

# 产 品 承 认 书

客户名称：

客户料号：

供应商名称：深圳市博远无线通讯技术有限公司

供应商型号：2450MHZ 贴片天线（CA-2450-52-SE-C）

适配机型：

备注：

客户签名：

客户盖章：

供方签名：

供方盖章：

说明：需方确认后请返回复印件作为确认依据！

制作：

郭少华

日期：

2024-5-13

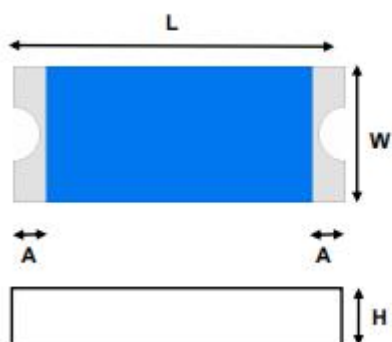
## 一、电气特性

### Electrical Characteristics per line(TA=25°C)

| Parameter        | Specification | Units    |
|------------------|---------------|----------|
| Frequency Band   | 2400~2500     | MHz      |
| Polarization     | Linear        |          |
| *Peak Gain       | 0.99          | dBi      |
| *Peak Efficiency | 50.34         | %        |
| Impedance        | 50            | $\Omega$ |

Test condition: Test board size 70\*60 mm;  
Matching circuit: Pi matching circuit will be required.

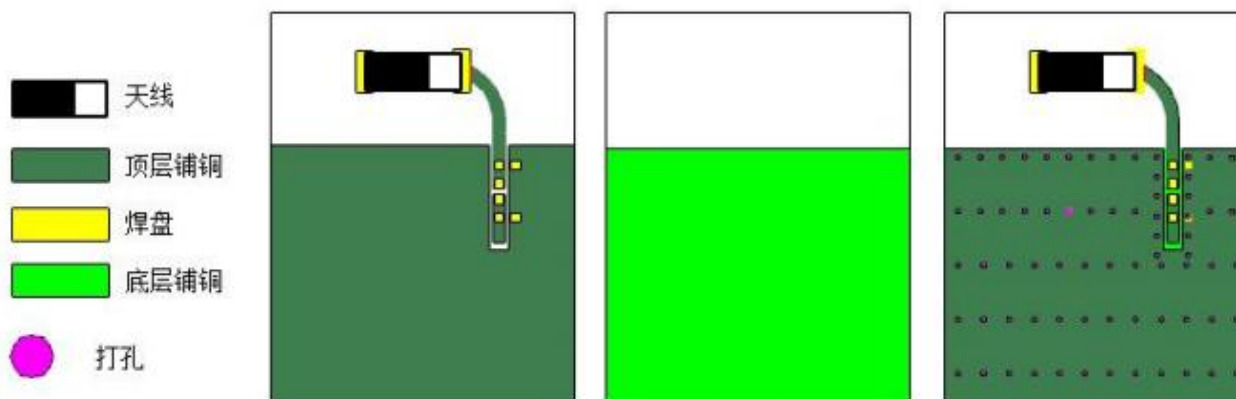
## 二、封装尺寸



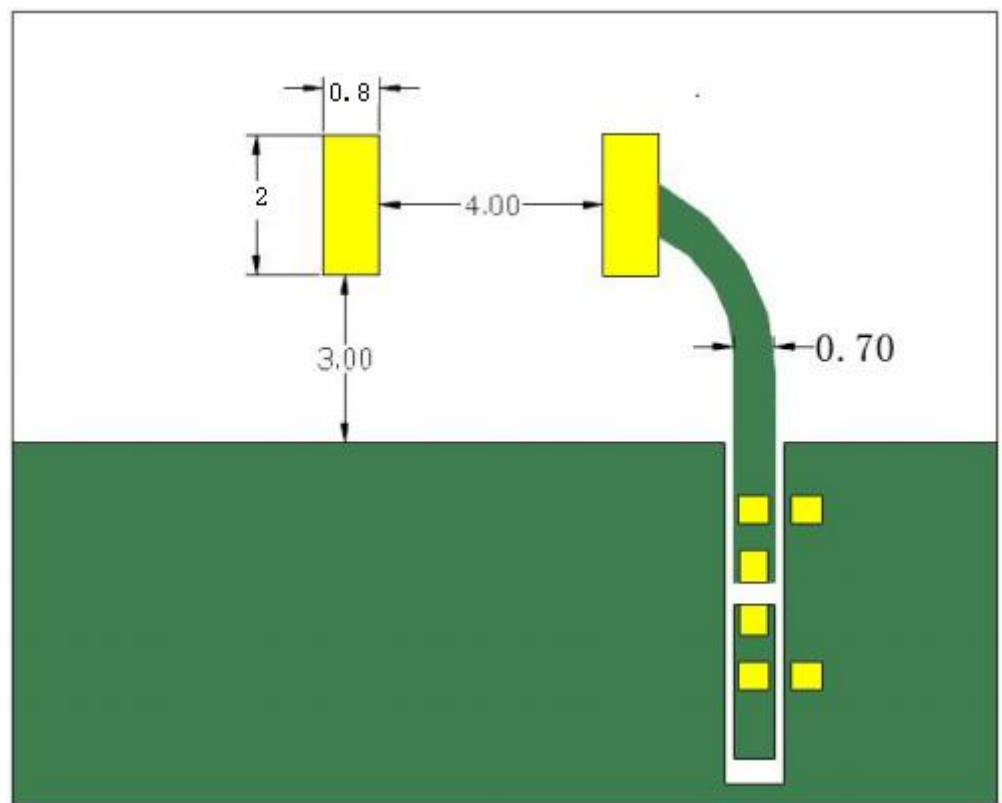
Units:mm

| L         | W         | H         | A        |
|-----------|-----------|-----------|----------|
| 5.00±0.10 | 2.00±0.10 | 1.00±0.10 | 0.5±0.10 |

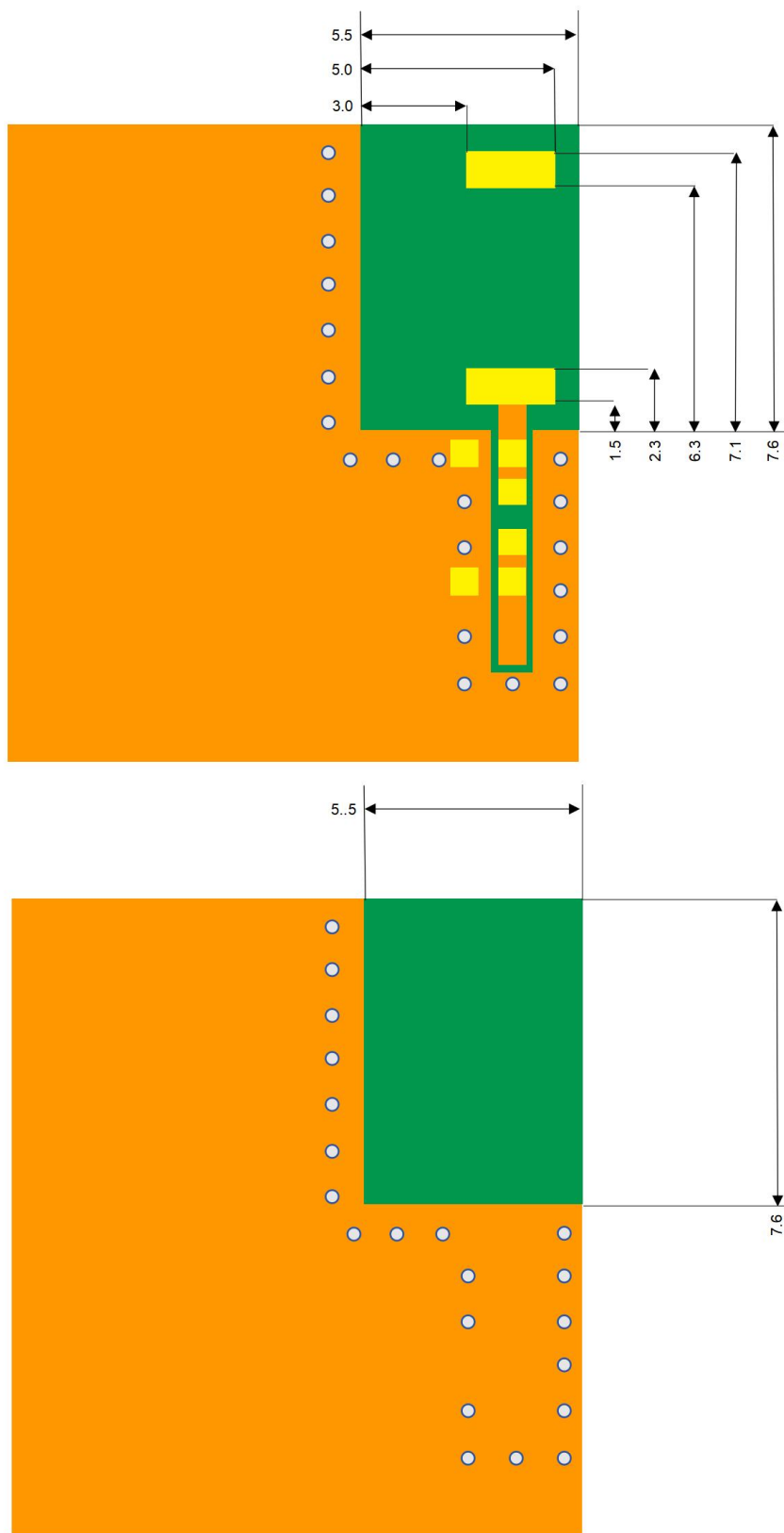
## 三、测试板参考设计



方案一：



方案二:



注意事项:

1. 天线长边离地的距离需要 $\geq 3.0$
2. 微带线一定要做阻抗 (信号线 50 欧姆匹配: FR4 板厚 1.2mm, 信号线 0.5mm, 信号线到铜距离 0.13mm)

### Coplanar Waveguide

☒ With Groundplane ☐ No Groundplane

Calculate Z0 [F4]

Z0 = **54.2** Ω

Elect Length = **0.318** λ

Elect Length = **114.6** degrees

Elect Length = **1534.115** mil (Air Line equiv.)

Delay = **129.978** ps

1.0 Wavelength = **3140.241** mil

Vp = **0.652** fraction of c

εeff = **2.35**

Shape factor = **0.658**

Dielectric: εr = **4.3**

-> Enter custom Er value

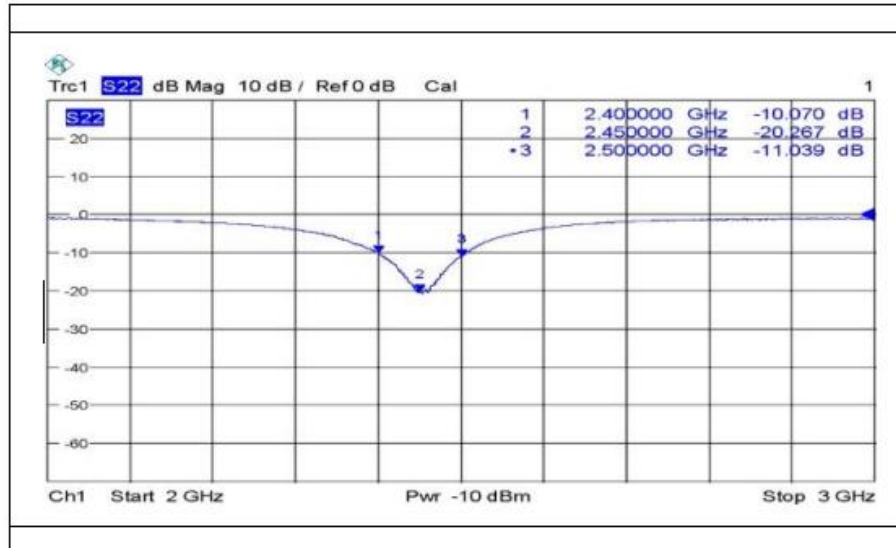
Frequency: **2.45** GHz

Length Units: **mils**

3. 还要注意匹配元器件焊盘宽度不要超过 0.5mm, (因为你微带线是 0.5mm 宽)

## Typical Characteristics

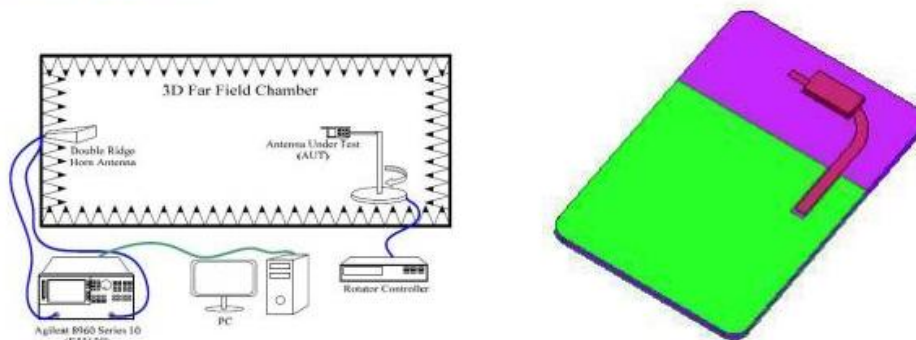
Fig. 1 Return Loss



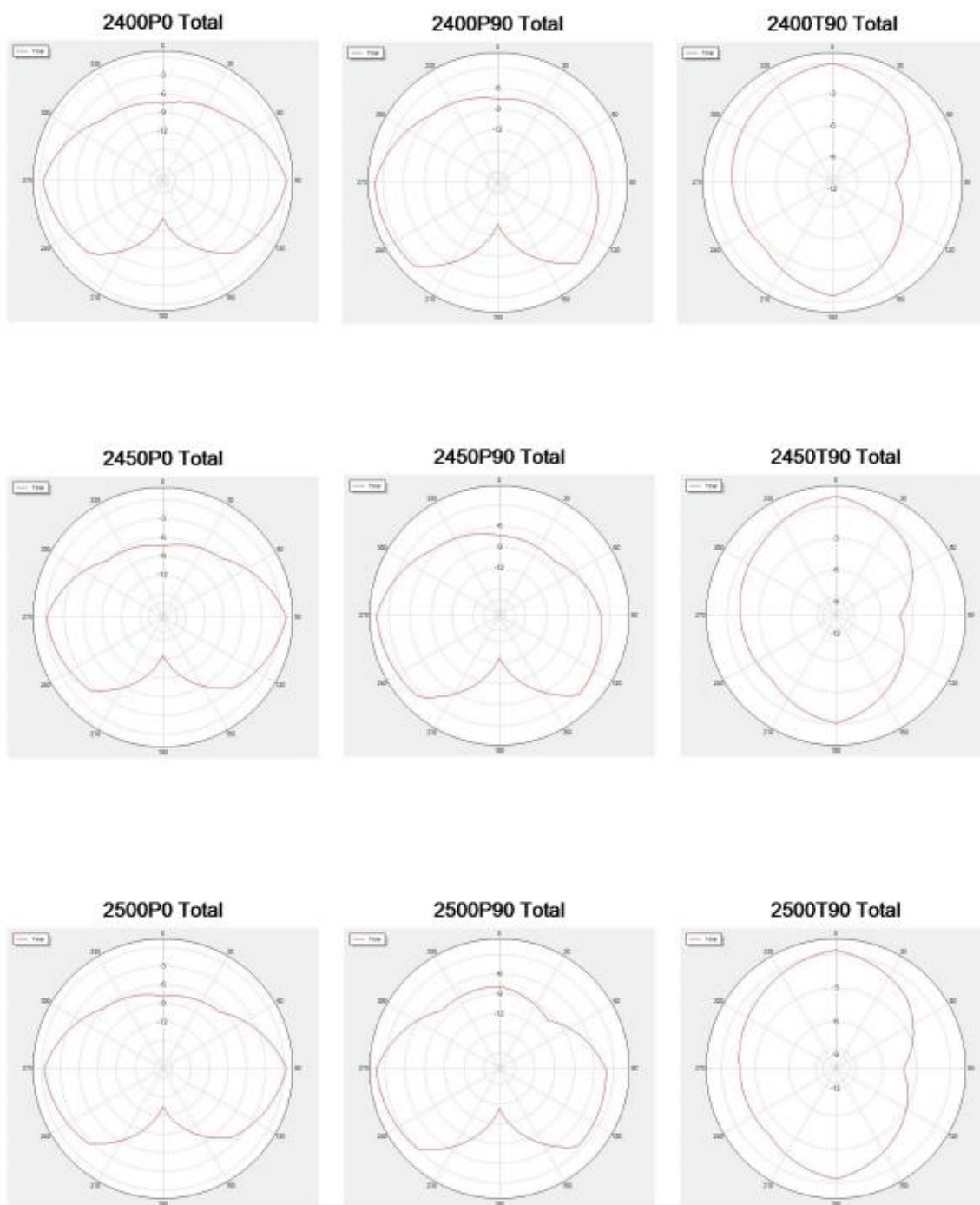
## Radiation Pattern

The Gain pattern is measured in FAR -field chamber. DUT is placed on the table of rotator , a standard horn antenna and Vector Network Analyzer is used to collect data.

Fig.2 FAR-field Chamber



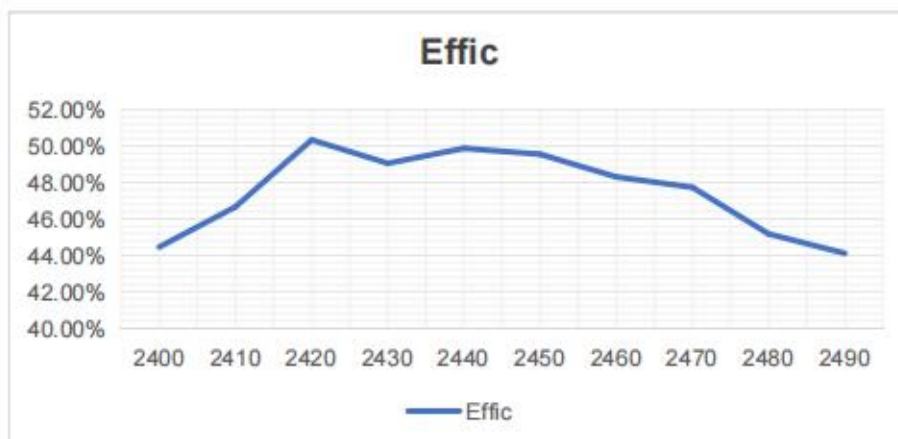
## 2D Gain Pattern



## Gain



## Efficiency



## Radiation Performance:

| Frequency      | 2400MHz | 2450MHz | 2500MHz |
|----------------|---------|---------|---------|
| Peak gain(dBi) | 0.01    | 0.99    | 0.37    |
| Efficiency(%)  | 43.15   | 49.88   | 44.10   |

| Item                        | Condition                                                                                                                                                                | Specification                                                  |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| Thermal shock               | 1. 30±3 minutes at -40°C±5°C,<br>2. Convert to +105°C (5 minutes)<br>3. 30±3 minutes at +105°C±5°C,<br>4. Convert to -40°C (5 minutes)<br>5. Total 100 continuous cycles | No apparent damage<br>Fulfill the electrical spec. after test. |
| Humidity resistance         | 1. Humidity: 85% R.H.<br>2. Temperature: 85±5°C<br>3. Time: 1000 hours.                                                                                                  | No apparent damage<br>Fulfill the electrical spec. after test. |
| High temperature resistance | No apparent damage<br>Fulfill the electrical spec. after test.                                                                                                           | 1. Temperature: 150°C±5°C<br>2. Time: 1000 hours.              |
| Low temperature resistance  | 1. Temperature: -40°C±5°C<br>2. Time: 1000 hours.                                                                                                                        | No apparent damage<br>Fulfill the electrical spec. after test. |
| Soldering heat resistance   | 1. Solder bath temperature : 260±5°C<br>2. Bathing time: 10±1 seconds                                                                                                    | No apparent damage                                             |
| Solderability               | The dipped surface of the terminal shall be at least 95% covered with solder after dipped in solder bath of 245±5°C for 3±1 seconds.                                     | No apparent damage                                             |

## (2) Storage Condition

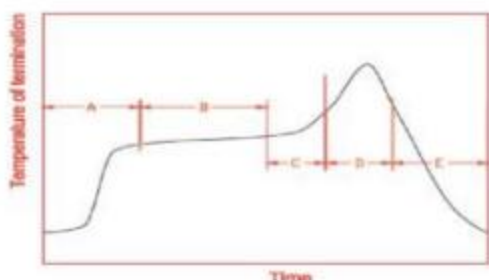
(a)At warehouse: The temperature should be within 0 ~ 30°C and humidity should be less than 60% RH.The product should be used within 1 year from the time of elivery.

(b)On board: The temperature should be within -40 ~ 85°C and humidity should be less than 85% RH.

## (3) Operating Temperature Range

Operating temperature range : -40°C to +85°C.

## Recommended Reflow Solder curve



|   |                                    |                                      |               |
|---|------------------------------------|--------------------------------------|---------------|
| A | 1 <sup>st</sup> rising temperature | The normal to Preheating temperature | 30s to 60s    |
| B | Preheating                         | 140°C to 160°C                       | 60s to 120s   |
| C | 2 <sup>nd</sup> rising temperature | Preheating to 200°C                  | 20s to 40s    |
| D | Main heating                       | if 220°C                             | 50s~60s       |
|   |                                    | if 230°C                             | 40s~50s       |
|   |                                    | if 240°C                             | 30s~40s       |
|   |                                    | if 250°C                             | 20s~40s       |
| E | Regular cooling                    | 200°C to 100°C                       | 1°C/s ~ 4°C/s |

\*reference: J-STD-020C