

| File No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Version NO |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| T-PD-xxx                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | A1         |
| effective date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 密级程度       |
| 2017-07-04                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 秘密         |
| Distribution scope: Shenzhen: R&D Department, Testing Department, Supplier Management Department, Quality Control Department, Production Technology Department, Resource Optimization Department, Sample Materials Department, Engineering Department, Pilot Test Department, Purchasing Department, Device Engineering Department, System Management Department<br>Shanghai: R&D Department, Testing Department, Quality Management Section of each product division<br>Taicang: R&D Department, Purchasing Department, Engineering Department, Pilot Test Department, Quality Control Department, System Management Section |            |

## EmP378b Antenna Specifications

|                 |     |     |            |
|-----------------|-----|-----|------------|
| <b>compile:</b> | 覃东昱 | 日期: | 2024-10-09 |
| <b>review:</b>  | 邓文  | 日期: | 2024-10-09 |
| <b>approve:</b> | 邓文  | 日期: | 2024-10-09 |

### 修订记录

| date       | Version | Modify the description                 | author |
|------------|---------|----------------------------------------|--------|
| 2022-05-09 | A0      | 1. new release                         | 覃东昱    |
| 2022-05-10 | A1      | 1. Add gain table<br>2. Add 2D pattern | 覃东昱    |
|            |         |                                        |        |

## 一、Applicable Antenna Models

| 天线型号                     | 天线料号                    | 线缆型号         |
|--------------------------|-------------------------|--------------|
| <b>EmP378b-B-I75(R)</b>  | <b>8000000060391337</b> | <b>RF137</b> |
| <b>EmP378b-B-I130(B)</b> | <b>8000000060401337</b> | <b>RF137</b> |
|                          |                         |              |
|                          |                         |              |
|                          |                         |              |

## 二、Specifications

### 1、Electrical Specifications

|                        |                           |
|------------------------|---------------------------|
| 设计标准                   | IEEE802.11a/ac/ax/be      |
| 频率范围 (Frequency Range) | 2.4~2.5GHz / 5.15~5.85GHz |
| 阻抗 (Impedance)         | 50 $\pm$ 10 $\Omega$      |
| 电压驻波比 (VSWR)           | 1.92: 1                   |
| 回波损耗 (Return Loss)     | -10dB or Less             |
| 辐射方式 (Radiation)       | Omni-directional          |
| 增益 (Gain)              | 3dBi                      |
| 极化 (Polarization)      | Linear polarization       |
| 承载功率 (Admitted Power)  | 30dBm                     |
| 线缆 (Cable)             | RF137                     |

### 2、Physical Specifications

|                |                       |
|----------------|-----------------------|
| 本体 Body        | FR4 单面板 (35*15*0.8mm) |
| 基座 Base        | N/A                   |
| 内芯             | N/A                   |
| 底塞             | N/A                   |
| Cable          | N/A                   |
| Operating Temp | -40℃~+70℃             |
| Storage Temp   | -40℃~+70℃             |
| Color          | 黑色                    |

## 三、 Measured results of electrical performance

### 1、 Return loss

| Frequency (GHz) | Return loss (dB) |
|-----------------|------------------|
| 2.4~2.5         | <-10dB           |
| 5.15~5.85       | <-10dB           |

Test environment:

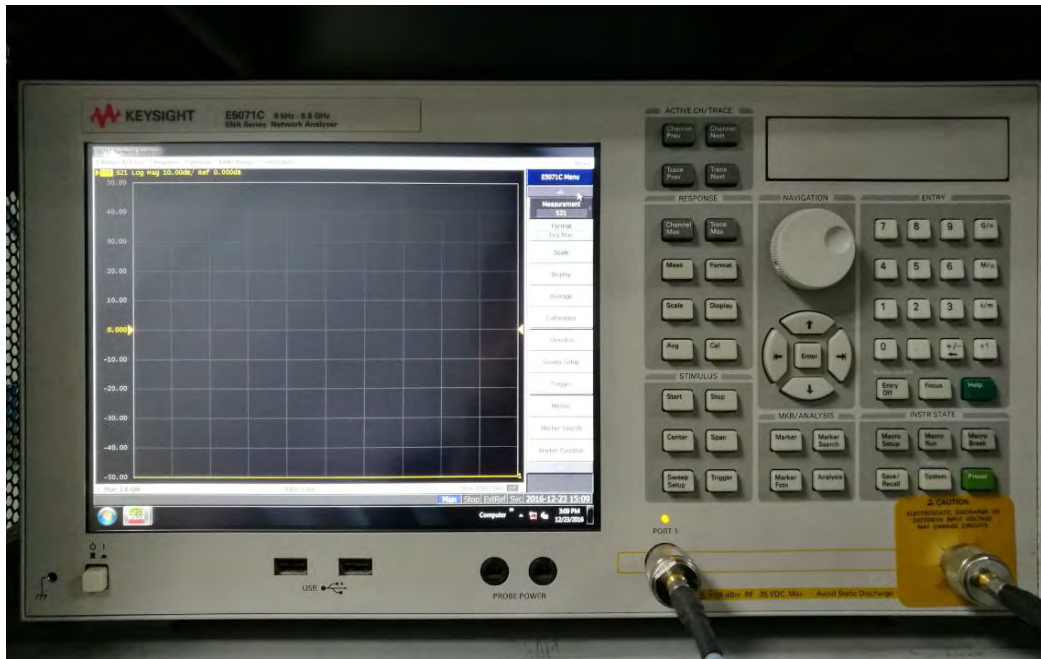


Figure 1、 Network Analyzer

## Test Results:

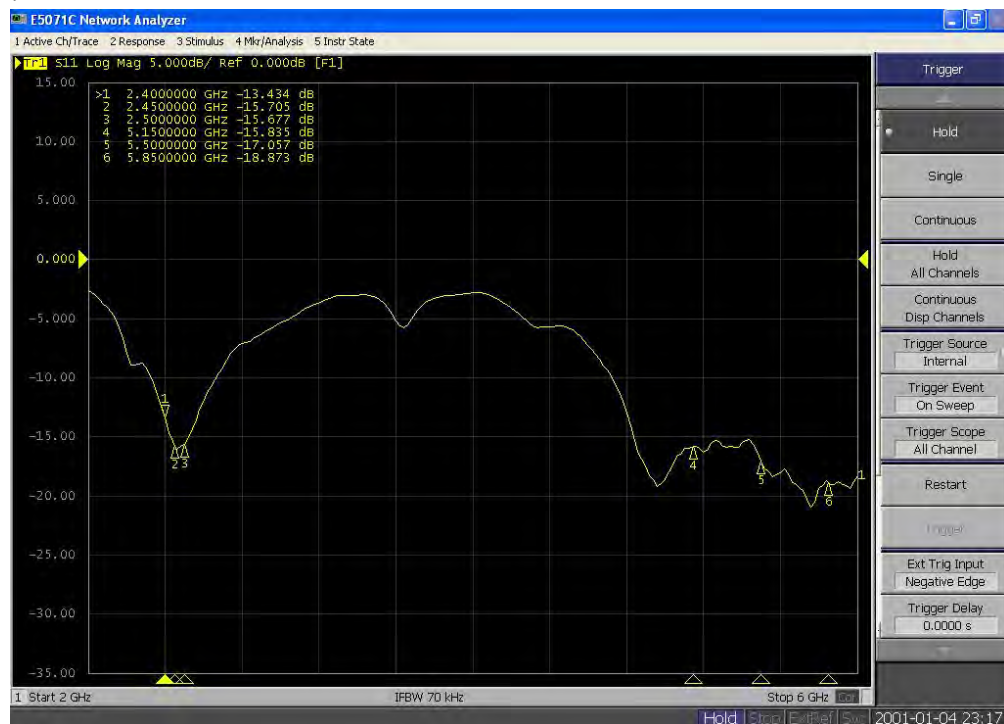


Figure 2、回波损耗截图

## 2、OTA Test (Radiation)

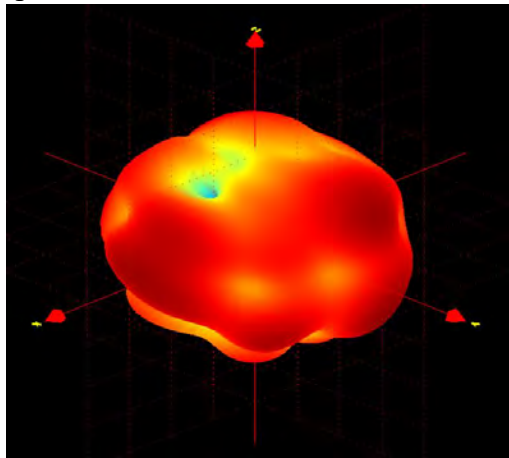
| Frequency (GHz) | Gain (dbi) | Efficiency |
|-----------------|------------|------------|
| 2.4~2.5         | 3.0        | >65%       |
| 5.15~5.85       | 3.0        | >65%       |

Test environment:

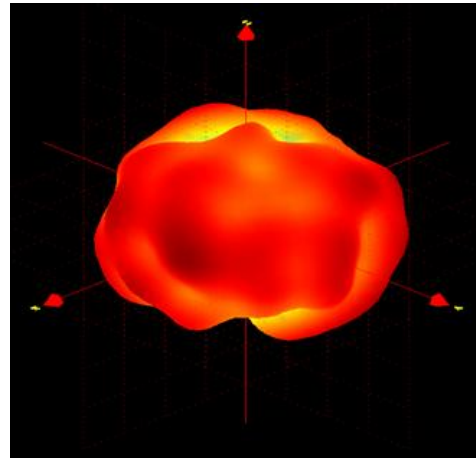


Figure 3、chamber

3D radiation pattern:



2.4GHz

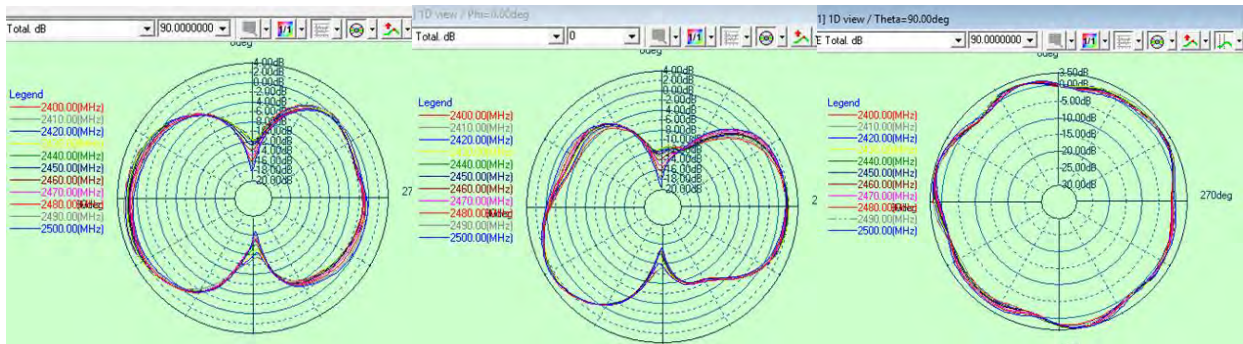


5.5GHz

Figure 4、Radiation pattern

## 2D radiation pattern

### 2.4G

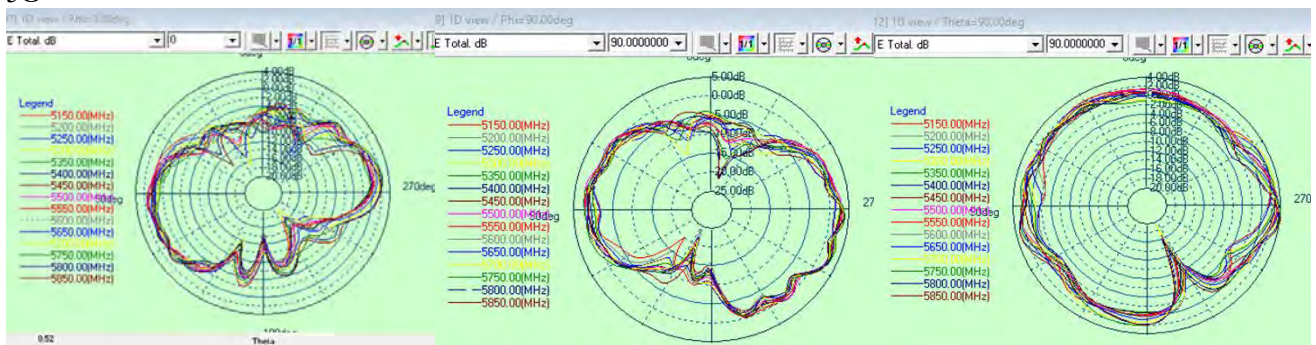


E1 (Phi=0)

E2 (Phi=90)

H (Theta=90)

### 5G



E1 (Phi=0)

E2 (Phi=90)

H (Theta=90)

## gain table

| Frequency | gain. dB |
|-----------|----------|
| 2400      | 3        |
| 2410      | 3        |
| 2420      | 3        |
| 2430      | 3        |
| 2440      | 3        |
| 2450      | 3        |
| 2460      | 3        |
| 2470      | 3        |
| 2480      | 3        |
| 2490      | 3        |
| 2500      | 3        |

| Frequency | gain. dB |
|-----------|----------|
| 5150      | 3        |
| 5200      | 3        |
| 5250      | 3        |
| 5300      | 3        |
| 5350      | 3        |
| 5400      | 3        |
| 5450      | 3        |
| 5500      | 3        |
| 5550      | 3        |
| 5600      | 3        |
| 5650      | 3        |
| 5700      | 3        |
| 5750      | 3        |
| 5800      | 3        |
| 5850      | 3        |

#### 四、 Appearance requirements

1. No burrs; no damage;
2. No scratches; no color discrepancies;
3. There is no inner conductor falling off, loose or abnormal sound;

#### 五、 Assembly inspection

| project       | content         | tool                   | Test Methods and Judgment Criteria                                                                                                                                   | result |
|---------------|-----------------|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| assemble test | Assembly effect | visual thickness gauge | When assembling the antenna with the PCB, casing, and antenna feeder, the assembly must be smooth, and there should be no loose, difficult or improper installation. | OK     |

#### 六、 Packaging, transportation and storage requirements

##### 1. Packaging Requirements:

1.1 The packing box should be marked with the manufacturer, product name, model, standard number, weight and production date or batch number, and the packing material should be kept dry, clean and non-corrosive to the product.

1.2 Packaging material carton requirements: K=A B9 reinforcement core compression>500KG; explosion resistance>12-15KG.

1.3 The overall size standard of the carton needs to be unified with the production line;

1.4 The built-in antenna needs to be packed in a special blister case;

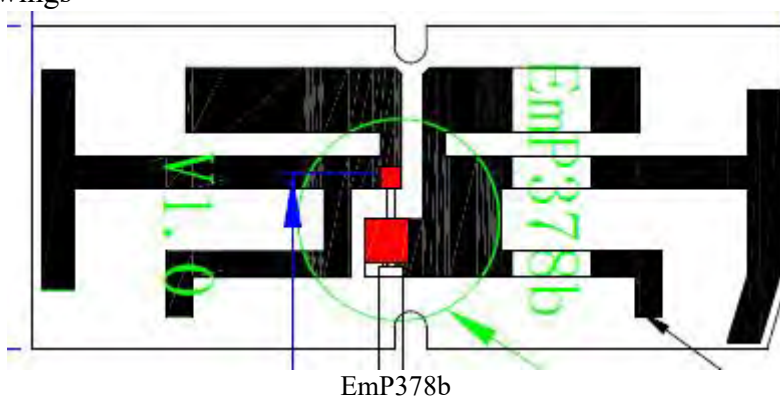
##### 2. Transportation requirements:

The packaged products are suitable for transportation by modern means of transportation, but the products should be protected from rain and acid-base corrosion during transportation, and should not be thrown by gravity and squeezed violently.

3. Storage requirements: temperature:  $-40^{\circ}\text{C}\sim 70^{\circ}\text{C}$ , relative humidity: 20%~75%.

## 七、 Product drawings

### 1、 Product 2D drawings



### 2、 product photo

