# Testing Report

Product Name: TMB-2273-BT/ TMB-2288-BT

Issue Date: 2023.7.4

| | | | |
|---|---|---|---|
| Engineer: | | Date | 2023.7.4 |
| Auditor: | | Date | 2023.7.4 |
| Approve | | Date | 2023.7.4 |

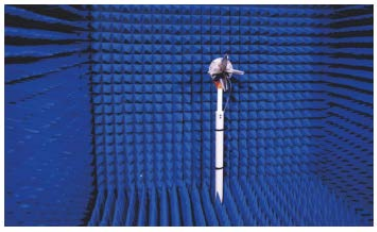
# Content

# 1. General Information

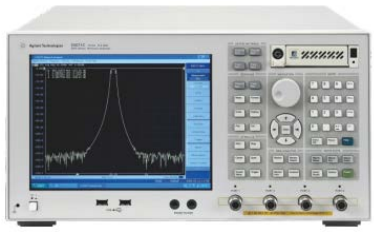
## 1. 1 General information of testing institutions

| | |
|---|---|
| Name | Shenzhen DBT Communication Device Co., Ltd |
| Address | Rm505, 8th building, Yungu 2nd period, pingshan No.1 Road, Xili Town,Nanshan District, ShenZhen , China |
| Tel | 0755-83763273 |
| E-mail | Dbt_yang@163.com |
| Equipment | 1. RayZone 1800<br>2. Keysight E5071C |

# 1.2 Test equipment



Satimo



E5071C

Cmw500

8960

| **Model No.** | **Manufacturer** | **Calibration date** | **Next calibration date** |
|---|---|---|---|
| Satimo | RFI-LAB-RF-A00 | 2022.11 13 | 2023.11 13 |
| Cmw500 | ROHDE&SCHWAR | | |
| 8960 | Agilent | | |
| E5071C | Agilent | | |

## 1.3 Test environment

| | |
|---|---|
| **Temperature** | 25. 0*C |
| **Humidity** | 59%RH |
| **Pressure** | 100.12kPa |

## 1.4 Statement

(1) The test results in the report are only applicable to the tested samples and the tested samples work under the environment described in the report

(2) Any objection to this report shall be raised 30 days after formal confirmation of the report.

(3) The report is invalid without the signature of the auditor and approver.

# 2.Sample Information

## 2.1 Client information

| | |
|---|---|
| Name | Guangdong Transtek Medical Electronics Co., Ltd. |
| Address | Zone A, No. 105, Dong Li Road, Torch Development District, zhongShan, Guangdong,China |
| Contacts | |
| Tel | |
| E-mail | |

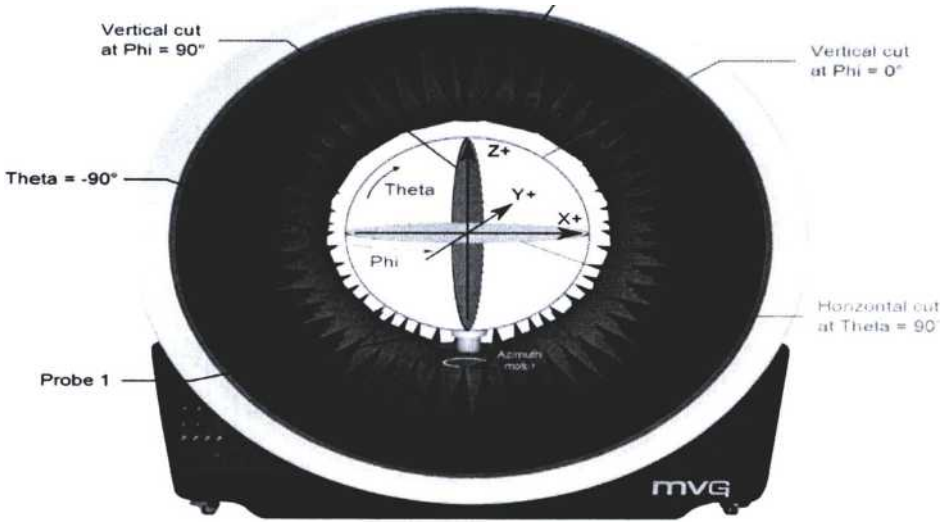
## 2.2 Description of EUT(S)

| | |
|---|---|
| **Product Name** | 2.4 GHz Antenna |
| **Antenna Size** | 13.5*7.5mm |
| **Antenna Type** | PCB |
| **Test Item** | VSWR; Gain; Efficiency; Radiation pattern |
| **Frequency Range** | 2402-2480MHz |
| **Received Date** | 2023.7.4 |
| **Test Date** | 2023.7.4 |
| **Remark** | *i* |

## 2.3 EUT appearance

See test report

## 2.4 DUT setup photo of free space OTA testing

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# 3.Test Results

## 3.1 Test standard

| Name | Parameter | Method | Standard no. |
|---|---|---|---|
| Mobile Communication antenna | VSWR | Generic specification for antennas used in the mobile communications | GB/T 9410-2008 |
| | Antenna gain | | |
| | Radiation pattern | | |
| Antenna | Radiation efficiency | IEEE Standard Test Procedures for Antennas | ANSI/IEEE Std 149-1979 |

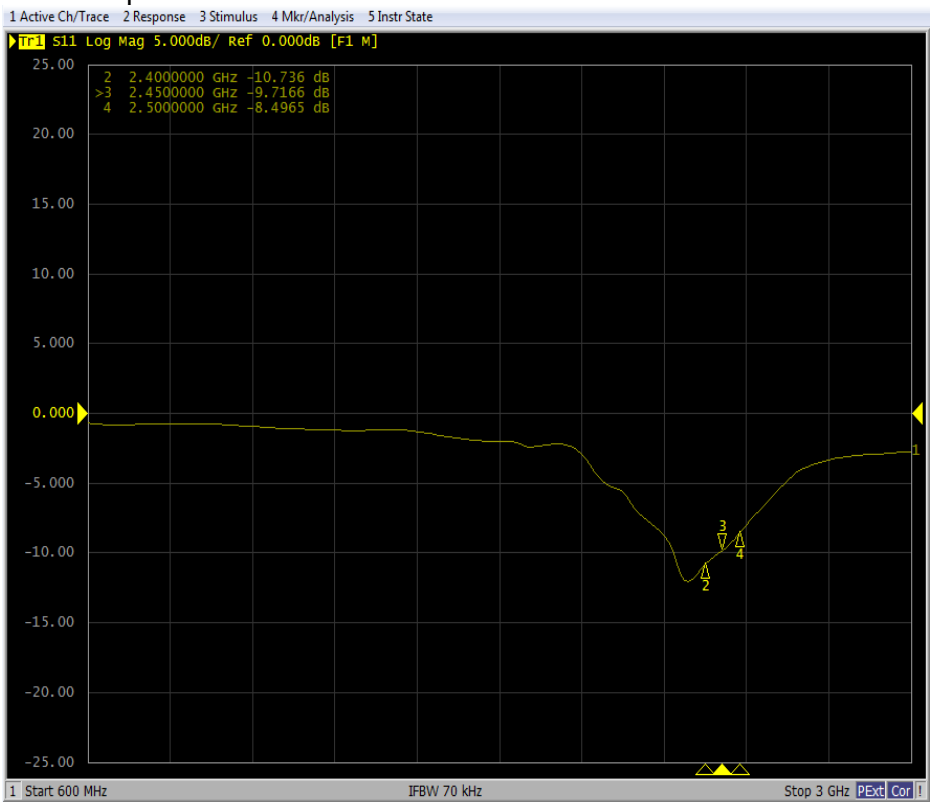
## 3.2 Test uncertainty

The uncertainty was calculated on the basis of the GUM published by ISO.using the inclusion factor of K=2 and the 95% confidence level to express the extended uncertainty.

| Item | Uncertainty |
|---|---|
| VSWR | ±0.3 |
| Antenna gain | + ldB |
| Radiation efficiency | ±10% |

# 3.3 Test data

## 3.3.1 S1l parameters




## 3.3.2 VSWR

| | | | |
|---|---|---|---|
| Frequency/MHz | 2400 | 2450 | 2500 |
| VSWR | 1.819 | 1.97 | 2.205 |

## 3.3.3 Typical free space efficiency and gain

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Frequency MHz | 2400 | 2410 | 2420 | 2430 | 2440 | 2450 | 2460 | 2470 | 2480 | 2490 | 2500 |
| Peak Gain dBi | -2.01 | -2.36 | -2.14 | -2.74 | -2.7 | -3.34 | -2.87 | -3.45 | -2.3 | -3.47 | -2 |
| Efficiency % | 27.25 | 24.49 | 24.52 | 21.8 | 23.11 | 19.98 | 22.51 | 19.97 | 25.64 | 19.86 | 27.06 |

3.3.4 Typical free space radiation p atter