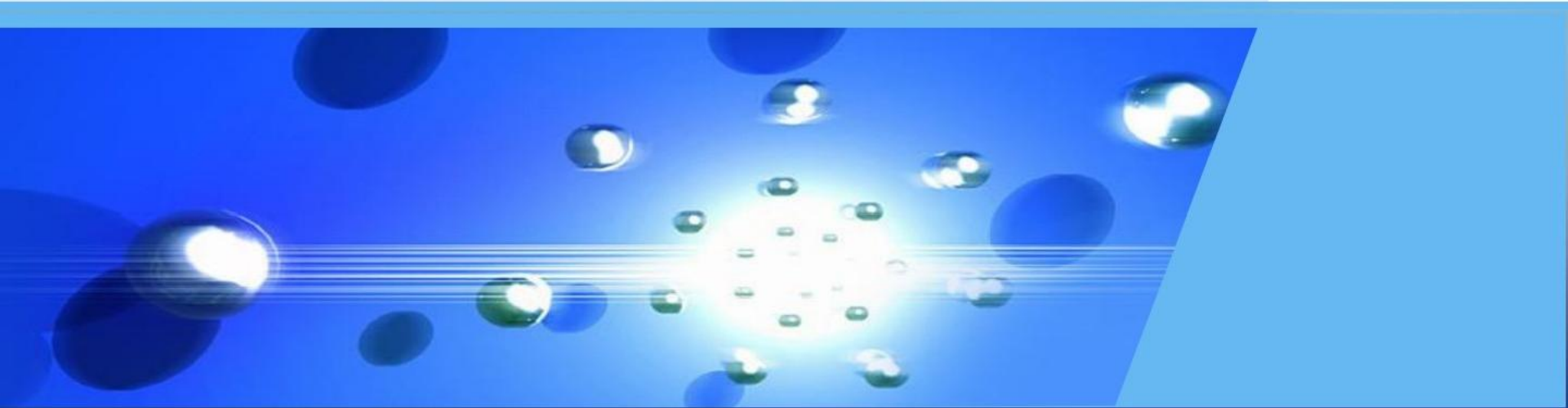


# Professional **RF** R&D Institutions



**ShenZhen HengXinDa Communication Technology Co., Ltd.**

## **Antenna Design & Test Report**

**RF Engineer: Lowrence**

**Mobile: +86-15813853812**

**ShenZhen R & D Center Laboratory**

**DATE:2024.09.27**

# Project Information

1

Customers: 名创

2

Project: M99

3

Frequency range: 2.4-2.48GHz

4

Remarks:

## Test List

## Test items

## Device

**S parameter**

Antenna  
coupling power  
test

**Radiation&Gain**

**ReturnLoss;VSWR;Smith-  
Chart**

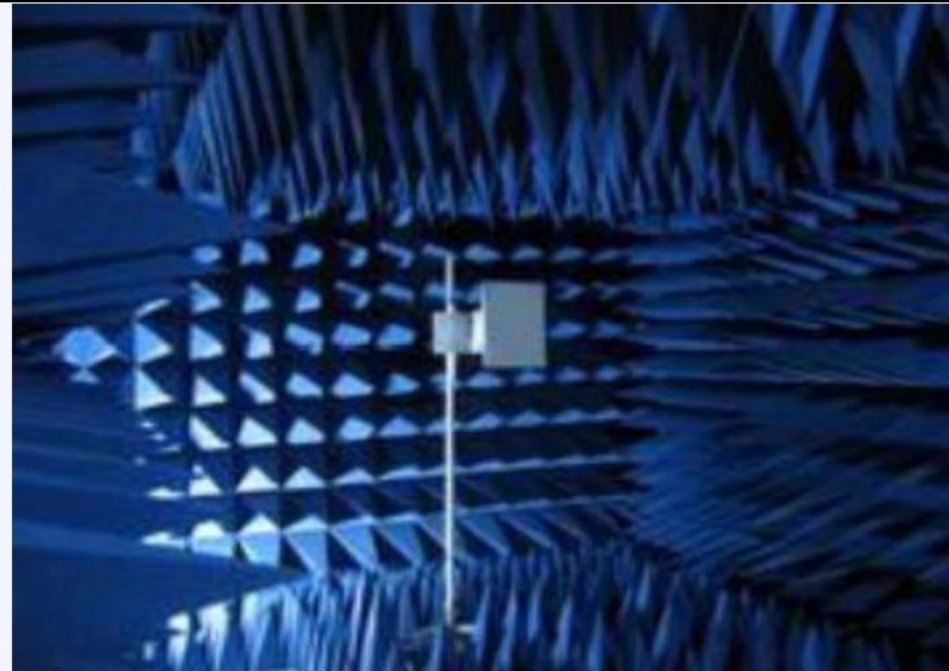
Transmission power and  
reception sensitivity

Radiation pattern ; Antenna gain ; 3D data

**E5071C Network analyzer**

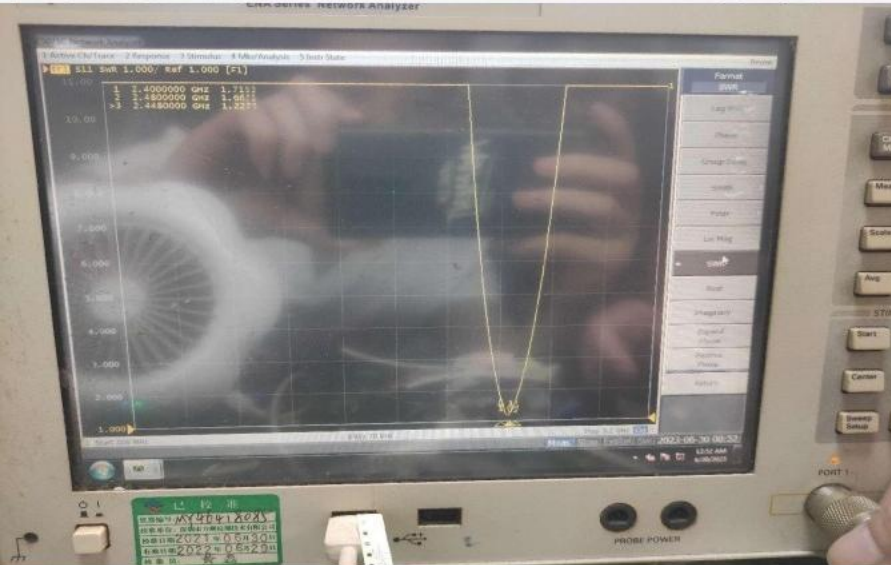
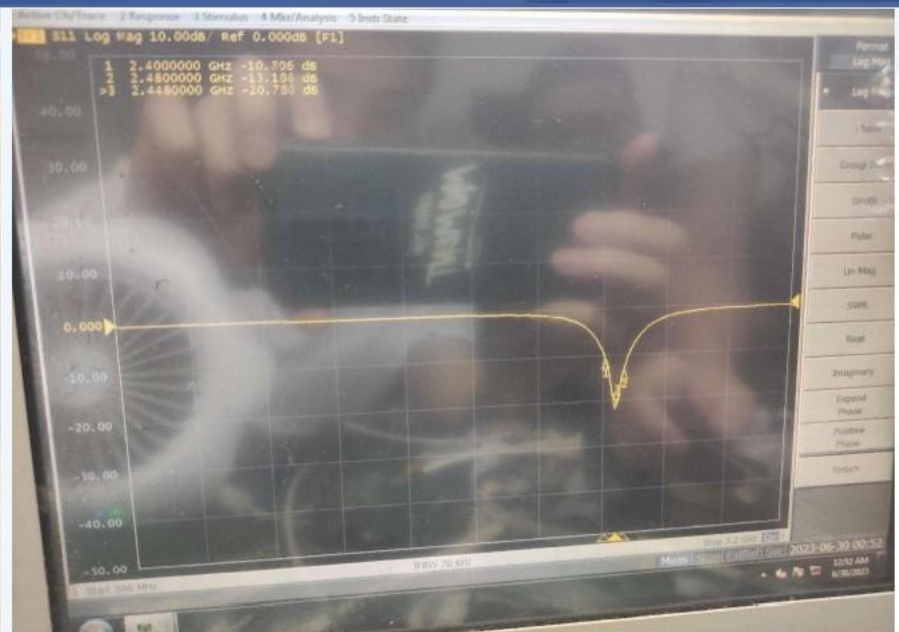
**CMW500 Bluetooth tester**

1.3D Microwave Chamber7x4x3m(3D)  
2.CMW500





# Antenna Passive Dat



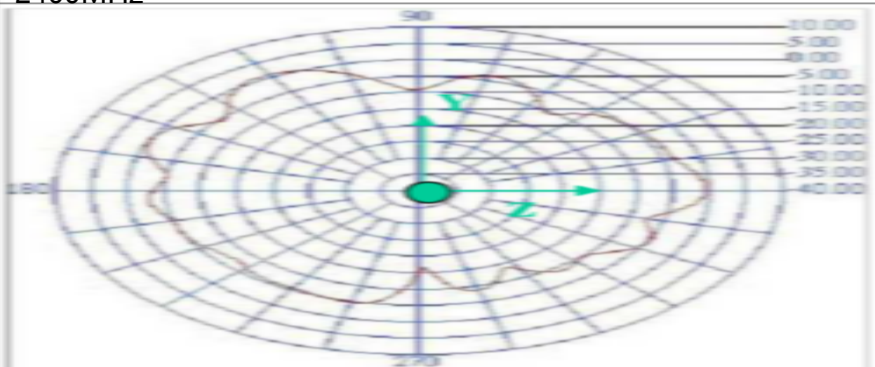
L

R

| Freq (MHz) | Effi (%) | PeakGain (dBi) |  | Freq (MHz) | Effi (%) | PeakGain (dBi) |
|------------|----------|----------------|--|------------|----------|----------------|
| 2400       | 55.16%   | 0              |  | 2400       | 60.11%   | -4.5           |
| 2450       | 53.34%   | 3.5            |  | 2450       | 52.27%   | -5             |
| 2500       | 55.08%   | 3              |  | 2500       | 50.05%   | 2.5            |

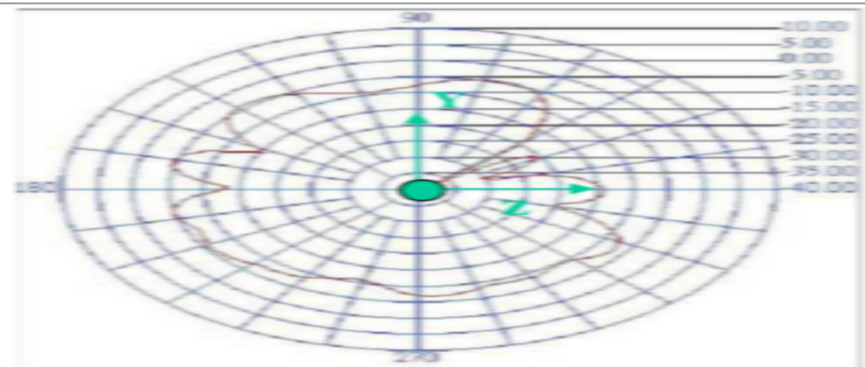
2400MHz

**L**



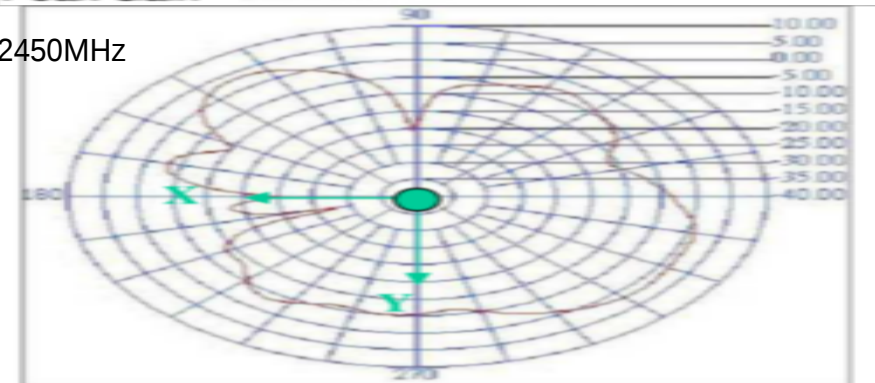
Peak Gain = 0dBi

**R**

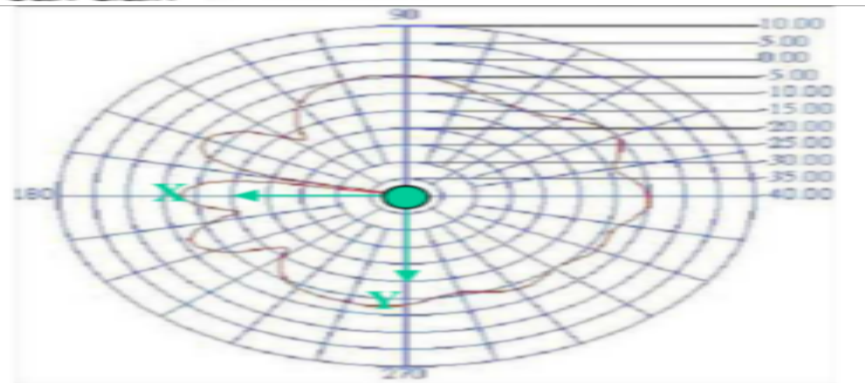


Peak Gain = -4.5dBi

2450MHz

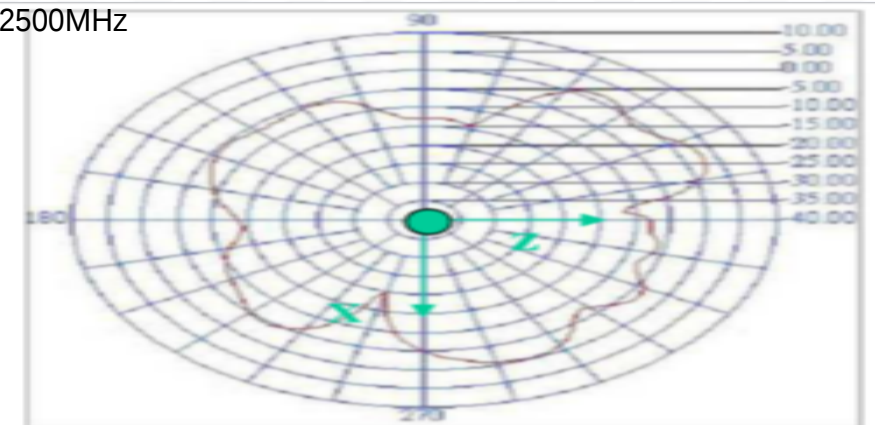


Peak Gain = 3.5dBi

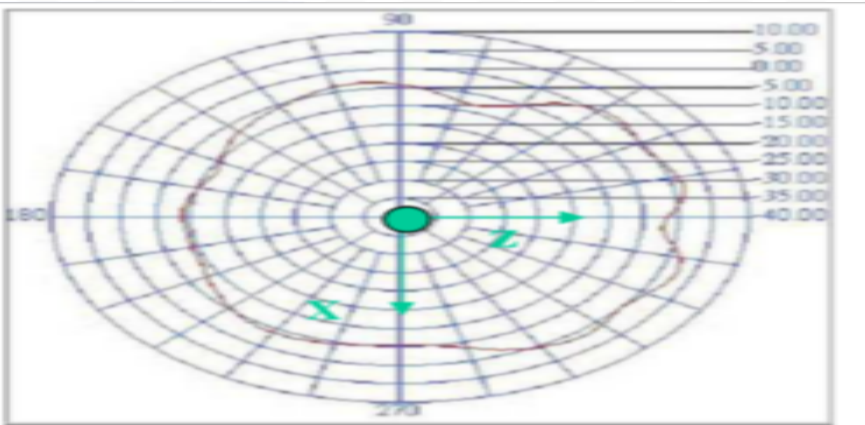


Peak Gain = -5dBi

2500MHz



Peak Gain = 3dBi

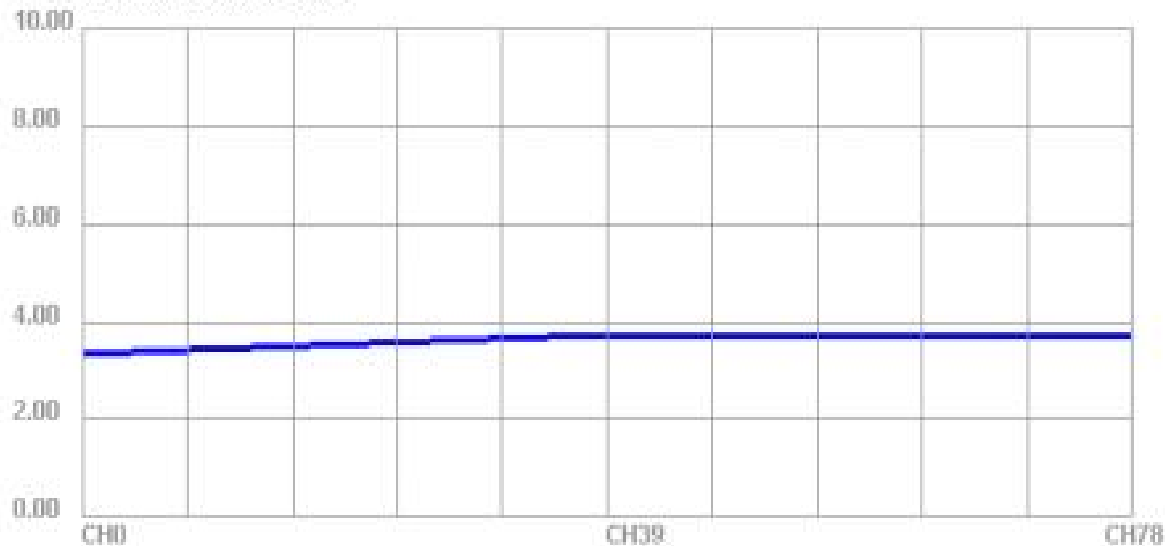


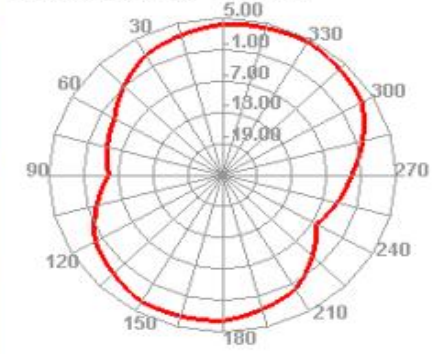
Peak Gain = 2.5dBi

# TRP

| Test               | Bluetooth TRP |       |       | Application Information |              |
|--------------------|---------------|-------|-------|-------------------------|--------------|
| Result             | 0             | 39    | 78    | 04Version               | 5.256.357    |
| Frequency (MHz)    | 2402          | 2441  | 2480  | TotalTime               | 16m 2s 7ms   |
| TRP (dBm)          | 3.34          | 3.74  | 3.71  | AdditionalInfor         | BE959F84E82F |
| NHPRP (dBm) 45     | 2.04          | 2.52  | 2.57  |                         |              |
| MAX (dBm)          | 6.09          | 6.68  | 6.58  |                         |              |
| EIRP peak          | 6.09          | 6.68  | 6.58  |                         |              |
| Min (dBm)          | -6.76         | -8.12 | -6.63 |                         |              |
| Attenuation Horiz  | 43.34         | 43.34 | 43.34 |                         |              |
| Attenuation Vertic | 43.24         | 43.24 | 43.24 |                         |              |

Bluetooth TRP



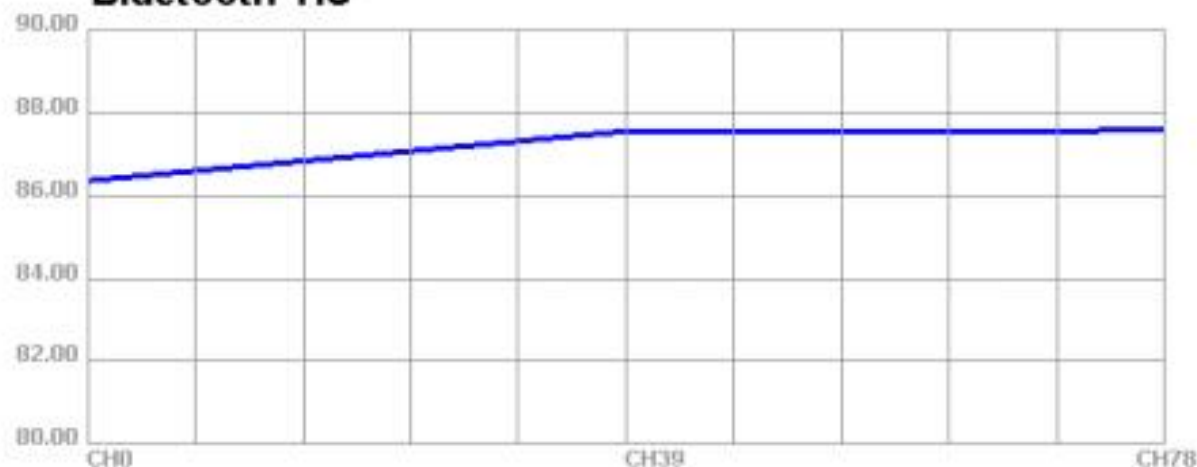


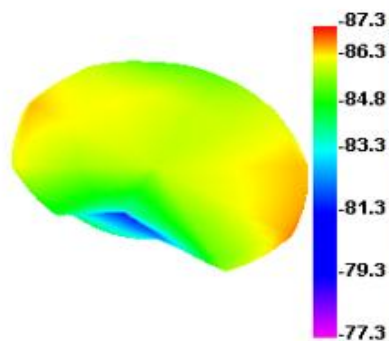
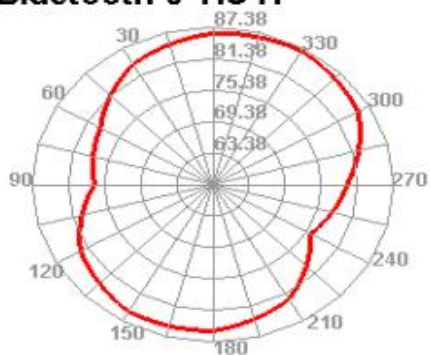
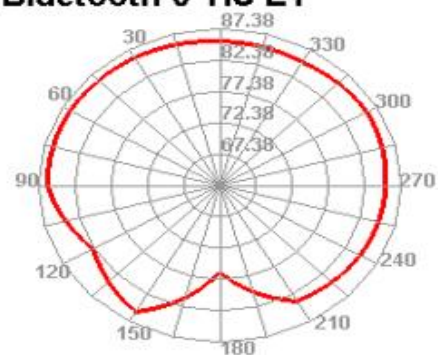
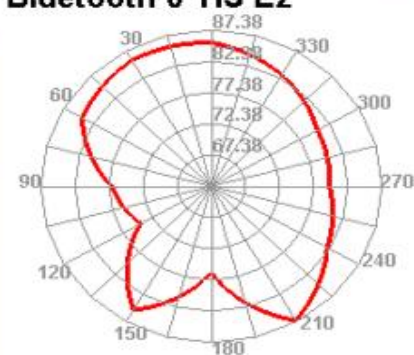
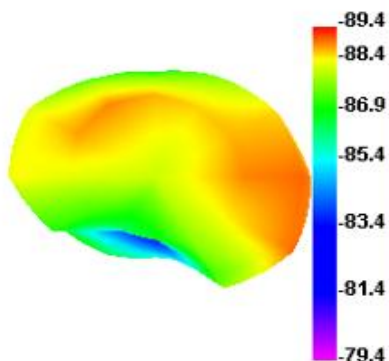
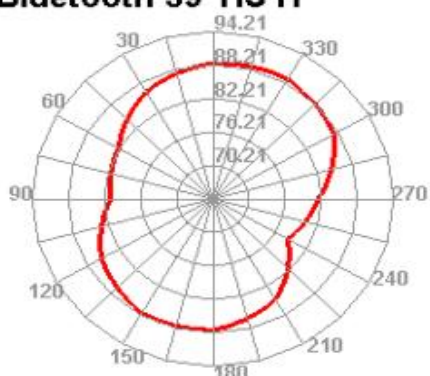
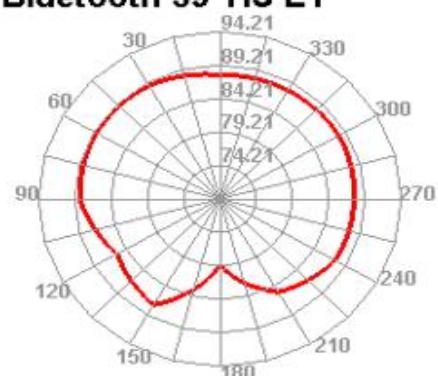
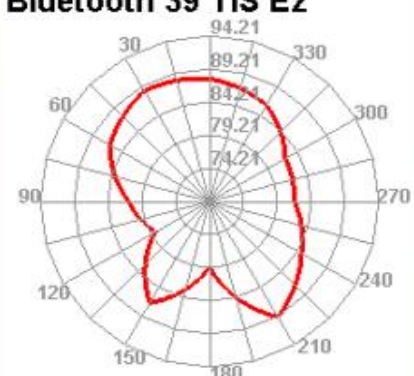
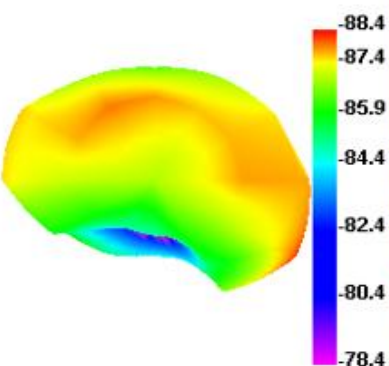
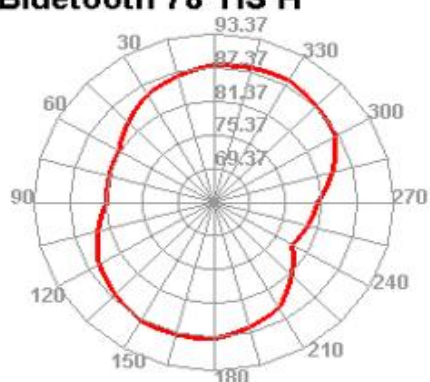
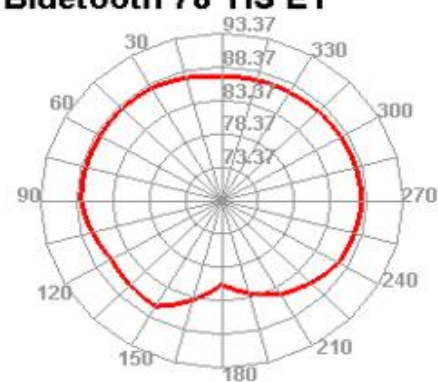
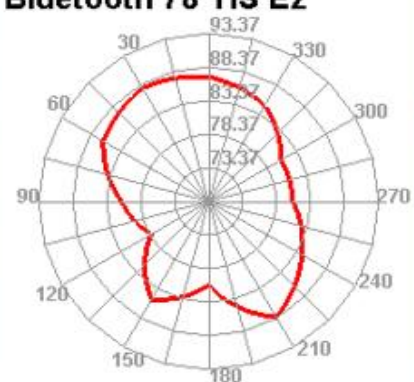
# TIS

| Test               | Bluetooth TIS |        |        |
|--------------------|---------------|--------|--------|
| Result             | 0             | 39     | 78     |
| Frequency (MHz)    | 2402          | 2441   | 2480   |
| TIS(dBm)           | -86.35        | -87.55 | -87.57 |
| NHPIS(dBm) 45      | -85.05        | -86.33 | -86.43 |
| RSSIave            | 3.34          | 3.74   | 3.71   |
| MaxPosRSSI         | 5.83          | 6.43   | 6.18   |
| MaxPosSens         | -88.84        | -90.24 | -90.04 |
| MAX(dBm)           | 6.09          | 6.68   | 6.58   |
| EIS peak           | 6.09          | 6.68   | 6.58   |
| Min(dBm)           | -6.76         | -8.12  | -6.63  |
| Attenuation Horiz  | 43.34         | 43.34  | 43.34  |
| Attenuation Vertic | 43.24         | 43.24  | 43.24  |

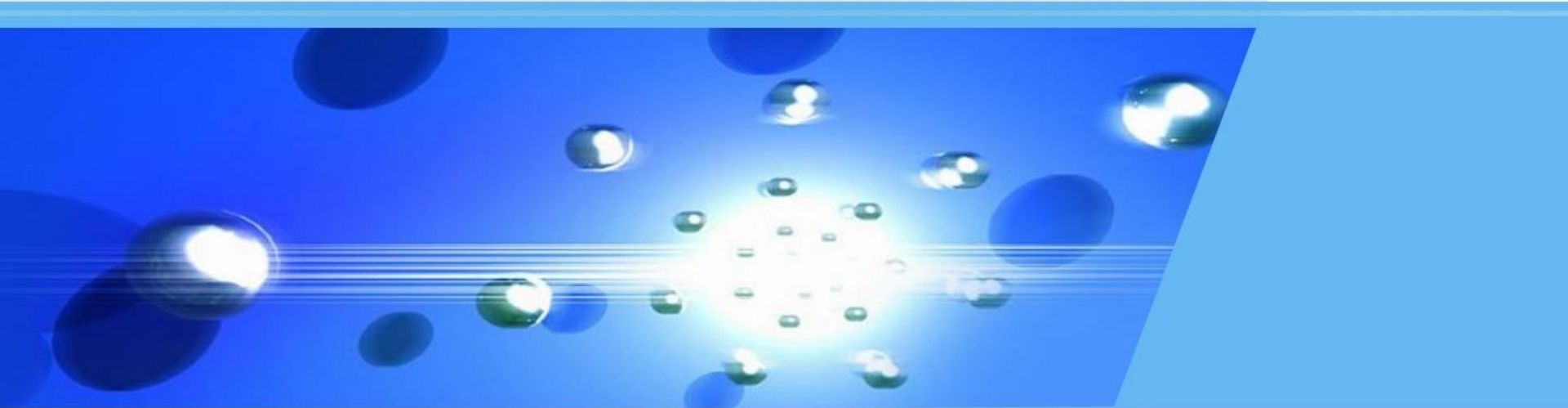
| Application Information |              |
|-------------------------|--------------|
| 04Version               | 5.256.357    |
| TotalTime               | 16m 2s 7ms   |
| AdditionalInfor         | BE959F84E82F |

**Bluetooth TIS**



**Bluetooth 0 TIS****Bluetooth 0 TIS H****Bluetooth 0 TIS E1****Bluetooth 0 TIS E2****Bluetooth 39 TIS****Bluetooth 39 TIS H****Bluetooth 39 TIS E1****Bluetooth 39 TIS E2****Bluetooth 78 TIS****Bluetooth 78 TIS H****Bluetooth 78 TIS E1****Bluetooth 78 TIS E2**

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# Thank You !

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