

# Sample Qualification Document

Dongguan Bovision Technology Co., Ltd  
东莞市宝锋威视科技有限公司

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

Project Name: \_\_\_\_\_ BF-W20S

Product Spec: \_\_\_\_\_ Dual band Wi-Fi Antenna: 30.6mm(L), 15.4mm(W),  
\_\_\_\_\_ Black cable 1.13, 1-IPEX, L=65mm.

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

REV: \_\_\_\_\_ V1.0

Date: \_\_\_\_\_ 2023-03-30

| Prepared by    | Reviewed by   | Approved by       |
|----------------|---------------|-------------------|
| 饶功泽 Rao Gongze | 吴锡春 Wu Xichun | 蒋振华 Jiang Zhenhua |



## Customer Approval

| Reviewed by | Approved by | Confirmed by |
|-------------|-------------|--------------|
|             |             |              |

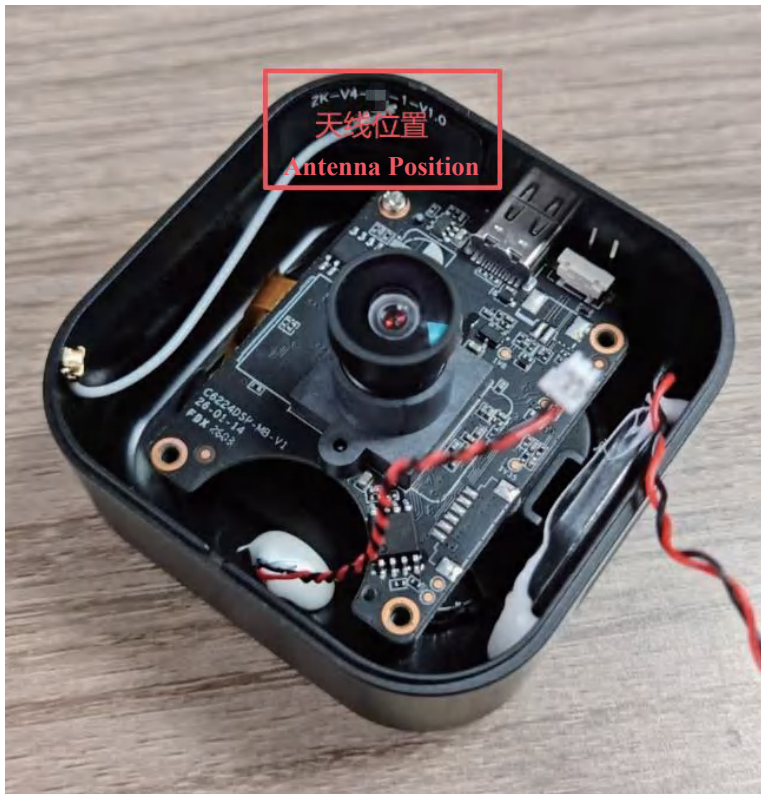
E-mail : [abcant@126.com](mailto:abcant@126.com)

Http: //www.zkant.com

# Index

|                                             |          |
|---------------------------------------------|----------|
| <b>I. Cover</b>                             | <b>1</b> |
| <b>II. Index</b>                            | <b>2</b> |
| <b>III. Electrical Performance Index</b>    | <b>3</b> |
| <b>IV. Test Report</b>                      | <b>4</b> |
| <b>V. Testing Equipment &amp; Principle</b> | <b>5</b> |
| <b>VI. Product Drawing</b>                  | <b>6</b> |
| <b>VII. Reliability Test Report</b>         | <b>7</b> |
| <b>VIII. Code for Product Packaging</b>     | <b>8</b> |

### III. Electrical Performance Index

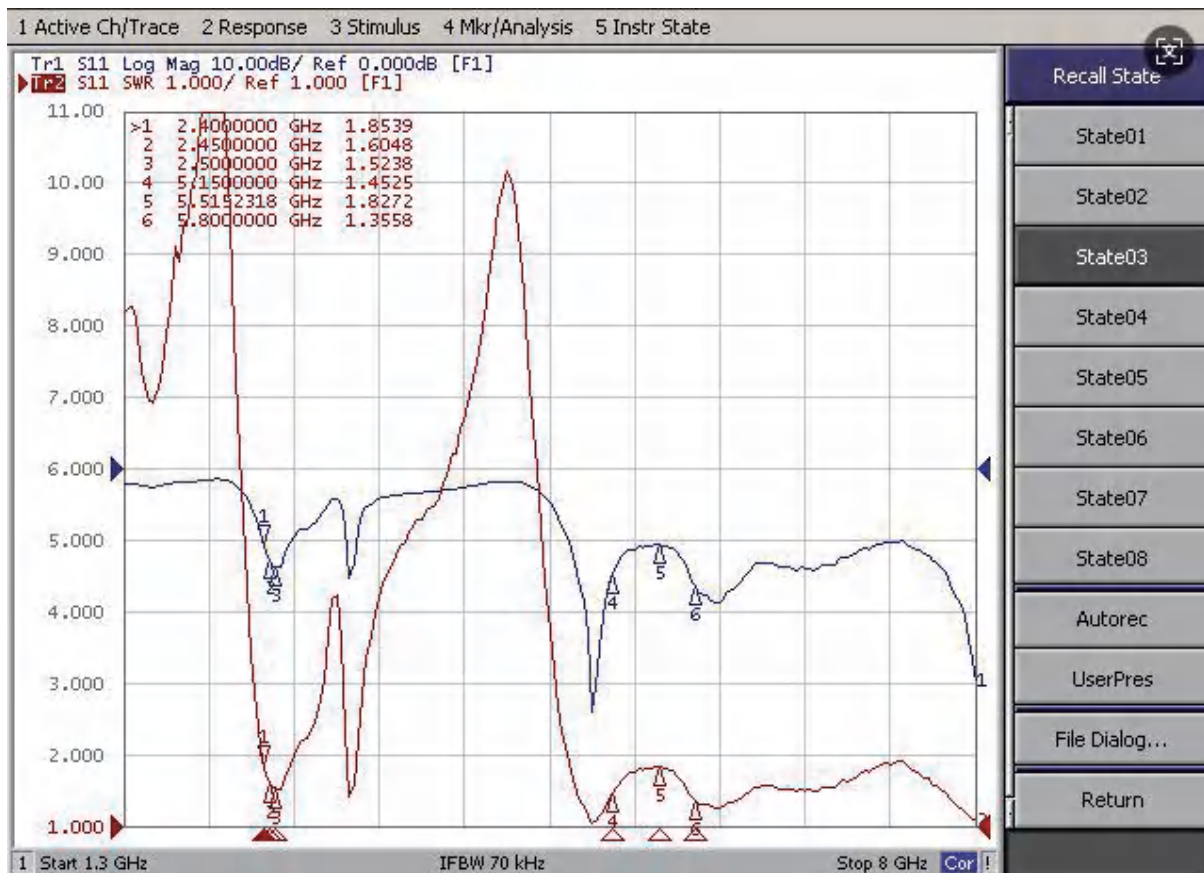
| Electrical Specifications |                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Frequency:                | 2400-2500 5150-5800 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| VSWR                      | $\leq 2.0$                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| GAIN                      | $\leq 4.55$ DBI                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Radiation                 | OMNI                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Polarization              | LINEAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Input Impedance           | 50 $\Omega$                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Mechanical Specifications |                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Input connector           | Ipex                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Antenna materia           | FPC                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Working Temperature       | -30°C ~ +80°C                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Working Humidity          | 40~85%                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Actual Photo              |  A photograph of the internal components of a black, rounded rectangular device. The device is open, revealing a printed circuit board (PCB) with various electronic components. A red rectangular box highlights a specific area on the PCB, labeled with the text '天线位置' (Antenna Position) in Chinese and 'Antenna Position' in English. The device is resting on a wooden surface. |

## IV. Test Report

### 1. 0-OTA Active Parameters

| Item | Measurement | Band         | Channel | Total  |
|------|-------------|--------------|---------|--------|
| 1    | TRP         | WIFI_B (11M) | 1       | 17.92  |
| 2    | TRP         | WIFI_B (11M) | 6       | 17.7   |
| 3    | TRP         | WIFI_B (11M) | 11      | 17.57  |
| 4    | TIS(EIRP)   | WIFI_B (11M) | 11      | -86.86 |
| 5    | TRP         | WIFI_A (54M) | 36      | 19.57  |
| 6    | TRP         | WIFI_A (54M) | 64      | 19.83  |
| 7    | TRP         | WIFI_A (54M) | 165     | 15.34  |
| 8    | TIS(EIRP)   | WIFI_A (54M) | 165     | -72.81 |

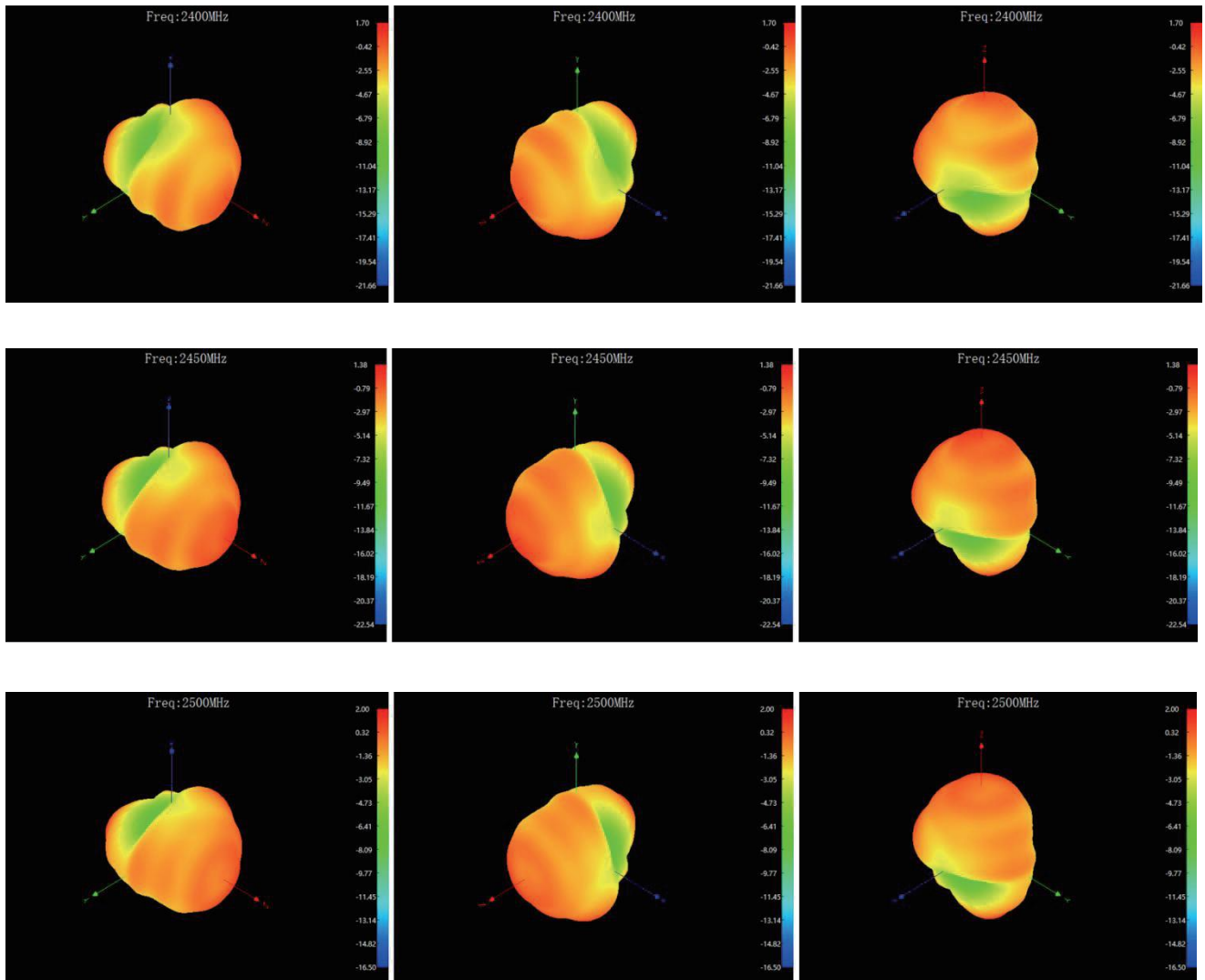
## 1.1 - Antenna VSWR Chart:



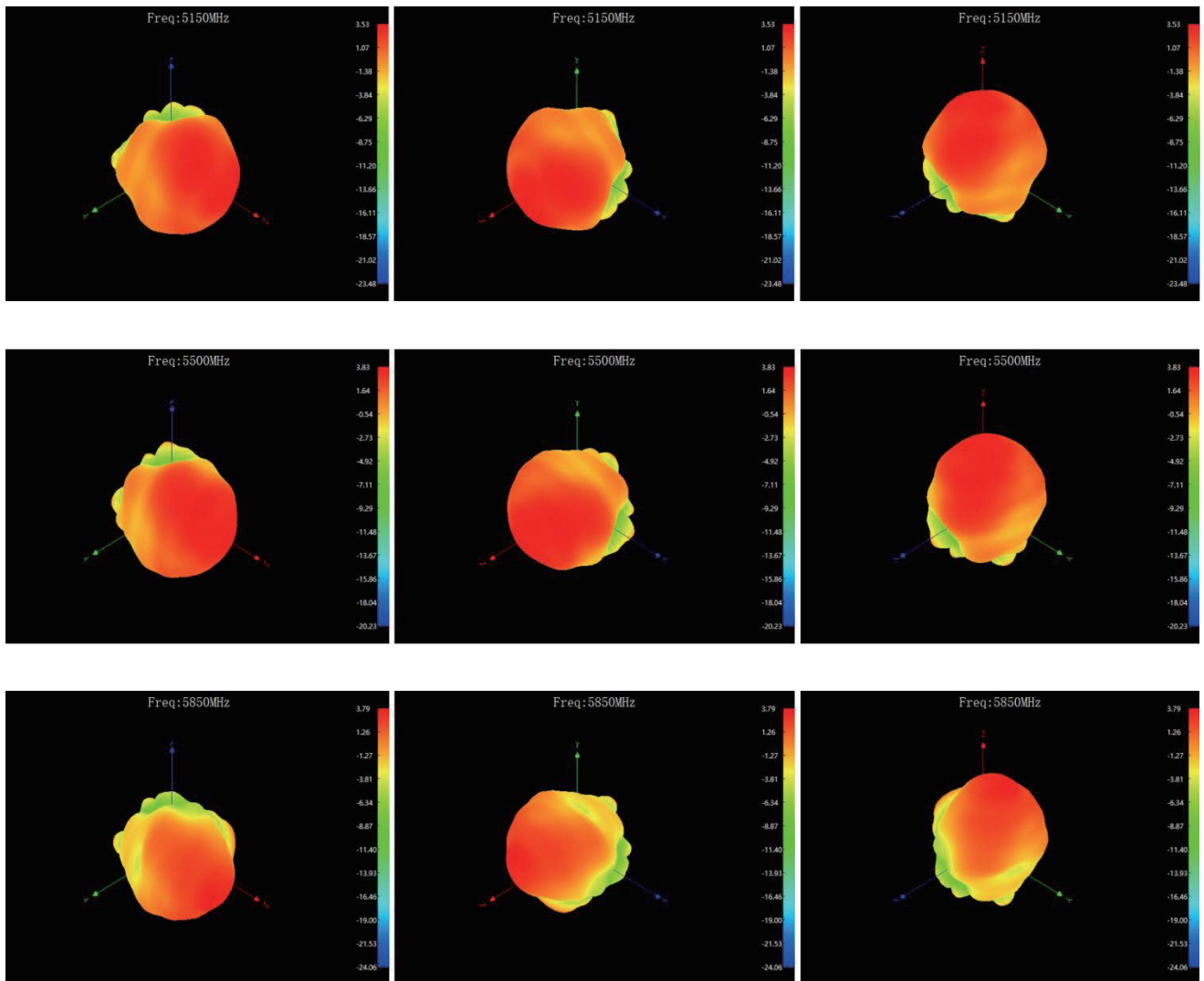
**1.2 - Efficiency & Gain:**

| Frequency/Mhz | Efficiency / % | MaxGain/dBi |
|---------------|----------------|-------------|
| 2400          | 55.46          | 1.7         |
| 2410          | 57.81          | 1.92        |
| 2420          | 57.15          | 1.81        |
| 2430          | 62.52          | 1.66        |
| 2440          | 60.12          | 1.67        |
| 2450          | 59.02          | 1.38        |
| 2460          | 59.02          | 1.52        |
| 2470          | 53.46          | 1.7         |
| 2480          | 58.34          | 2.01        |
| 2490          | 54.45          | 1.98        |
| 2500          | 54.58          | 2           |
| 5150          | 54.12          | 3.53        |
| 5200          | 54.27          | 3.37        |
| 5250          | 56.83          | 3.1         |
| 5300          | 58.39          | 3.59        |
| 5350          | 57.61          | 3.99        |
| 5400          | 55.61          | 3.72        |
| 5450          | 59.18          | 3.73        |
| 5500          | 57.12          | 3.83        |
| 5550          | 58.23          | 3.86        |
| 5600          | 57.61          | 3.58        |
| 5650          | 58.08          | 3.77        |
| 5700          | 57.3           | 4.36        |
| 5750          | 57.3           | 4.55        |
| 5800          | 56.07          | 3.78        |
| 5850          | 59.98          | 3.79        |

### 1.3 - 2.4GHz Antenna Radiation Pattern:



## 1.4 - 5.8GHz Antenna Radiation Pattern:



## V. Testing Equipment and Principle

### 1. Testing Equipment

- **Network Analyzers:**

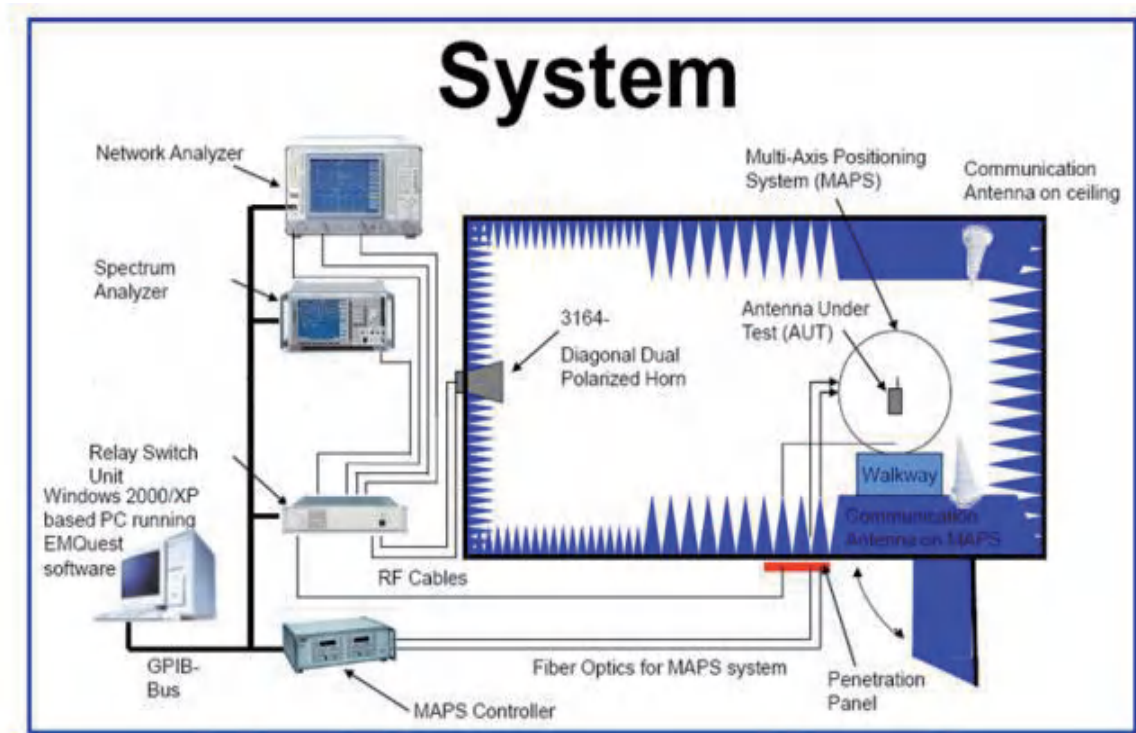
Agilent 8753D 5071B 5071C

- **Communications Test Set:**

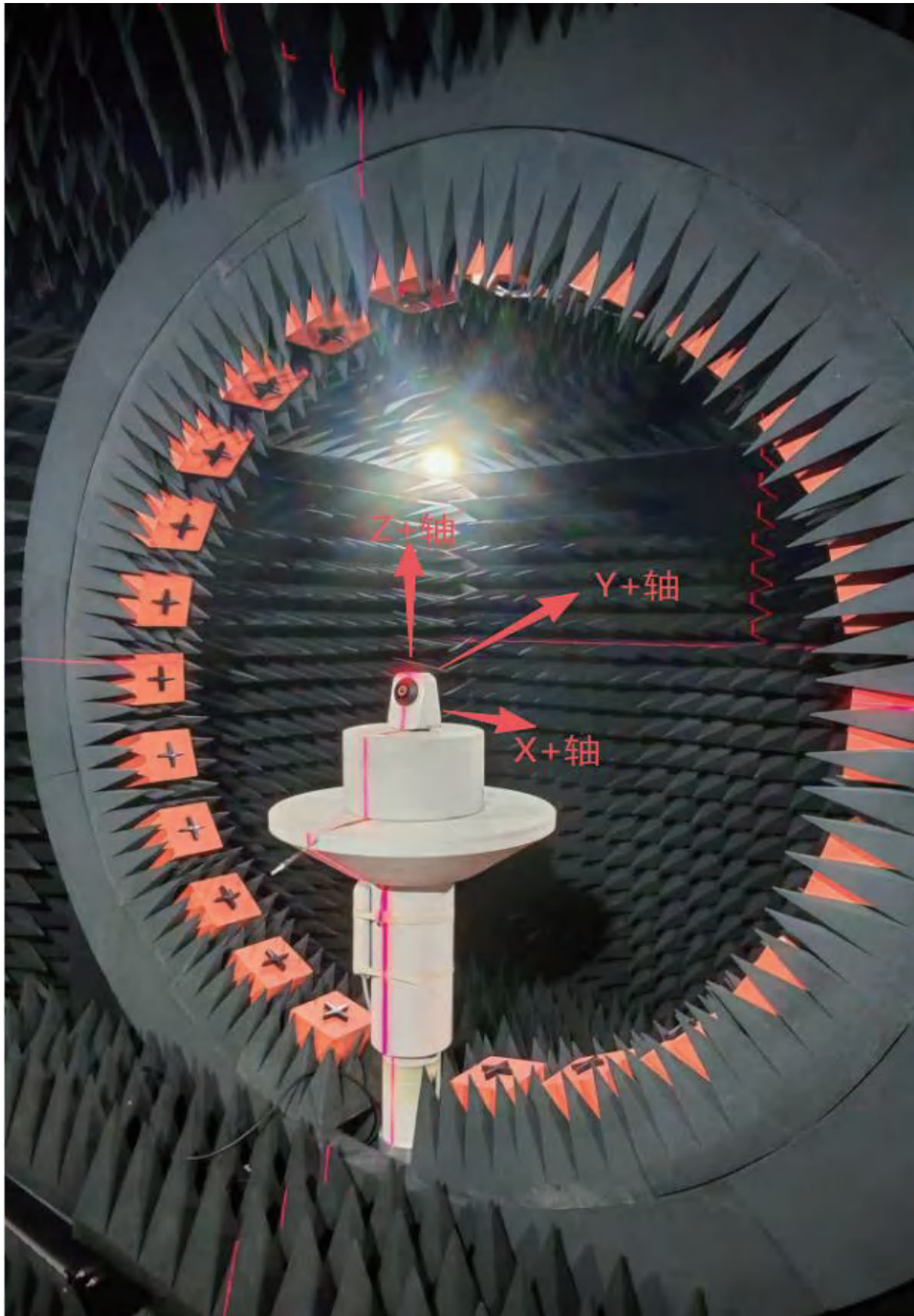
Agilent E5515C CMW500

- **3D Chamber Test System**

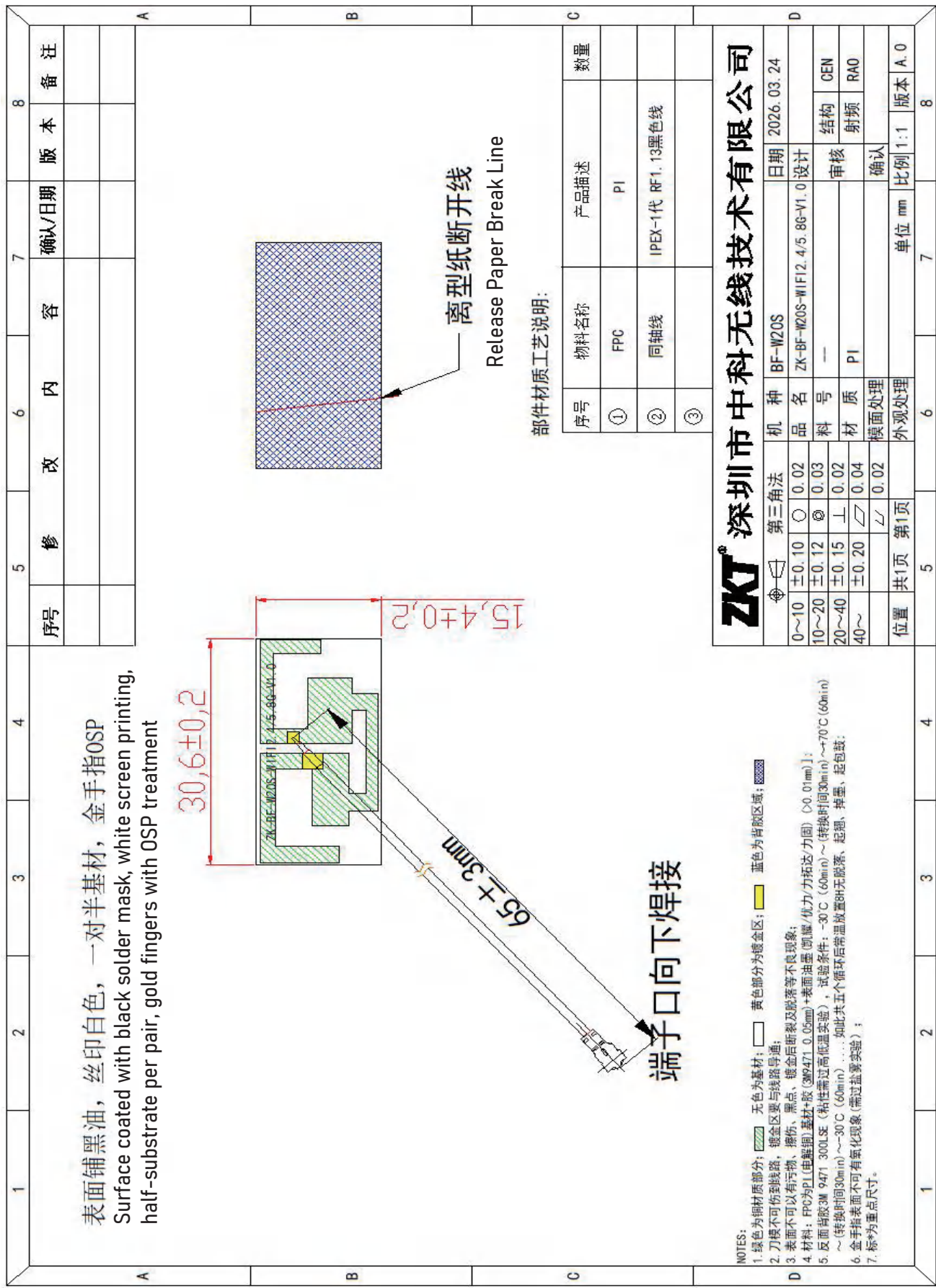
### 2. Testing Principle:



### 3. Coordinate System Definition



**VI. Product Drawing**



## VII. Reliability Test Report

| Test Item |                                  | Test Methods                                                                                                                  | Requirements                                                                  | Results |
|-----------|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------|
| C1        | V.S.W.R.                         | Test with parameters set on the network analyzer                                                                              | Directive DUT specification                                                   | Pass    |
| M1        | Antenna Gain                     | Test using antenna chamber parameters                                                                                         | Directive DUT specification                                                   | Pass    |
| M2        | Vibration                        | GB / T2423.48-2008<br>Amplitude: 0. 03 inch (1. 5mm) ;<br>Freq: 20 to 80 to 20 Hz 3 directions;<br>2 hours for each direction | 1. No Visual Damage<br>2. Frequency Tol. $\leq 5\%$                           | Pass    |
| M6        | Random Drop                      | GB / T2423. 8-1995 Single: Height: 1.0 Meter;<br>3 directions; 1 time for eachdirection                                       | 1.No parts separated, fracture<br>2. Frequency Tol. $\leq 5\%$                | Pass    |
| E3        | Dimension                        | Inspection of dimension, color, material,<br>package, surface process.                                                        | Directive DUT specification                                                   | Pass    |
| E4        | Temperature and Humidity Chamber | GB / T 2423. 3-2006 Temp: 80° C / 12 H;<br>-40° C / 12H RH:> 90%; Time: 24H                                                   | After 2 Hours Recovery<br>1. No Visual Damage<br>2. Frequency Tol. $\leq 5\%$ | Pass    |
| E5        | Thermal Shock                    | GB /T 2423.22 - 2008 - 40° C (30 minutes)<br>to +80° C (30 minutes); Cycles: 24                                               | After 2 Hours Recovery<br>1. No Visual Damage<br>2. Frequency Tol. $\leq 5\%$ | Pass    |
| R1        | Aging Test                       | GB /T 2423.2 - 2008 Temp: 80° C;<br>Time: 24 hours                                                                            | After 2 Hours Recovery<br>1. No Visual Damage<br>2. Frequency Tol. $\leq 5\%$ | Pass    |
| M1        | RoHS                             | With Reference to IEC 62321:2008with<br>flow chart                                                                            | Directive RoHS 2015/863/EU                                                    | Pass    |

## VIII. Code for Product Packaging

### Product Name

#### 1. Labeling Requirements

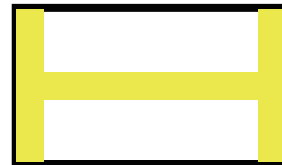
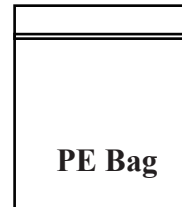
| *****      |       |
|------------|-------|
| Order No.: | ***** |
| Item Code: | ***** |
| Model No.: | ***** |
| QTY:       | ***** |
| Remark:    | ***** |

| *****      |       |
|------------|-------|
| Order No.: | ***** |
| Item Code: | ***** |
| Model No.: | ***** |
| QTY:       | ***** |
| Remark:    | ***** |

#### 2. Packing Requirements

##### Operation Instructions:

1. Inner Packing:  
50 PCS per small bag
2. Outer Packing:  
Quantity per carton to be determined based on actual volume



**Carton**

