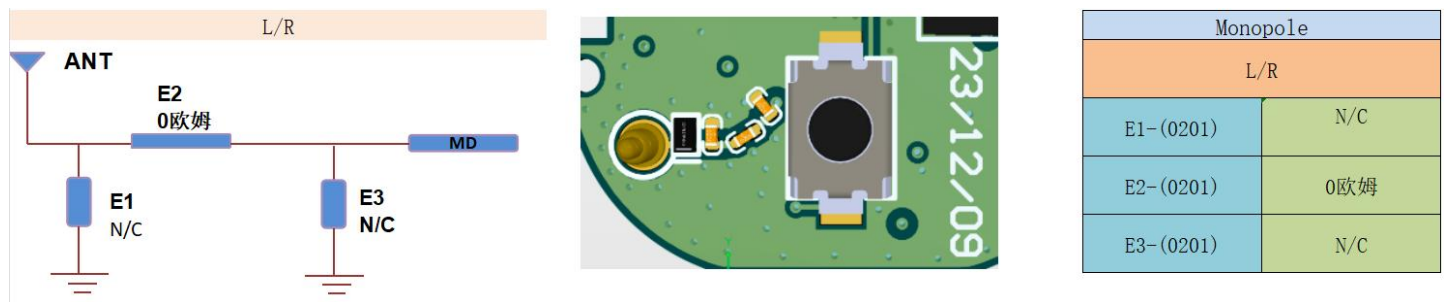
It is recommended to prepare baking according to conditions before assembly (SMT, etc.). Please try to use the baked product within 2HR.

## Two、Product material:

|                   |                                                        |
|-------------------|--------------------------------------------------------|
| FPC Base material | Matte black FPC, single panel, one and a half material |
| Surface treatment | Screen printing matte black oil/matte white characters |

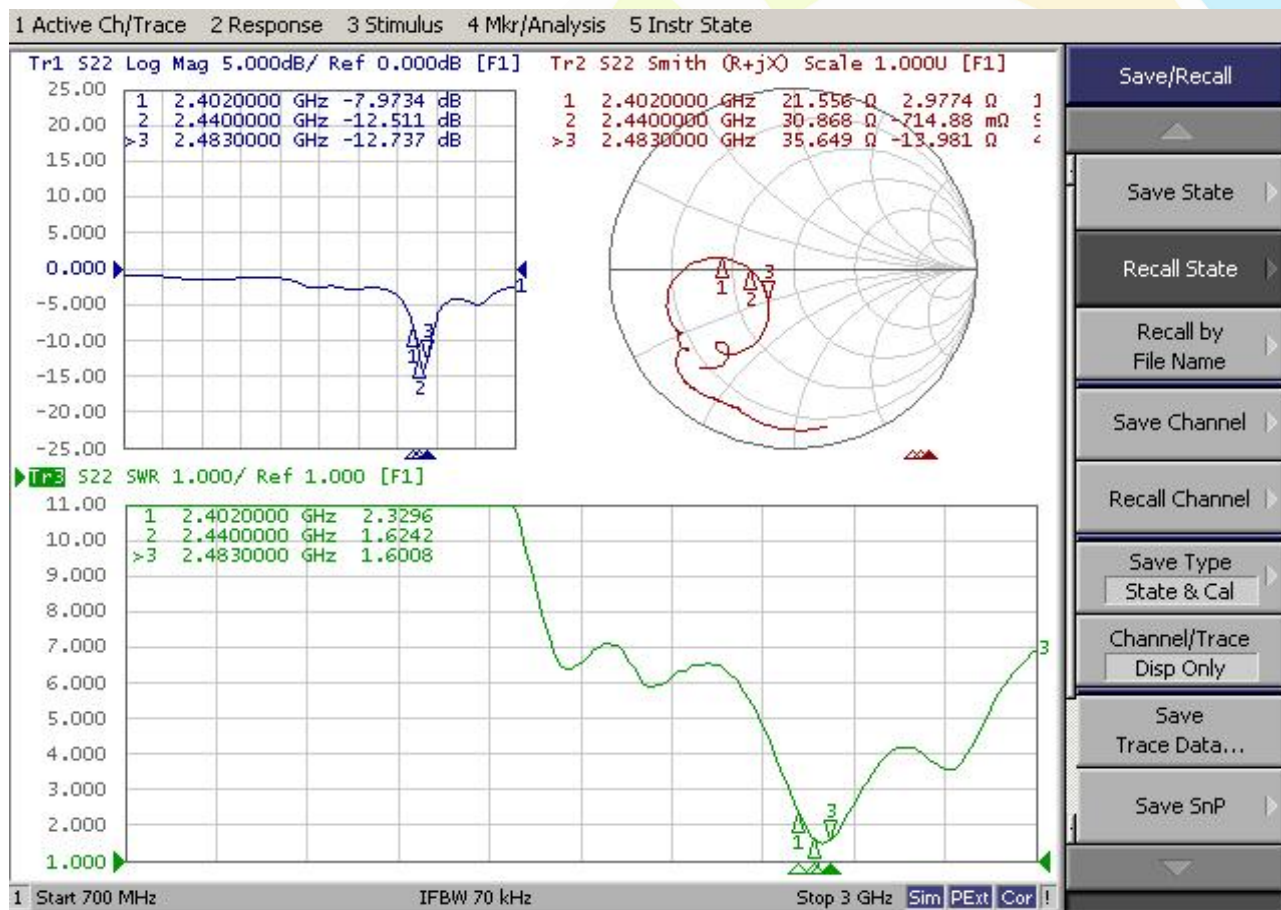
### Three、Antenna test data

#### 3.1 Antenna matching circuit modifikaion schematic

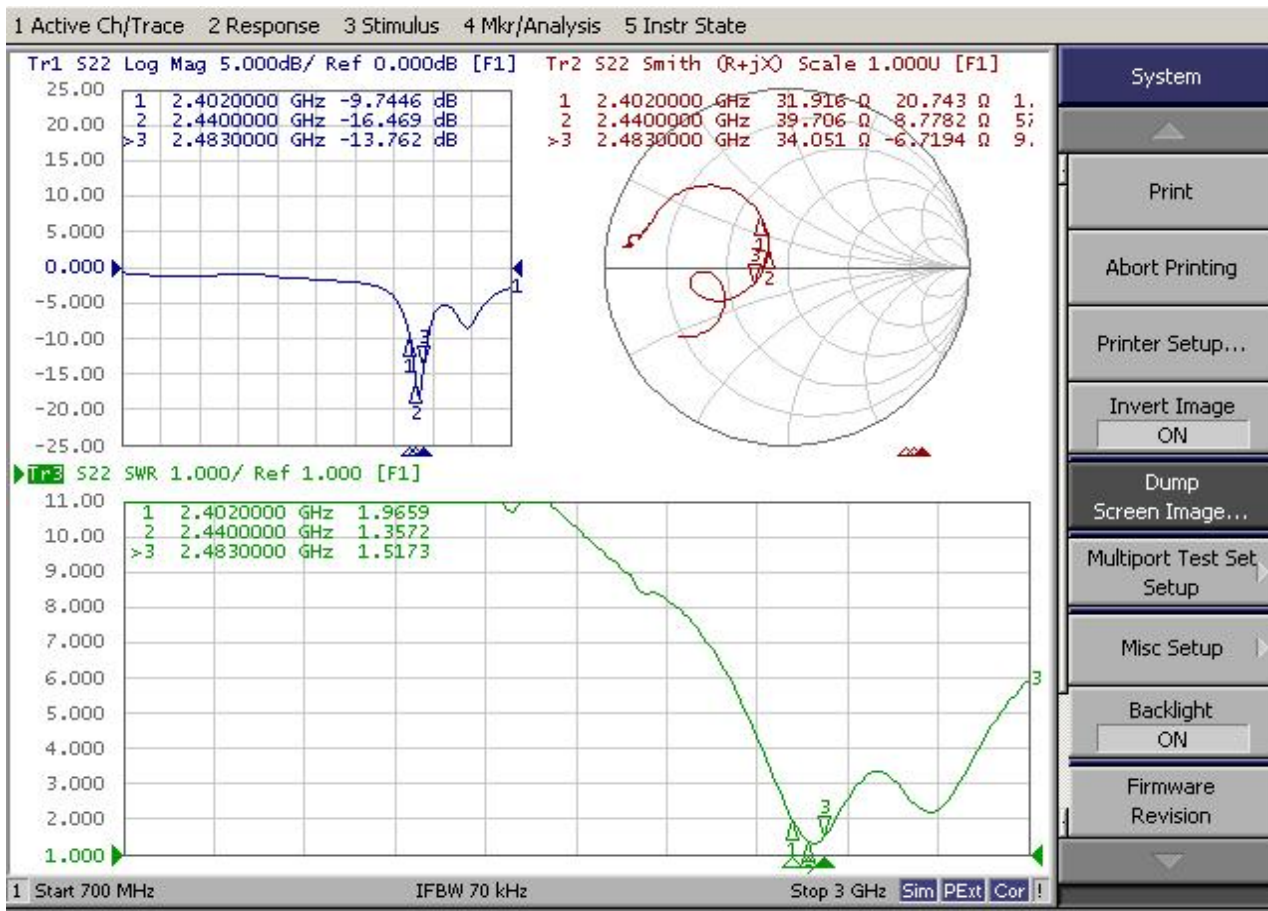


#### 3.2 Passive data/return loss

**L**



## R

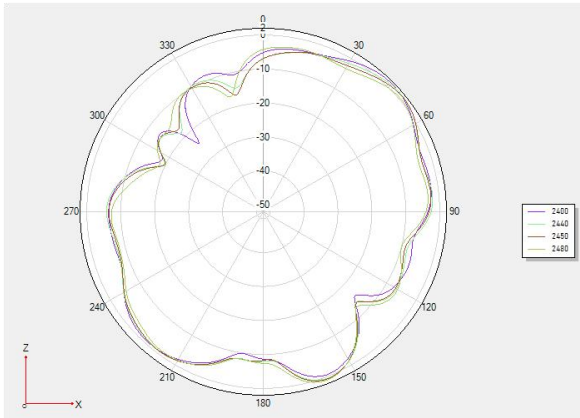


### 3.3 Passive efficiency

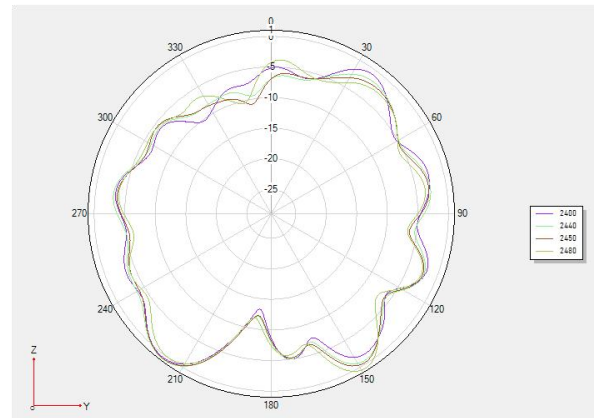
| L               |       |                | R               |       |                |
|-----------------|-------|----------------|-----------------|-------|----------------|
| BT              |       |                | BT              |       |                |
| Frequency / MHz | Gain  | Efficiency / % | Frequency / MHz | Gain  | Efficiency / % |
| 2400            | -0.87 | 32.96          | 2400            | 0.74  | 34.36          |
| 2410            | -1.14 | 31.84          | 2410            | 0.49  | 34.91          |
| 2430            | -0.82 | 34.59          | 2430            | -0.1  | 34.12          |
| 2450            | -0.71 | 33.27          | 2450            | 0.05  | 33.34          |
| 2460            | -0.98 | 31.92          | 2460            | -0.48 | 33.11          |
| 2470            | -1.1  | 35.73          | 2470            | -0.72 | 33.42          |
| 2480            | -1.09 | 34.75          | 2480            | -0.62 | 30.97          |
| 2490            | -1.24 | 34.99          | 2490            | -0.66 | 31.84          |

### 3.4 2D Directed graph

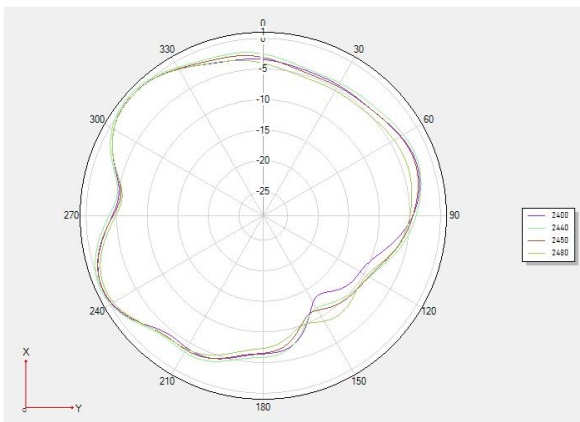
本规格书属于安特微智能通讯（深圳）有限公司与相关客户机密存档，请妥善保管，未经我司与相关客户许可，任何人不得对外泄漏。



Phi 0 2D

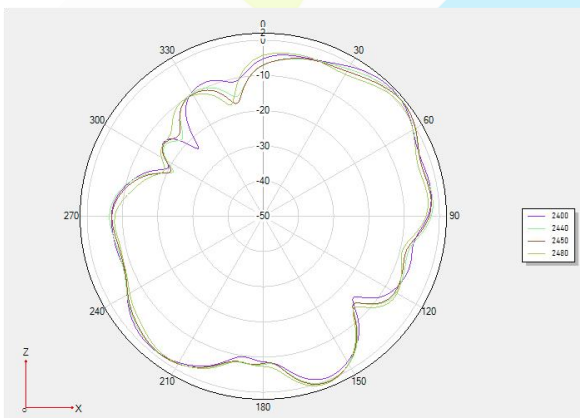


Phi 90 2D

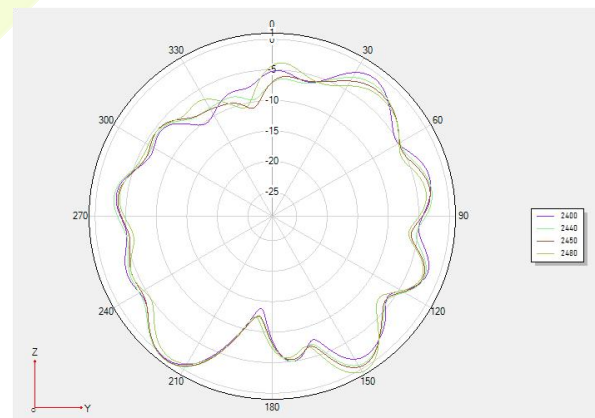


Theta 90 2D

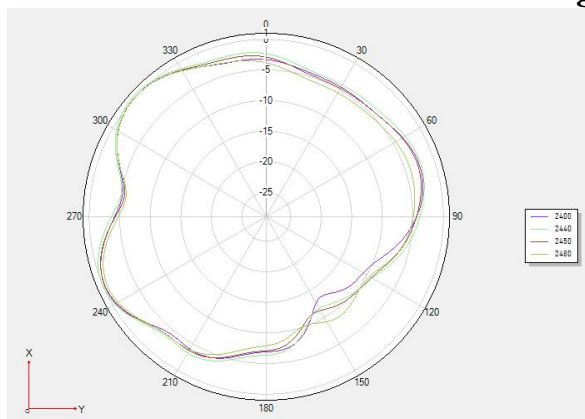
**R**



Phi 0 2D



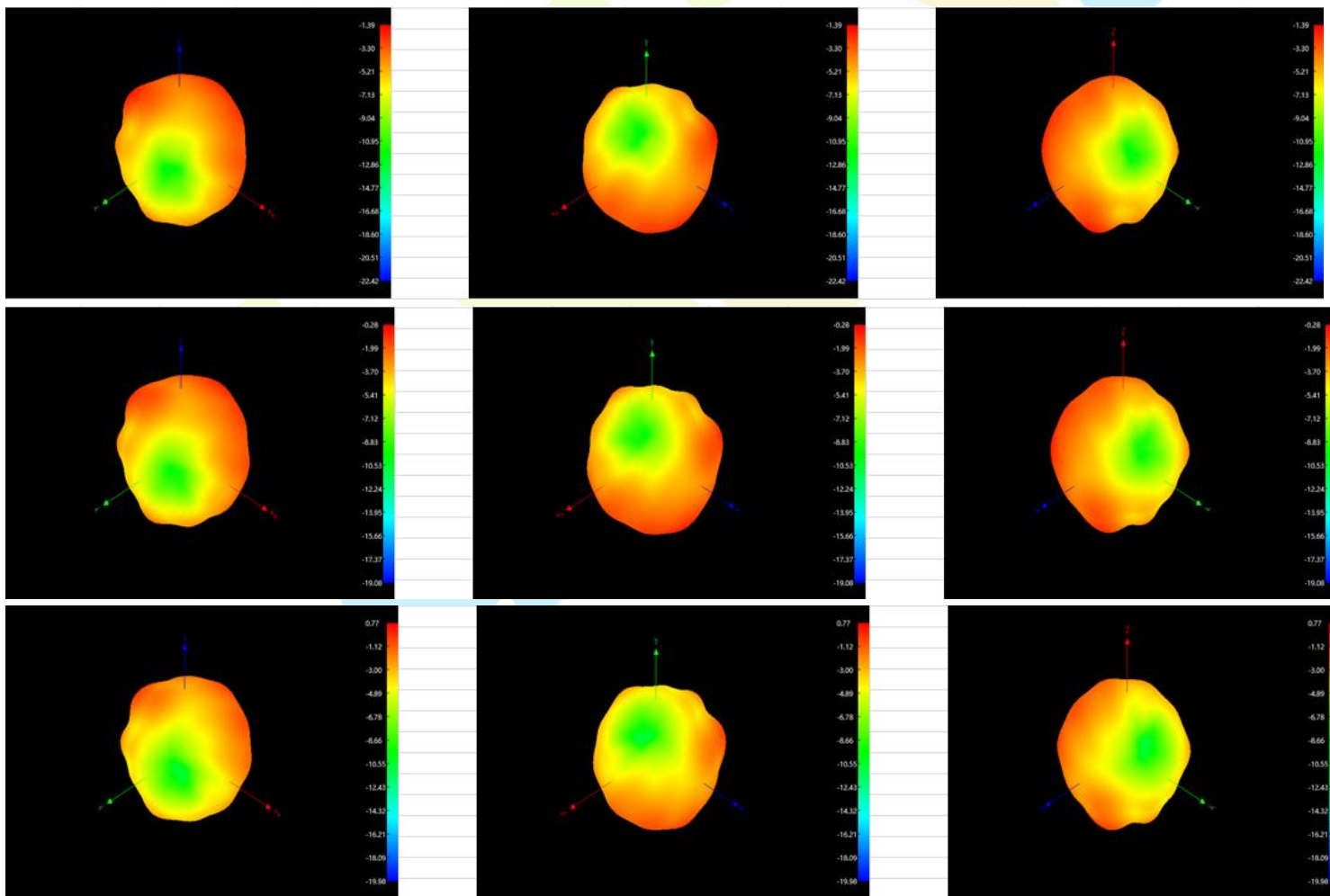
Phi 90 2D



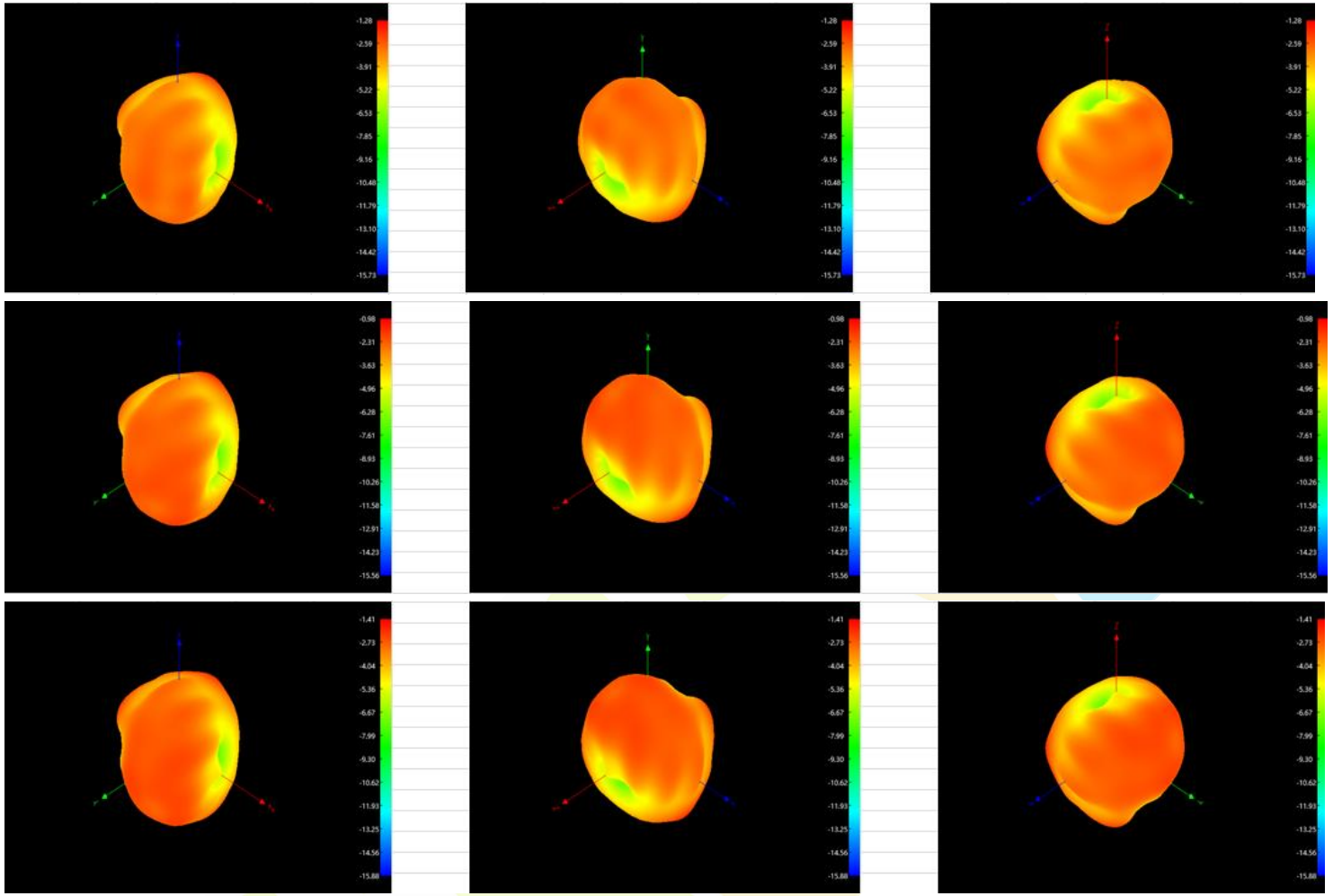
Theta 90 2D

### 3.5 3D Directed graph

L



## R



### 3.6 Antenna picture





## Four、Reliability Test Report

| Test Item                       | M20T-Pro-L 2.4G antenna、M20T-Pro-R 2.4G antenna                                            |                                      |       |
|---------------------------------|--------------------------------------------------------------------------------------------|--------------------------------------|-------|
|                                 | Experimental Method                                                                        | criteria                             | Judge |
| Plating Adhesion Test           | 3M9471Tape Coating Test                                                                    | No drop OK, otherwise NG             | OK    |
| Heat Stress Test                | Preheat to 120℃, raise the temperature to 280℃, take out and dry                           | Layering、Bubble NG                   | OK    |
| Weldability Test                | The product is placed in rosin pre-dip, then dipped in a 235℃ ± 5℃ tin bath for 10 seconds | Wire discoloration、Layering、BubbleNG | OK    |
| Test: Jiang Jinlong             |                                                                                            | Check: Chen Xingcheng                |       |
| result determination: Qualified |                                                                                            |                                      |       |



## Five、Method of packing

### ATWE Product packaging specification

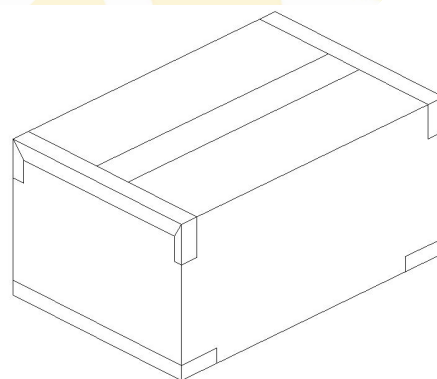
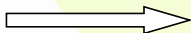
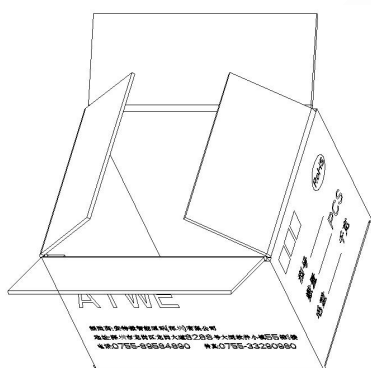
Product name: M20T-Pro-L 2.4G antenna,  
M20T-Pro-R 2.4G antenna

Version: V0

One、PE self-cealing bag packaging

Two、Pack in big boxes. (The quantity is subject to the actual order and packaging quantity)

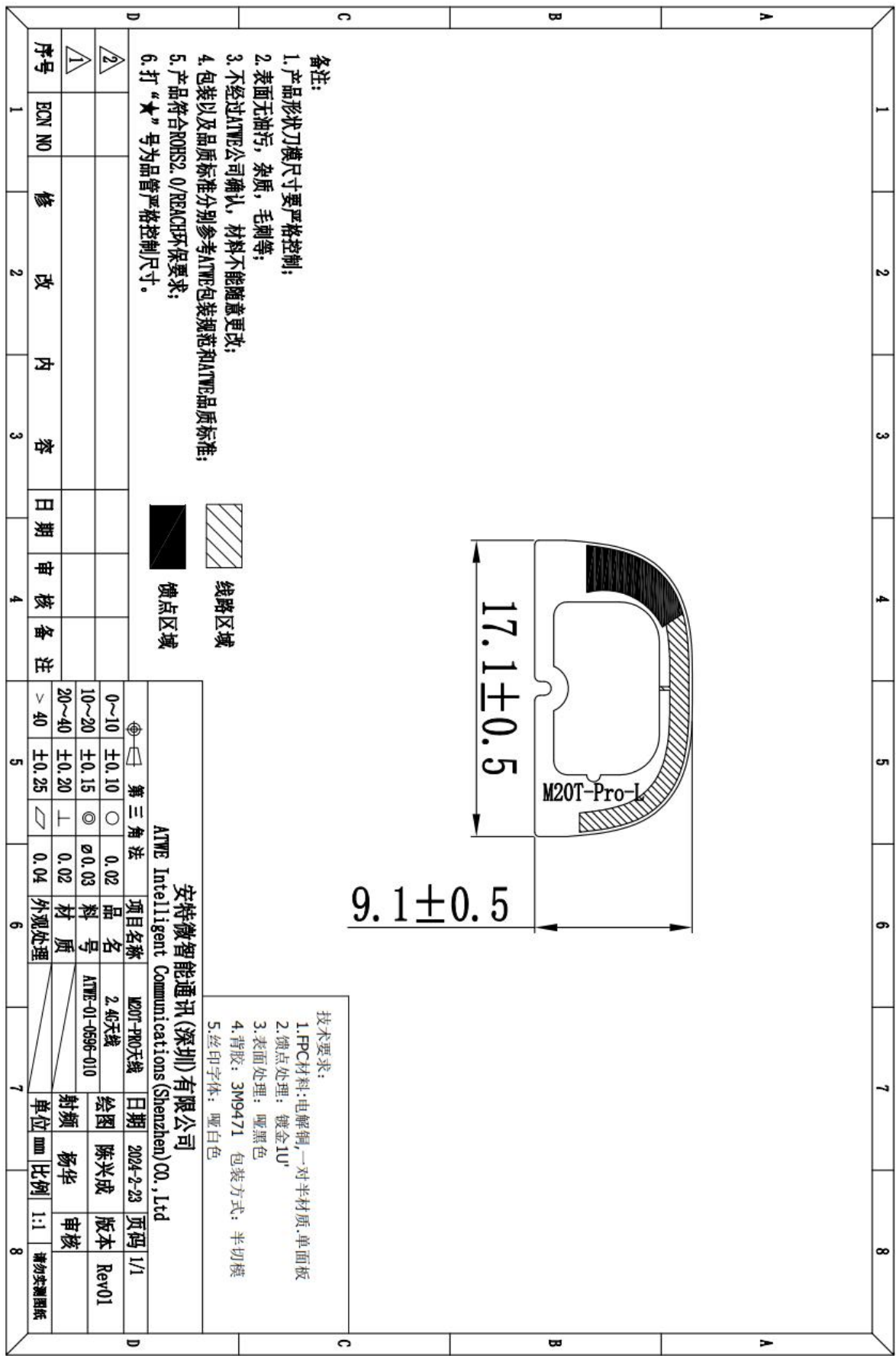
three. Seal the box, and attach our production label



**Note: the above packaging is for reference only, and the specific packaging is subject to the official mass production!**



Six、Structure drawing





| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|
| <div><div>备注:</div><div>1. 产品形状刀模尺寸要严格控制;</div><div>2. 表面无油污, 杂质, 毛刺等;</div><div>3. 不经过ATWE公司确认, 材料不能随意更改;</div><div>4. 包装以及品质标准分别参考ATWE包装规范和ATWE品质标准;</div><div>5. 产品符合ROHS2. 0/REACH环保要求;</div><div>6. 打“★”号为品管严格控制尺寸。</div></div> <div><div>线路区域</div><div>镀点区域</div></div> <div><div>技术要求:</div><div>1.FPC材料:电解铜,一对半材质.单面板</div><div>2.镀点处理: 镀金1U'</div><div>3.表面处理: 哑黑色</div><div>4.背胶: 3M9471 包装方式: 半切模</div><div>5.丝印字体: 哑白色</div></div> <div><div>ATWE Intelligent Communications (Shenzhen) CO., Ltd</div><div>安特微智能通讯(深圳)有限公司</div><div>项目名称</div><div>W20T-Pro天线</div><div>品名</div><div>2.4G天线</div><div>料号</div><div>ATWE-01-0597-010</div><div>日期</div><div>2024-2-29</div><div>页码</div><div>1/1</div><div>绘图</div><div>陈兴成</div><div>版本</div><div>Rev01</div><div>射频</div><div>杨华</div><div>审核</div><div></div><div>单位</div><div>mm</div><div>比例</div><div>1:1</div><div>请勿实测图纸</div></div> <div><div>第三角法</div><div>0~10</div><div>±0.10</div><div>0.02</div><div>0.02</div><div>0.02</div><div>0.04</div><div>外观处理</div><div>10~20</div><div>±0.15</div><div>0.03</div><div>0.02</div><div>0.02</div><div>0.02</div><div>0.04</div><div>外观处理</div><div>20~40</div><div>±0.20</div><div>0.03</div><div>0.02</div><div>0.02</div><div>0.02</div><div>0.04</div><div>外观处理</div><div>&gt; 40</div><div>±0.25</div><div>0.03</div><div>0.02</div><div>0.02</div><div>0.02</div><div>0.04</div><div>外观处理</div></div> <div><div>1</div><div>ECN NO</div><div>2</div><div>修 改</div><div>3</div><div>内 容</div><div>4</div><div>日 期</div><div>审 核</div><div>备 注</div><div>5</div><div>6</div><div>7</div><div>8</div></div> |   |   |   |   |   |   |   |

