

**ShenZhenQiXinTongDa Technology Co.,Ltd.**

## **Antenna Test Report**

**Project Name:** BM245-USA

**Frequency Band:**

G8+W1/2/4/5+FDD2/4/5/12/13/17/66

**DATE:** 2023-05-06

# 1.Test Project

|                              | Test Project                               | Equipment                                                                               |
|------------------------------|--------------------------------------------|-----------------------------------------------------------------------------------------|
| 1. S Parameter               | 1. Return Loss (RL)<br><br>2. VSWR         | Network Analyzer:<br><br>Agilent 5071B                                                  |
| 2. RF Test<br><br>(2G+3G+4G) | 1. power<br><br>2. level<br><br>3. TRP/TIS | Comprehensive Test:<br><br>CMW500/8960<br><br>Test Environment:<br><br>Anechoic Chamber |

## 2.Test Equipment



Agilent 5071B (S Parameter (RL/VSWR) Test Equipment)

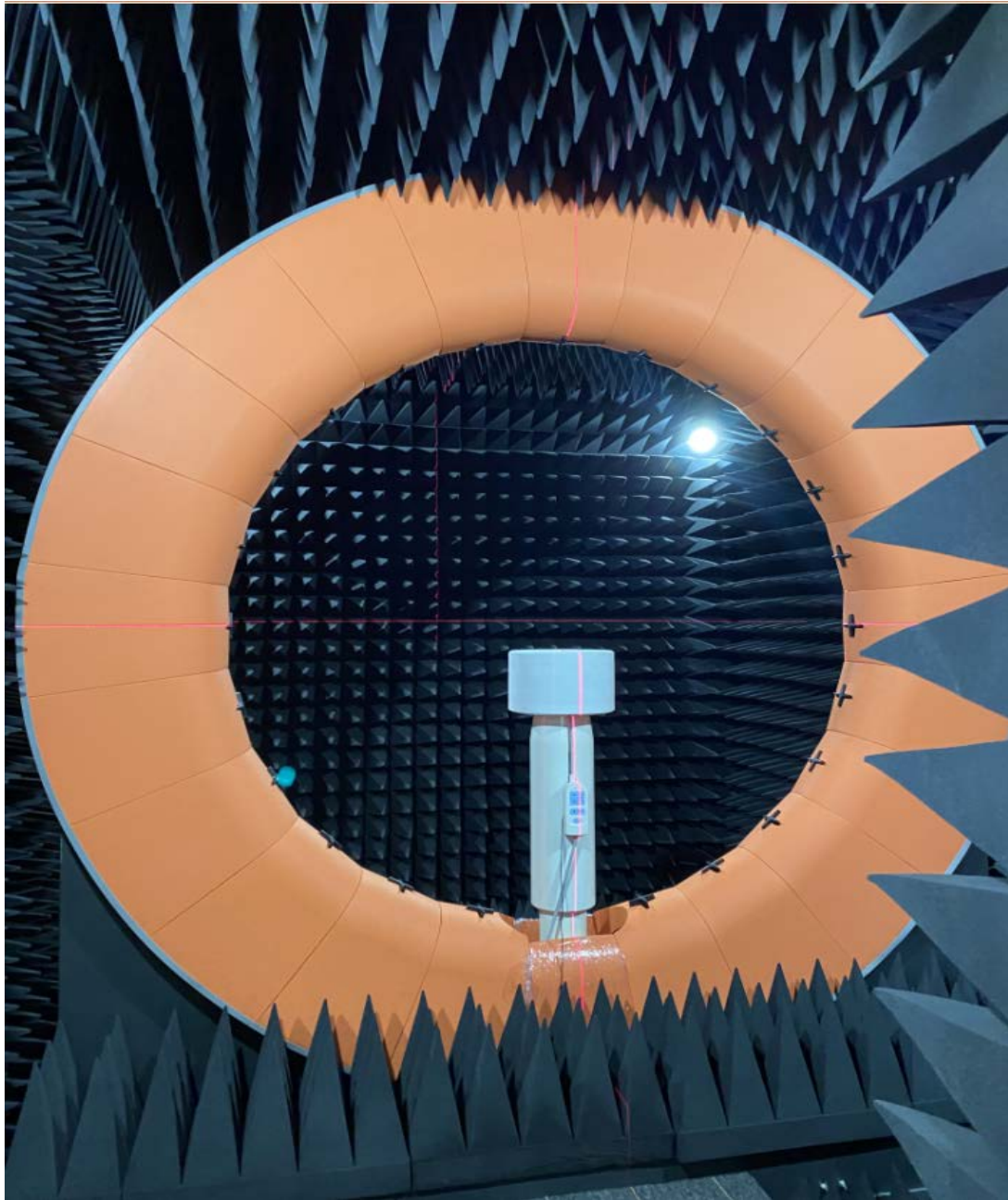


Agilent 8960 (2G/3G Test Equipment)



CMW 500 (2G/3G/4G Test Equipment)

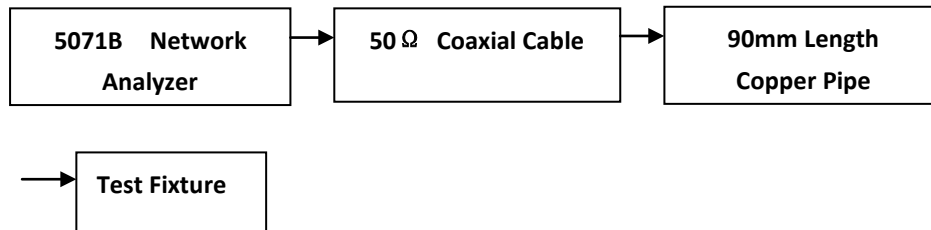
### 3. TestEnvironment



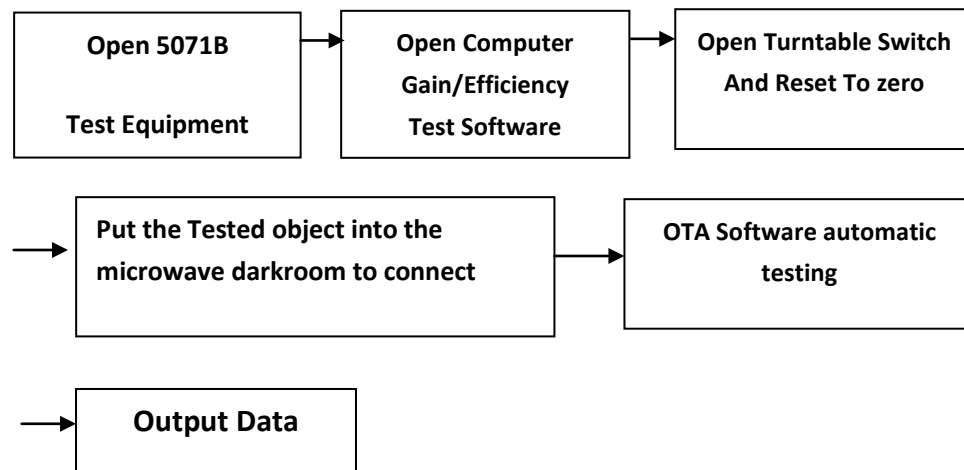
Microwave Anechoic Chamber

## 4.Test Steps

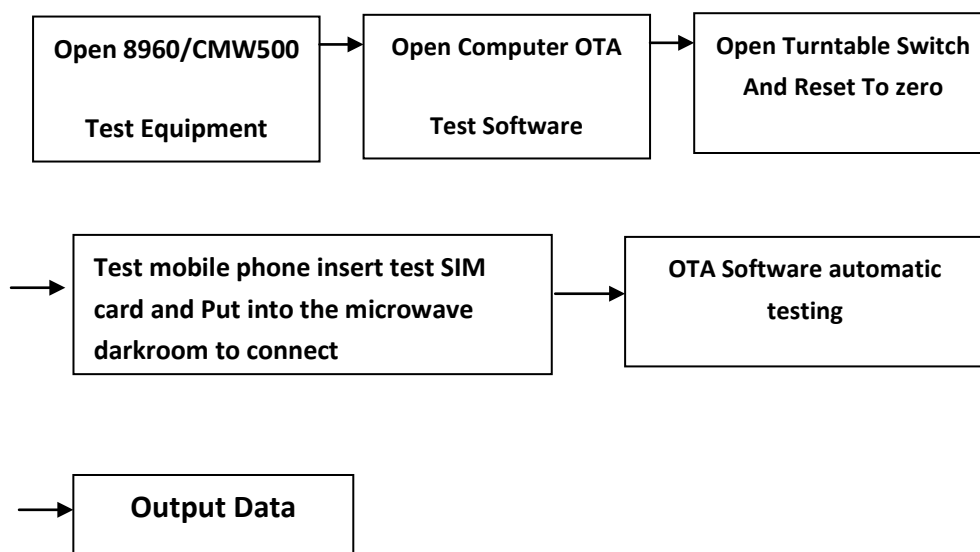
### Passive VSWR/RL Test Steps:



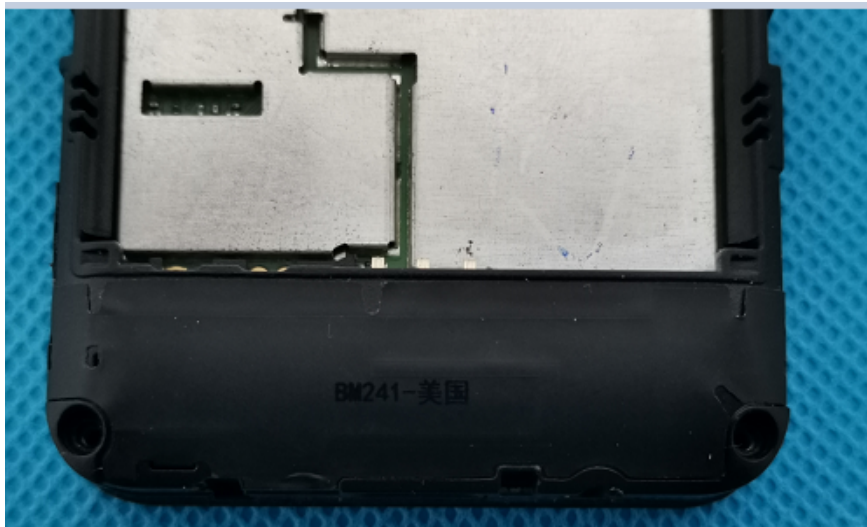
### Gain/Efficiency Test Steps:

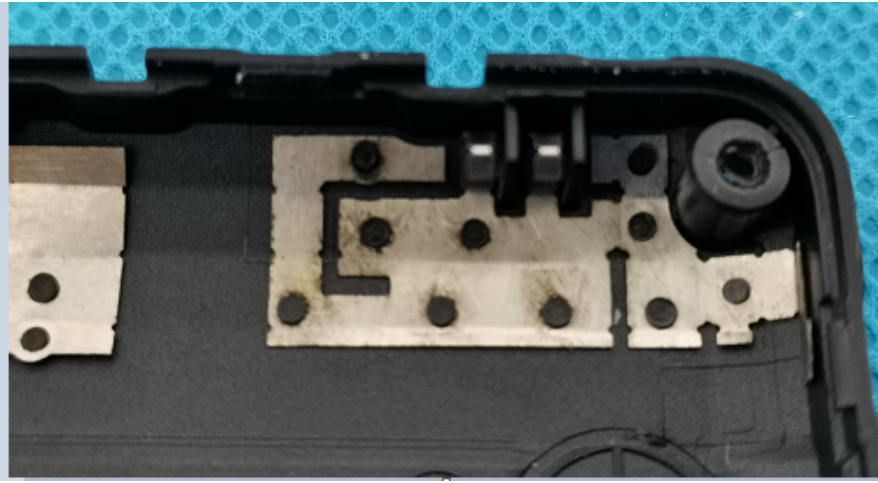


### Active TRP/TIS Test Steps:



## 5. Antenna Photos





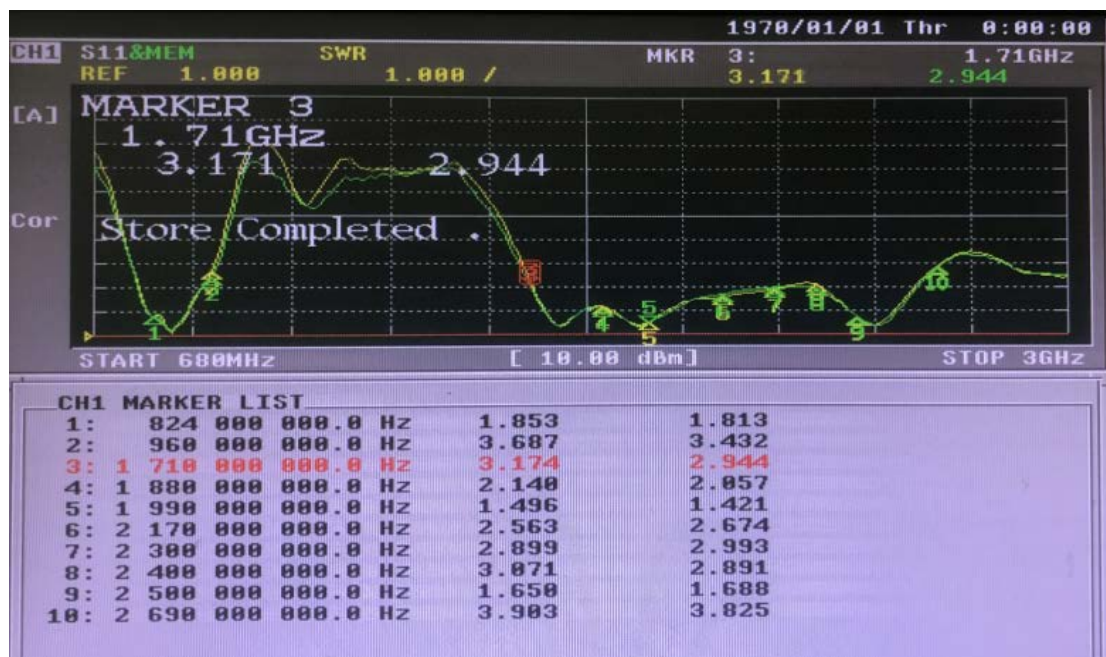
## 6. Antenna Gain

| Band      | Max Gain (dBi) | Efficiency |
|-----------|----------------|------------|
| DCS1800   | 0.12           | 36%        |
| WCDMA2100 | 0.15           | 38%        |
| WCDMA1900 | 0.13           | 37%        |
| WCDMA1700 | 0.15           | 36%        |
| WCDMA850  | -0.13          | 35%        |
| BAND 2    | 0.13           | 37%        |
| BAND 4    | 0.15           | 36%        |
| BAND 5    | -0.13          | 35%        |
| BAND 12   | -0.30          | 30%        |
| BAND 13   | -0.18          | 32%        |
| BAND 17   | -0.30          | 30%        |
| BAND 66   | 0.15           | 36%        |

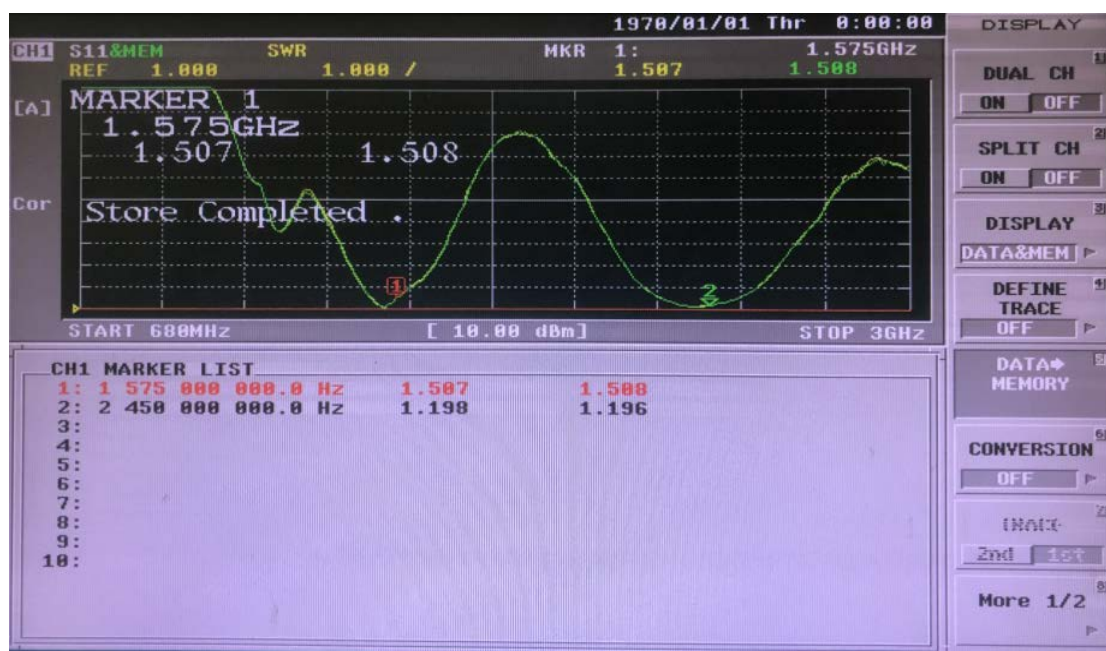
| 2.4G WIFI/BT |                 |        |        |        |        |        |        |
|--------------|-----------------|--------|--------|--------|--------|--------|--------|
| 2400-2500MHZ | Frequency ID    | 1      | 2      | 3      | 4      | 5      | 6      |
|              | Frequency (MHz) | 2400.0 | 2410.0 | 2420.0 | 2430.0 | 2440.0 | 2450.0 |
|              | Efficiency (%)  | 31.00  | 33.20  | 35.60  | 36.80  | 38.60  | 39.00  |
|              | Gain (dBi)      | -0.40  | -0.38  | -0.19  | -0.05  | 0.19   | 0.25   |
|              | Frequency ID    | 7      | 8      | 9      | 10     | 11     | 6      |
|              | Frequency (MHz) | 2460.0 | 2470.0 | 2480.0 | 2490.0 | 2500.0 | 2450.0 |
|              | Efficiency (%)  | 38.50  | 36.20  | 35.10  | 35.00  | 34.20  | 37.10  |
|              | Gain (dBi)      | 0.17   | -0.13  | -0.25  | -0.30  | -0.35  | 0.22   |

## 7. Antenna VSWR/S11

Main Ant



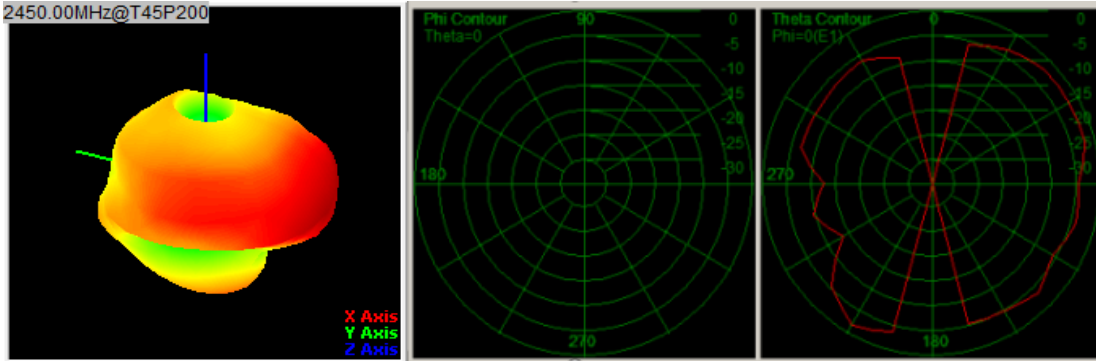
WIFI/BT Ant



## 8.3D Lobe Diagram

2.4G-WIFI/BT

2450.00MHz@T45P200



DSC1800



W2100



W1900



W1700



W850



FDD-B2



FDD-B4



FDD-B5



FDD-B12



FDD-B13



FDD-B17



FDD-B66



## 9. Antenna model and type

| Band      | Model         | Type | Material        |
|-----------|---------------|------|-----------------|
| BT        | BM241-WIFI/BT | PIFA | Stainless steel |
| 2.4G WIFI | BM241-WIFI/BT | PIFA | Stainless steel |
| Main Ant  | BM241-Israel  | PIFA | FPC             |

## 10. Antenna OTA

| FS-OTA   |           |        |        |           |        |        |           |        |        |
|----------|-----------|--------|--------|-----------|--------|--------|-----------|--------|--------|
| BAND     | DCS1800   |        |        | WCDMA2100 |        |        | WCDMA1900 |        |        |
| CHANNEL  | L         | M      | H      | L         | M      | H      | L         | M      | H      |
| TRP(dBm) | 24.5      | 25.5   | 26.3   | 19.2      | 19.3   | 18.8   | 19.6      | 19.8   | 19.8   |
| TIS(dBm) | -105.3    | -105.1 | -105.0 | -105.5    | -105.1 | -104.6 | -105.6    | -105.5 | -105.3 |
| BAND     | WCDMA1700 |        |        | WCDMA850  |        |        | FDD-B2    |        |        |
| CHANNEL  | L         | M      | H      | L         | M      | H      | L         | M      | H      |
| TRP(dBm) | 18.3      | 18.5   | 18.6   | 19.3      | 18.8   | 18.0   | 19.8      | 19.8   | 19.7   |
| TIS(dBm) | -104.6    | -104.2 | -104.1 | -104.0    | -103.7 | -102.6 | -94.6     | -94.3  | -94.1  |
| BAND     | FDD-B4    |        |        | FDD-B5    |        |        | FDD-B12   |        |        |
| CHANNEL  | L         | M      | H      | L         | M      | H      | L         | M      | H      |
| TRP(dBm) | 18.5      | 18.6   | 18.8   | 18.8      | 18.3   | 17.8   | 15.2      | 15.6   | 16.1   |
| TIS(dBm) | -94.0     | -93.6  | -93.3  | -91.8     | -91.3  | -90.6  | -92.5     | -92.3  | -92.1  |
| BAND     | FDD-B13   |        |        | FDD-B17   |        |        | FDD-B66   |        |        |
| CHANNEL  | L         | M      | H      | L         | M      | H      | L         | M      | H      |
| TRP(dBm) | 18.6      | 18.8   | 18.8   | 15.1      | 15.5   | 16.0   | 18.3      | 18.2   | 18.1   |
| TIS(dBm) | -93.3     | -93.0  | -92.8  | -92.3     | -91.8  | -91.6  | -92.9     | -92.6  | -92.3  |