



## Antenna

### Performance

# Test Report

Chip Ceramic Bluetooth Antenna

Model No. :MGMA3216H2450-A02

Report No. :SZ08010022W01

Test Application Vendor

Shenzhen MJ Microelectronics Technology Co.

Shenzhen Baoan District Guanlan Town Golf Avenue Yuxing Road

Laboratory

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## 1. Summary

### 1.1 Declaration

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### 1.2 Test Information

|                        |                 |
|------------------------|-----------------|
| Report No.:            | SZ08010022W01   |
| Application Date:      | 2008-1-10       |
| Test Date:             | 2008-1-10       |
| Laboratory Supervisor: | <u>Shu Ruan</u> |
| Manager:               | DengJiankun     |
| Test Engineer:         | Huangpu Long    |

### 1.3 Conclusion

During the test, the DUT worked normally and the test was passed.

## 2. General Description

### 2.1 Test laboratory information

Company: Shenzhen Electronic Product Quality Testing Centre  
Quality Testing Centre Department: Moore Laboratory  
Address: 3/F, Electronic Testing Building, Shahe Road, Xili, Shenzhen, China  
Lab Supervisor: Shu Ruan  
Tel: +86 755 86130268  
Fax: +86 755 86130218

### 2.2 Test locations

Name: Moore Laboratory, Shenzhen Electronic Product Quality Testing Centre  
Address: 3/F, Electronic Testing Building, Shahe Road, Xili, Shenzhen, China

### 2.3 Recognition of certificates

Accredited Laboratory: CNAL No. L1659 (Shenzhen Electronic Product Quality Testing Centre)

### 2.4 List of test equipment

| No. | Type                                        | Description                                                                          |
|-----|---------------------------------------------|--------------------------------------------------------------------------------------|
| 1   | 8960-5515C System Simulator                 | Manufacturer: Agilent                                                                |
| 2   | CMU 200 System Simulator                    | Manufacturer: R&S                                                                    |
| 3   | E5071B Vector Network Analyzer              | Manufacturer: Agilent                                                                |
| 4   | 4*4*4 Full Anechoic Chamber                 | Manufacturer: Satimo                                                                 |
| 5   | SG24 Multi-probe Antenna Measurement System | Manufacturer: Satimo<br>Applied Standard(s): Over the air performance test plan v2.2 |

### 3. Technical Description

Note: Provided by the applicant.

#### 3.1 Applicant Information

Company: Shenzhen Meijie Microelectronics Technology Co.

Address: Yuxing Road, Golf Avenue, Guanlan Town, Bao'an District, Shenzhen, China.

Contact: Liao Cailiang

Tel: 13480808433

Fax:

E-mail:

#### 3.2 Description of tested antenna

Model Name: MGMA3216H2450-A02

##### 3.2.1 Photographs of the measured object

Please refer to Annex B.

##### 3.2.2 Sample identification

| No.   | Note              |
|-------|-------------------|
| AUT02 | MGMA3216H2450-A02 |

## 4. Test structures

### 4.1 Reference Document

Main reference document for testing:

| No. | Identity     | Document Title                             |
|-----|--------------|--------------------------------------------|
| 1   | IEEE149-1979 | IEEE Standard Test Procedures for Antennas |

Other Test Reference Documents:

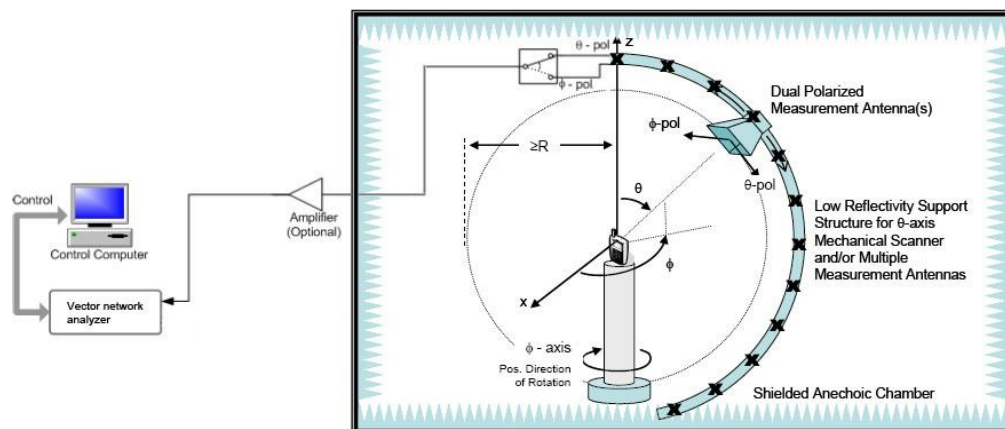
| No. | Identity      | Document Title                                                                                                                                                                                                                         |
|-----|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2   | ETSI EN 50383 | Basic standard for the calculation and measurement of electromagnetic field strength and SAR related to human exposure from radio base stations and fixed terminal stations for wireless telecommunication systems (110 MHz – 40 GHz). |

### 4.2 Test Conditions

Test environment conditions:

- 1) Temp: 20° C
- 2) Moisture: 60%

Test system connection:



### 4.3 List of test results

#### 4.3.1 Antenna Gain (dBi)

AUT02 antennae

| 2402MHZ | 2441MHZ | 2480MHZ |
|---------|---------|---------|
| -0.081  | -0.351  | -0.507  |

#### 4.3.2 Antenna efficiency(%)

AUT02 antennae

| 2402MHZ | 2441MHZ | 2480MHZ |
|---------|---------|---------|
| 39.6    | 37.4    | 36.6    |

## Annex A Pictures

### 1. Sample



## Annex B Raw Data and Graphs

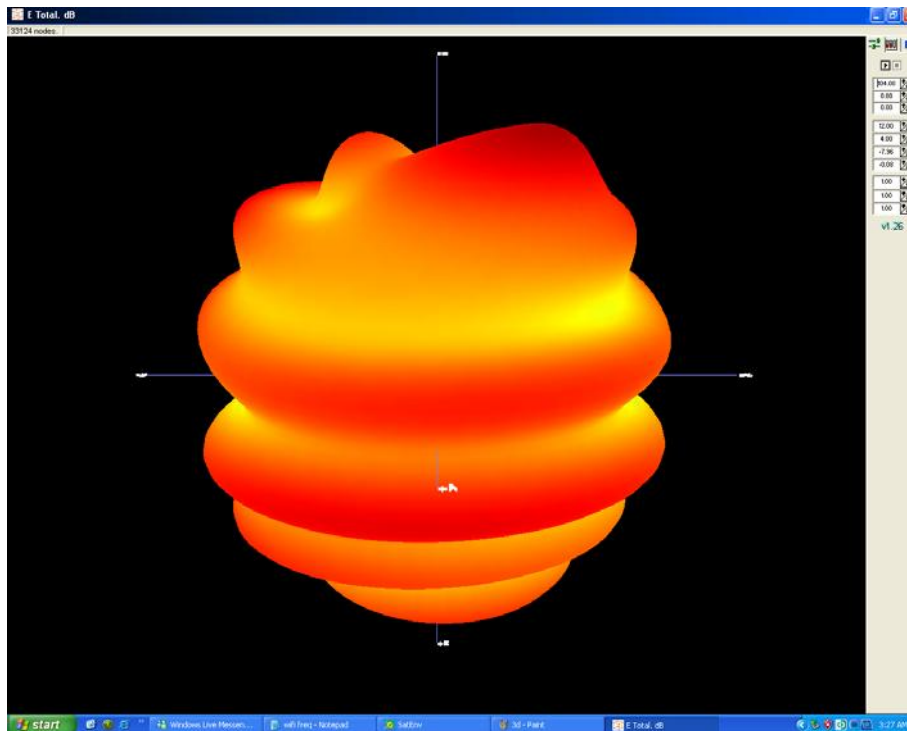
### 1. Raw data

Please see Annex D for a separate raw data file DATA.xls.

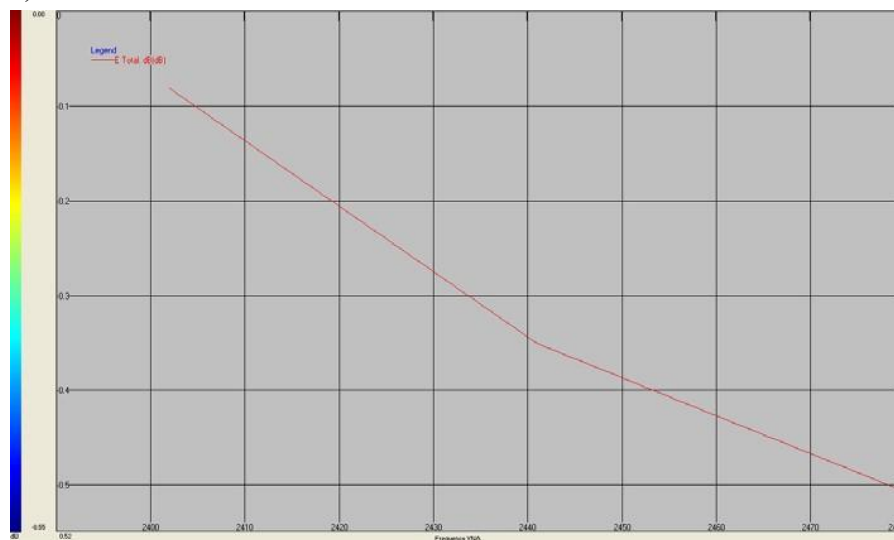
### 2. Radiation map of the measured object

#### a) AUT02

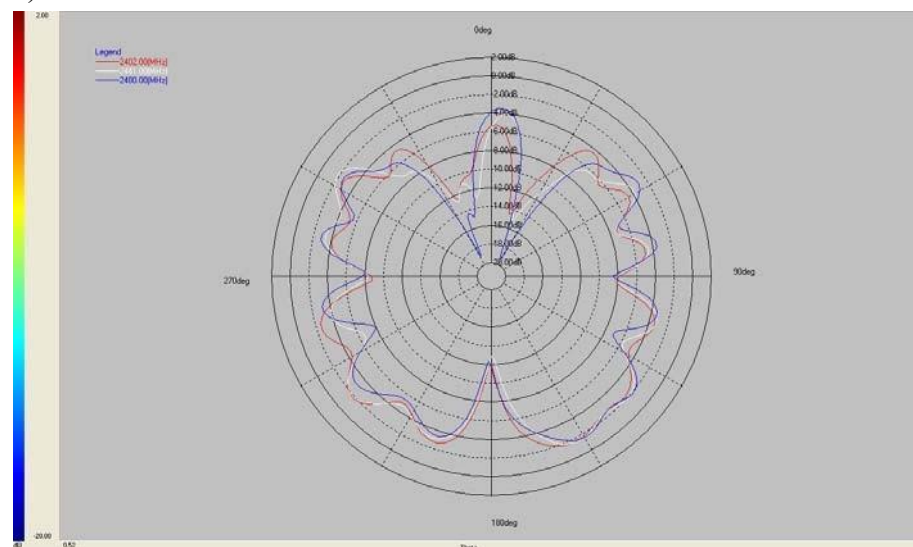
##### 1) 3D (2402MHz)



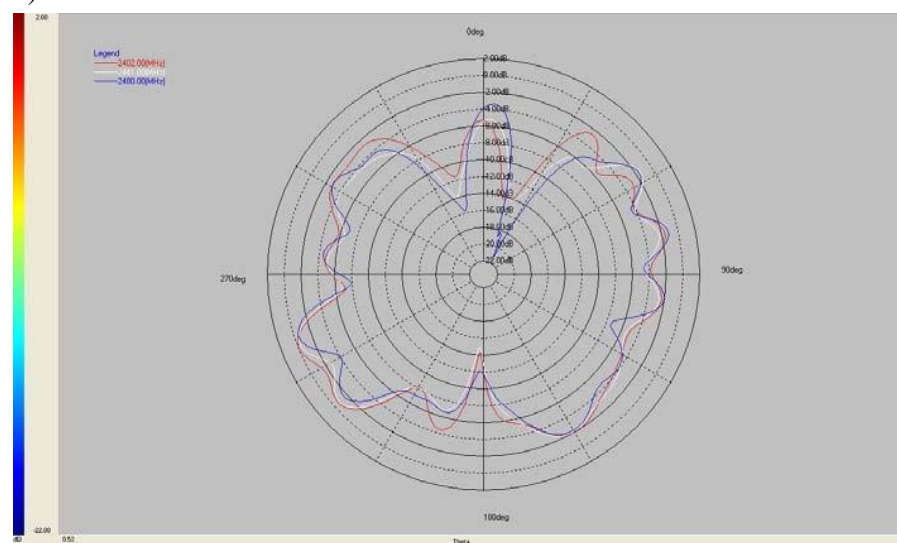
##### 2) Etotal



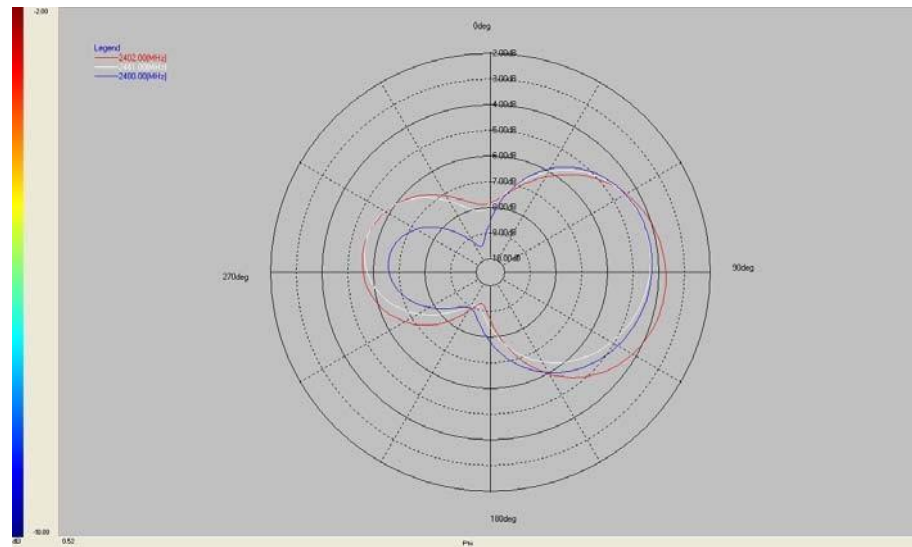
### 3) $\Phi=0$



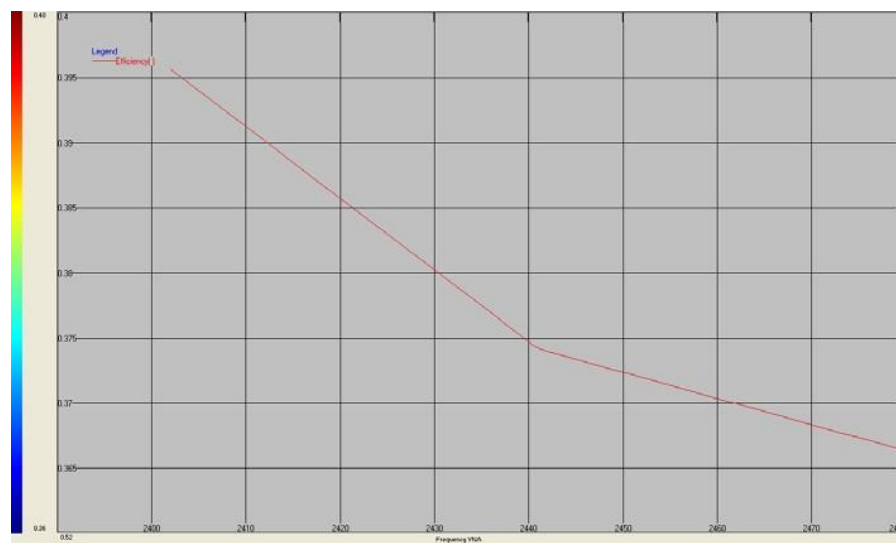
### 4) $\Phi=90$



### 5) Theta=90

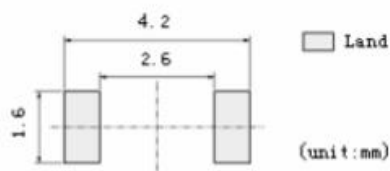
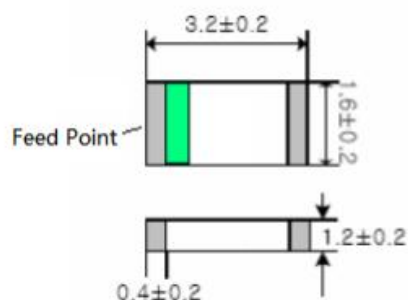


### 6) Efficiency



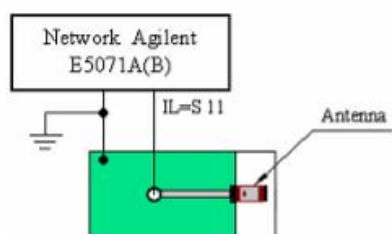
### 3 Appearance and Dimensions

Unit: mm

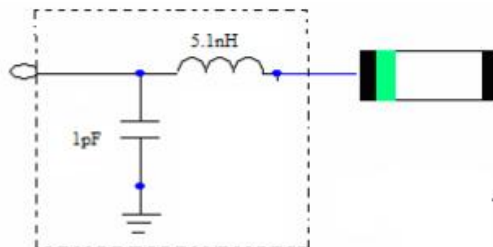


All the technical data and information specified herein are subject to variation without prior notice

### 4 Test Circuit and Testing Conditions



No Matching Circuit Testing



LC Matching Circuit Testing