



Shenzhen XINHENG YANG Technology Co., Ltd

# SPECIFICATION

Customer Name: \_\_\_\_\_

Product Model: \_\_\_\_\_ **BW511** \_\_\_\_\_

Customer P/N : \_\_\_\_\_

XINHENG YANG P/N: \_\_\_\_\_

SPECIFICATIONS: \_\_\_\_\_ **BT-2402MHZ-2480MHZ** \_\_\_\_\_

Production date: \_\_\_\_\_ **2025-02-19** \_\_\_\_\_

Sample Version: \_\_\_\_\_ **R1** \_\_\_\_\_

| XINHENG YANG |     |     |
|--------------|-----|-----|
| FICTION      | DQE | R&D |
|              |     |     |
| Customer     |     |     |
| PUR          | QC  | R&D |
|              |     |     |

Manufacturer: Shenzhen Xinhengyang Technology Co., LTD

Address: 1 / F, Building B, Aerospace micromotor Building, No.7 Langshan

No.2 Road, Xili Street, Nanshan District, Shenzhen

Tel: 0755-83600916 Email: [gc@xhy-2008.com](mailto:gc@xhy-2008.com)

Network address: <https://www.xhy-2008.com>



| Number | Effective date | Change record   |
|--------|----------------|-----------------|
| R1     | 2024-12-05     | Initial release |
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# 1、The basic parameters

| A. Electrical Characteristics            |                                                           |
|------------------------------------------|-----------------------------------------------------------|
| Frequency                                | 2402MHZ-2480MHZ                                           |
| VSWR                                     | 2402MHZ-2480MHZ: <4.5                                     |
| Avg Efficiency                           | 2402MHZ-2480MHZ: >15%                                     |
| Impedance                                | 50 $\pm$ 25 Ohm                                           |
| Polarization                             | Linear                                                    |
| Peak Gain                                | 2402MHZ: 0.2dBi<br>2440MHZ: -0.74dBi<br>2480MHZ: -0.96dBi |
| B. Material & Mechanical Characteristics |                                                           |
| Material of Radiator                     | PCB                                                       |
| Cable Type                               | /                                                         |
| Connector Type                           | /                                                         |
| Dimension                                | /                                                         |
| C. Environmental                         |                                                           |
| Operation Temperature                    | - 20 °C ~ + 60 °C                                         |
| Storage Temperature                      | - 30 °C ~ + 70 °C                                         |

## 2、Electrical Specification

Those specifications were specially defined for BW511 model.

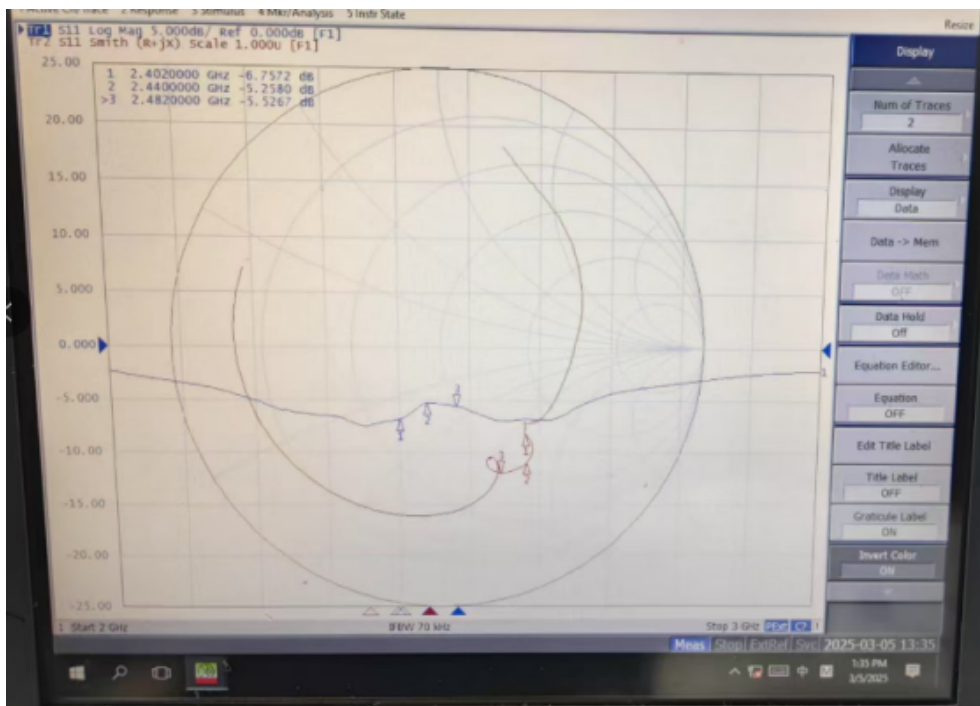
## 3、VSWR

### 1 Measuring Method

1. A  $50\ \Omega$  coaxial cable is connected to the antenna. Then this cable is connected to a network analyzer to measure the VSWR
2. Keeping this jig away from metal at least 20cm

### 2 Measurement frequency points and VSWR value

BT-2402MHZ-2480MHZ



## 4、 Anechoic chamber

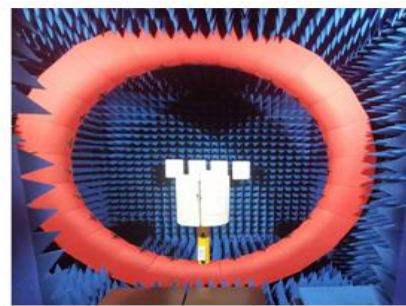
### Introduction:

Microwave darkroom and no reflection chamber, absorbing short wave darkroom dark room. Microwave darkroom by electromagnetic shielding room, filtering and isolation, grounding device, the ventilation duct, indoor distribution system, monitoring system, ceiling wave material part. It is based on the wave absorbing material as the lining of the shield room, it can absorb the most of the electromagnetic energy into the six wall is a better simulation of the free space conditions.

The main working principle of microwave anechoic chamber is according to the electromagnetic wave in the medium from the low magnetic guide magnetic direction of propagation rules, absorbing materials to guide the electromagnetic wave using high permeability, through resonance, a substantial absorption of electromagnetic wave radiation energy, by coupling the electromagnetic energy into heat energy.

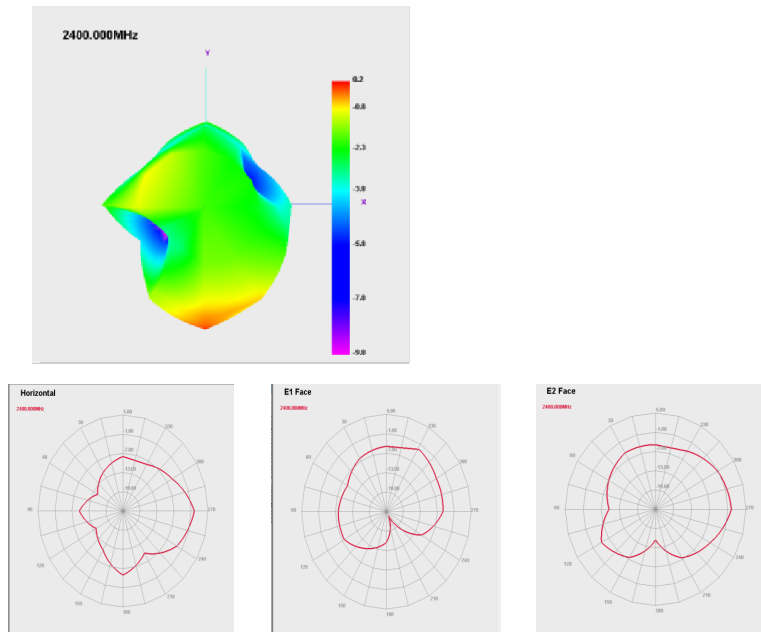
### main performance :

Frequency range:400MHz ~ 6GHz ceiling reflected wave loss materials: 400MHz ~ 6GHz is equal to or more than 15dB (microwave absorbing material by composite wave absorbing materials, namely tapered containing carbon sponge suction wave material paste in ferrite)

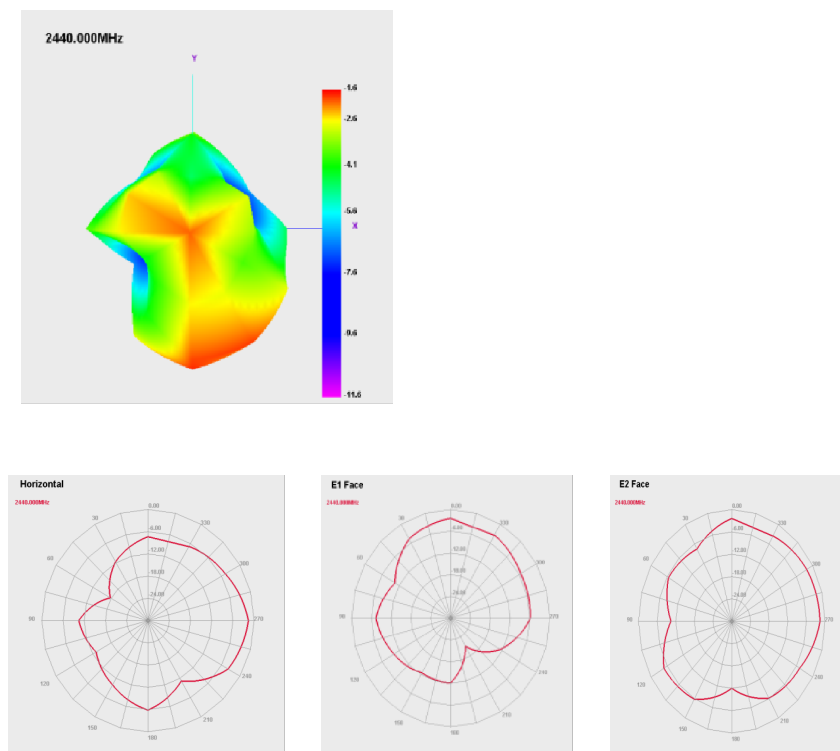


## 5、Gain table of Antenna

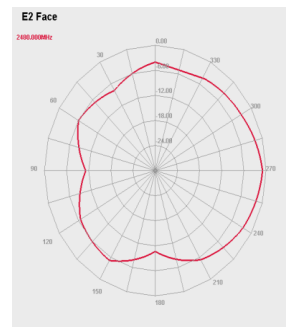
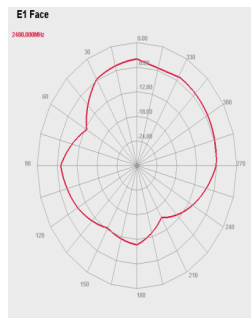
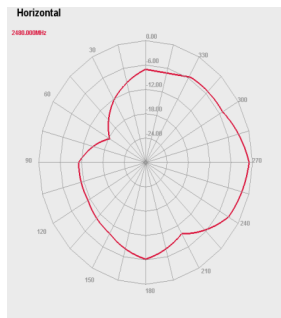
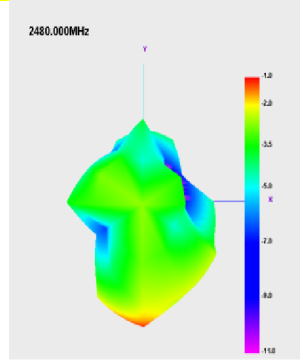
### Passive field pattern-BT-2402MHZ



### Passive field pattern-BT-2440MHZ



## Passive field pattern-BT-2480MHZ



## Passive efficiency gain

| 无源效率          |             |              |               |
|---------------|-------------|--------------|---------------|
| Freq<br>(MHz) | Effi<br>(%) | Effi<br>(dB) | Gain<br>(dBi) |
| 2400          | 22.89       | -6.4         | 0.17          |
| 2410          | 24.97       | -6.03        | 0.2           |
| 2420          | 24.76       | -6.06        | -0.11         |
| 2430          | 24.13       | -6.17        | -0.74         |
| 2440          | 20.82       | -6.81        | -1.62         |
| 2450          | 19.83       | -7.03        | -1.71         |
| 2460          | 17.99       | -7.45        | -2.06         |
| 2470          | 17.96       | -7.46        | -1.82         |
| 2480          | 21.18       | -6.74        | -0.96         |
| 2490          | 24.97       | -6.03        | -0.09         |
| 2500          | 27.05       | -5.68        | 0.19          |