

# 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

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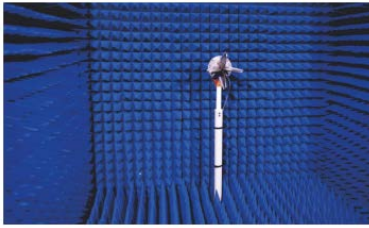
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# 1. General Information

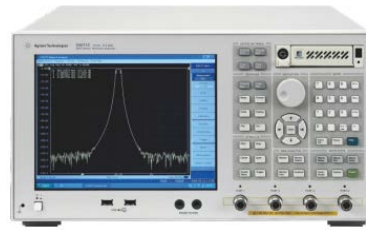
## 1. 1 General information of testing institutions

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 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

<b>Temperature</b>	25. 0°C
<b>Humidity</b>	59%RH
<b>Pressure</b>	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

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

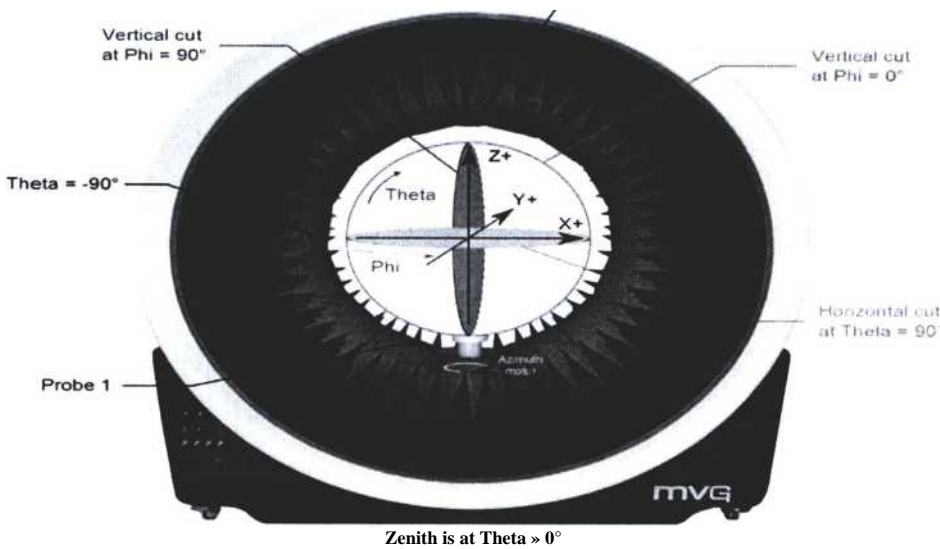
## 2.2 Description of EUT(S)

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>i</i>

## 2.3 EUT appearance

See test report

## 2.4 DUT setup photo of free space OTA testing



### 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

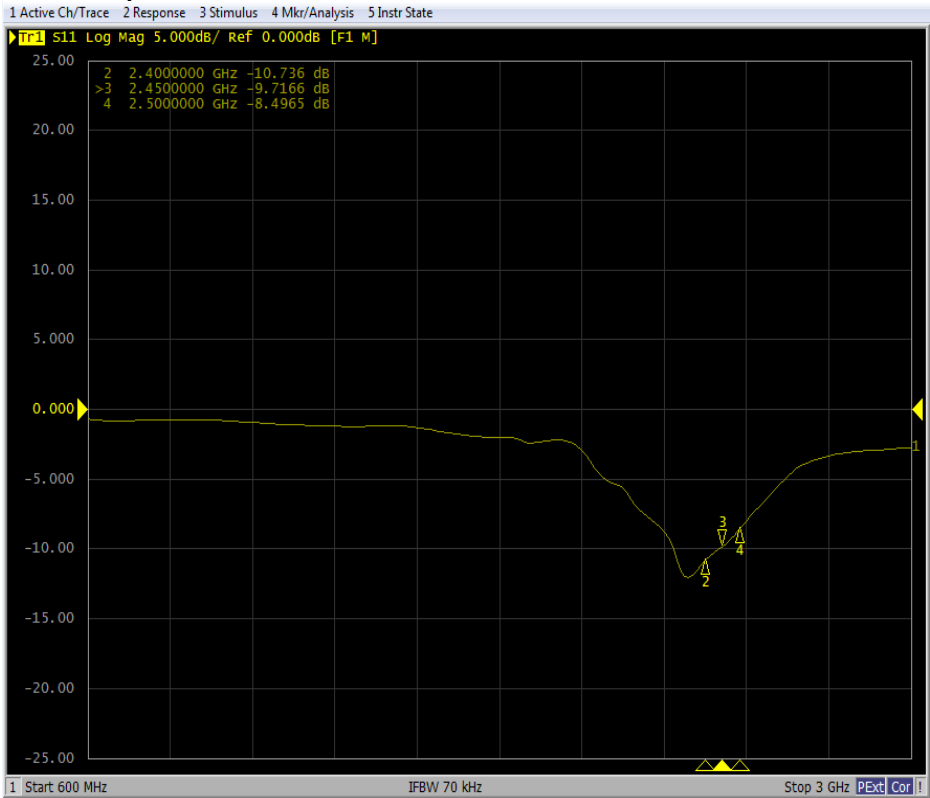
#### 3.2 Test uncertainty

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	$\pm 0.3$
Antenna gain	+ 1dB
Radiation efficiency	$\pm 10\%$

### 3.3 Test data

#### 3.3.1 S11 parameters



#### 3.3.2 VSWR

Frequency/MHz	2400	2450	2500
VSWR	1.819	1.97	2.205

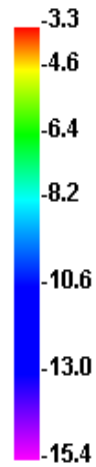
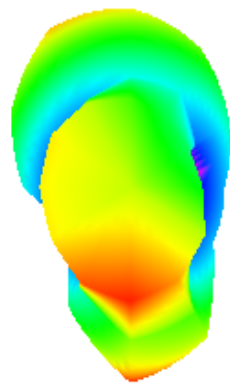
#### 3.3.3 Typical free space efficiency and gain

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

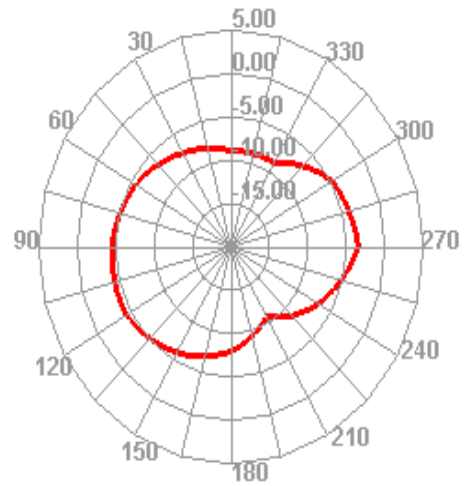


### 3.3.4 Typical free space radiation p after

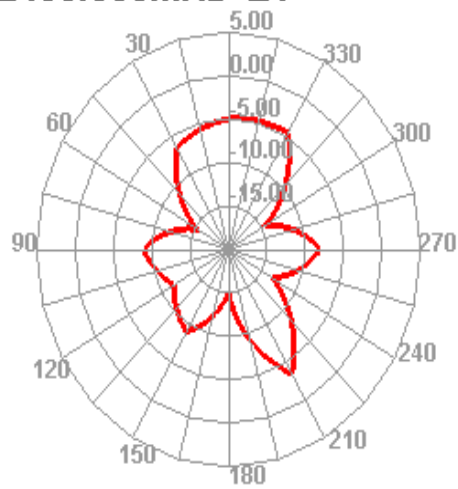
**2450.000MHz**



**2450.000MHz H**



**2450.000MHz E1**



**2450.000MHz E2**

