

# Testing Report

Customer Name:Fuzhou ZTX Communication Technology Co., LTD.

Product Name: WIFI Antenna

Sample Model:ZTX-7108N-WIFI

Reference Standard: GB/T 9410-2008; ANSI/IEEE Std 149-1979

Issue Date:2023.06.12

|              |                 |
|--------------|-----------------|
| Engineer:林权  | Date:2023.06.12 |
| Auditor: 胡小良 | Date:2023.06.15 |
| Approver:王而栋 | Date:2023.06.15 |

# Version

| VersionNo. | Date       | Description | Formulate | Approval |
|------------|------------|-------------|-----------|----------|
| 1.0        | 2023.06.12 |             | 林权        |          |
|            |            |             |           |          |
|            |            |             |           |          |

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## 1.General Information

### 1.1 General information of testing institutions

|                  |                                                                                                                                             |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Name</b>      | Fuzhou ZTX Communication Technology Co., LTD.                                                                                               |
| <b>Address</b>   | Unit SC02, 2nd Floor, Huatong Zhongchuang Building, Building 45<br>Juyuanzhou, Jinshan Industrial Zone, Cangshan District, Fuzhou,<br>China |
| <b>Tel</b>       | 0591-83583660                                                                                                                               |
| <b>E-mail</b>    |                                                                                                                                             |
| <b>Equipment</b> | Unit SC02, 2nd Floor, Huatong Zhongchuang Building, Building 45<br>Juyuanzhou, Jinshan Industrial Zone, Cangshan District, Fuzhou,<br>China |

## 1.2 Testing principle



公司拥有通信行业最领先的法国 Satimo SG24 OTA测试系统1套，ETS OTA 标准测试系统2套，Bluetest 混响暗室1套，MicroPross NFC测试系统1套，能快速稳定的给客户id提供精确的测试报告，完全符合CTA标准，支持 GSM/CDMA/WCDMA/TD/LTE/WIFI/BT/GPS/MIMO等各制式的有源无源测试。



MicroPross NFC系统能满足各运行商测试要求，对NFC设备进行快速性能测试，并输出正式认证测试报告

### 1.3 Test equipment

| Equipment                  | Model No. | Serial No. | Manufacturer | Calibration date | Next calibration date |
|----------------------------|-----------|------------|--------------|------------------|-----------------------|
| 16 probe microwave chamber | 3*3*2.5   |            | SUNYIELD     | 2022.04.15       | 2023.04.15            |
| Network Analyzer           | 8753ES    |            | Agilent      | 2022.03.21       | 2023.03.21            |

### 1.4 Test environment

|             |           |
|-------------|-----------|
| Temperature | 23.7°C    |
| Humidity    | 58%RH     |
| Pressure    | 100.15kPa |

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## 1.5 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) Only Shenzhen RFI-LAB Communication Technology Co., Ltd. have the right to modify the report, and the modification information shall be annotated in the revision form.
- (3) Any objection to this report shall be raised within 30 days after formal confirmation of the report.
- (4) This report is invalid if there is any evidence that the sample information provided is falsified.
- (5) The report is invalid without the signature of the auditor and approver.

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## 2.Sample Information

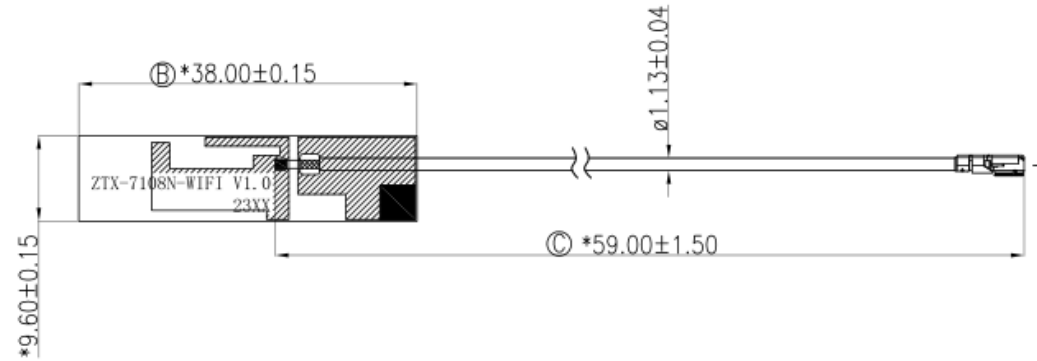
### 2.1 Client information

|          |  |
|----------|--|
| Name     |  |
| Address  |  |
| Contacts |  |
| Tel      |  |
| E-mail   |  |

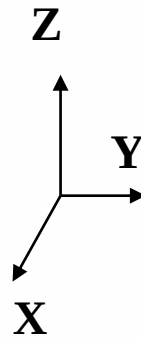
## 2.2 Description of EUT(S)

|                       |                                           |
|-----------------------|-------------------------------------------|
| <b>ProductName</b>    | WIFI Antenna                              |
| <b>SampleModel</b>    | ZTX-7108N-WIFI                            |
| <b>AntennaSize</b>    | 38*9.6mm                                  |
| <b>AntennaType</b>    | FPC Antenna                               |
| <b>SerialNo.</b>      | /                                         |
| <b>TestItem</b>       | Antenna gain;Efficiency;Radiation pattern |
| <b>FrequencyRange</b> | 2400-2500MHz 5150-5850MHz                 |
| <b>ReceivedDate</b>   | 2023.06.12                                |
| <b>TestDate</b>       | 2023.06.15                                |
| <b>Remark</b>         | The length of the RF cable is 59 mm       |

## 2.3 EUT appearance



## 2.4 DUT setup photo of free space OTA testing



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## 3. Test Results

### 3.1 Test standard

| Name                         | Parameter            | Method                                                               | Standardno.            |
|------------------------------|----------------------|----------------------------------------------------------------------|------------------------|
| Mobile communication antenna | Antenna gain         | Generic specification for antennas used in the mobile communications | GB/T 9410-2008         |
|                              | Radiation pattern    |                                                                      |                        |
| Antenna                      | Radiation efficiency | IEEE Standard Test Procedures for Antennas                           | ANSI/IEEE Std 149-1979 |
|                              | Gain and directivity |                                                                      |                        |

### 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      |
|---------------------|------------------|
| Antennagain         | $\pm 1\text{dB}$ |
| Radiationefficiency | $\pm 10\%$       |

### 3.3 Test data

#### 3.3.1 Typical free space efficiency and gain

| Freq | Gain    | Efficiency_Pcent |
|------|---------|------------------|
| 2400 | 4. 0005 | 43. 752          |
| 2410 | 4. 0037 | 43. 722          |
| 2420 | 3. 9425 | 43. 2878         |
| 2430 | 3. 7111 | 41. 6123         |
| 2440 | 3. 2555 | 39. 589          |
| 2450 | 3. 4304 | 42. 7271         |

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| Freq | Gain    | Efficiency_Pcent |
|------|---------|------------------|
| 2460 | 3. 1114 | 39. 7322         |
| 2470 | 2. 9977 | 38. 7049         |
| 2480 | 3. 0253 | 38. 4641         |
| 2490 | 2. 9845 | 38. 3407         |
| 2500 | 3. 1507 | 40. 0476         |
| 5150 | 4. 6828 | 34. 4135         |
| 5200 | 4. 5833 | 31. 3893         |
| 5250 | 4. 2336 | 30. 0031         |
| 5300 | 3. 9531 | 29. 2455         |
| 5350 | 3. 4586 | 27. 327          |
| 5400 | 3. 1396 | 26. 9914         |
| 5450 | 2. 8901 | 25. 8439         |
| 5500 | 1. 7524 | 22. 8609         |
| 5550 | 1. 1102 | 20. 7048         |
| 5600 | 0. 8129 | 20. 9938         |

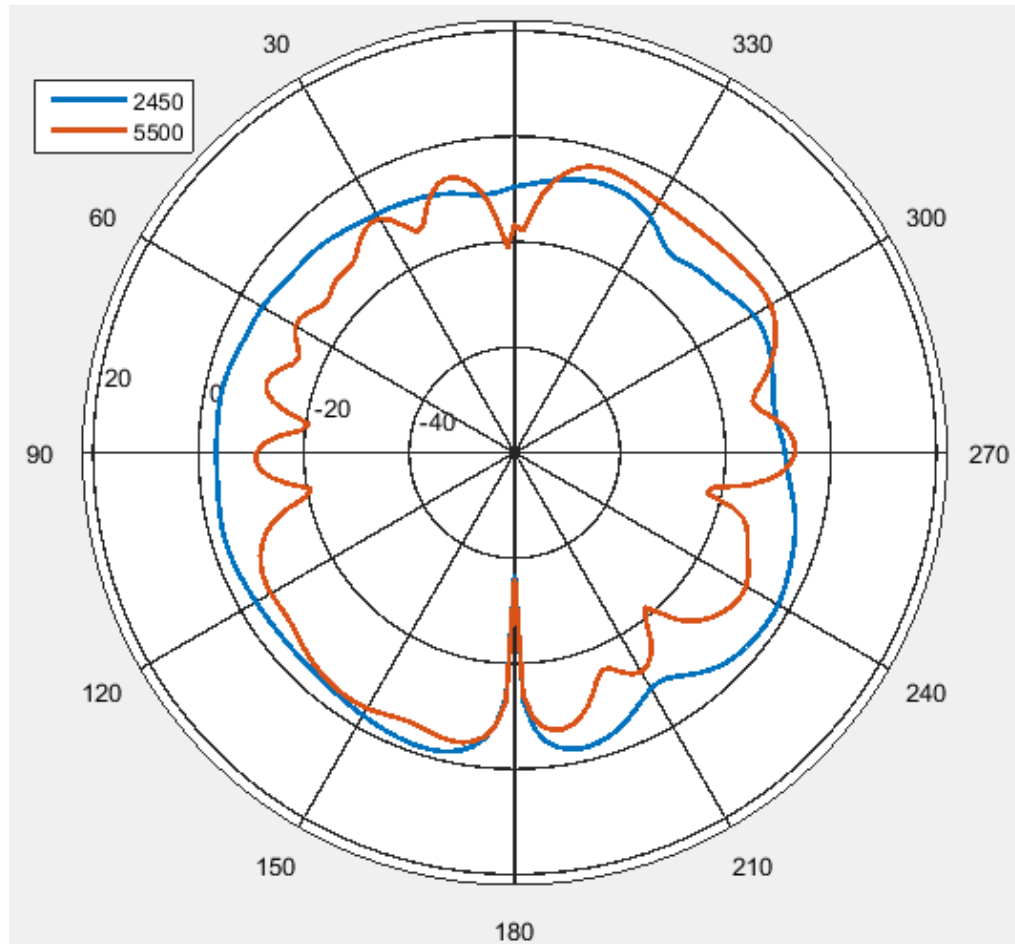
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| Freq | Gain     | Efficiency_Pcent |
|------|----------|------------------|
| 5650 | 0. 7379  | 21. 9499         |
| 5700 | −0. 0621 | 18. 5295         |
| 5750 | 0. 3757  | 19. 6137         |
| 5800 | 1. 3802  | 20. 4961         |
| 5850 | 1. 3124  | 20. 6146         |

### 3.3.2 Typical free space radiation pattern

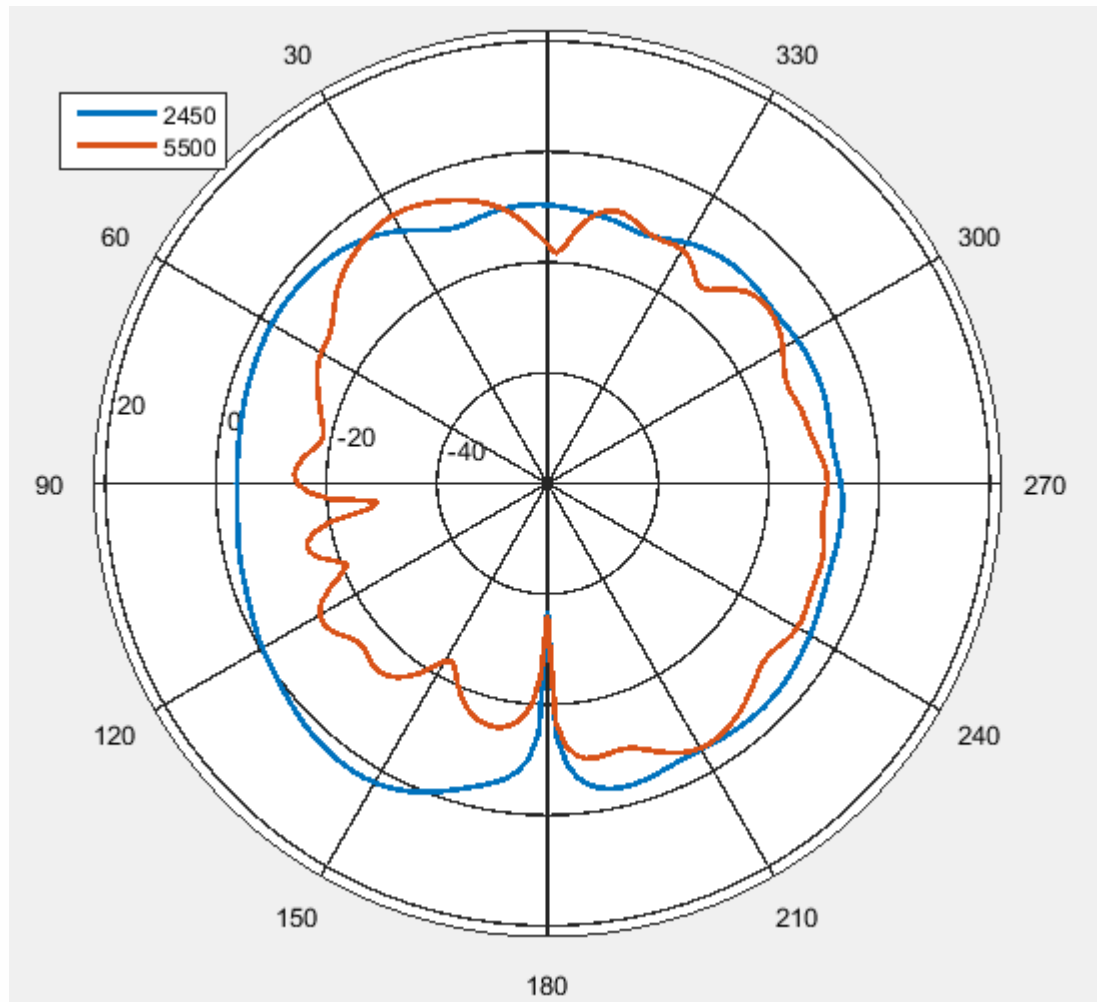
(1) X-Z Plane:

V Phi=0



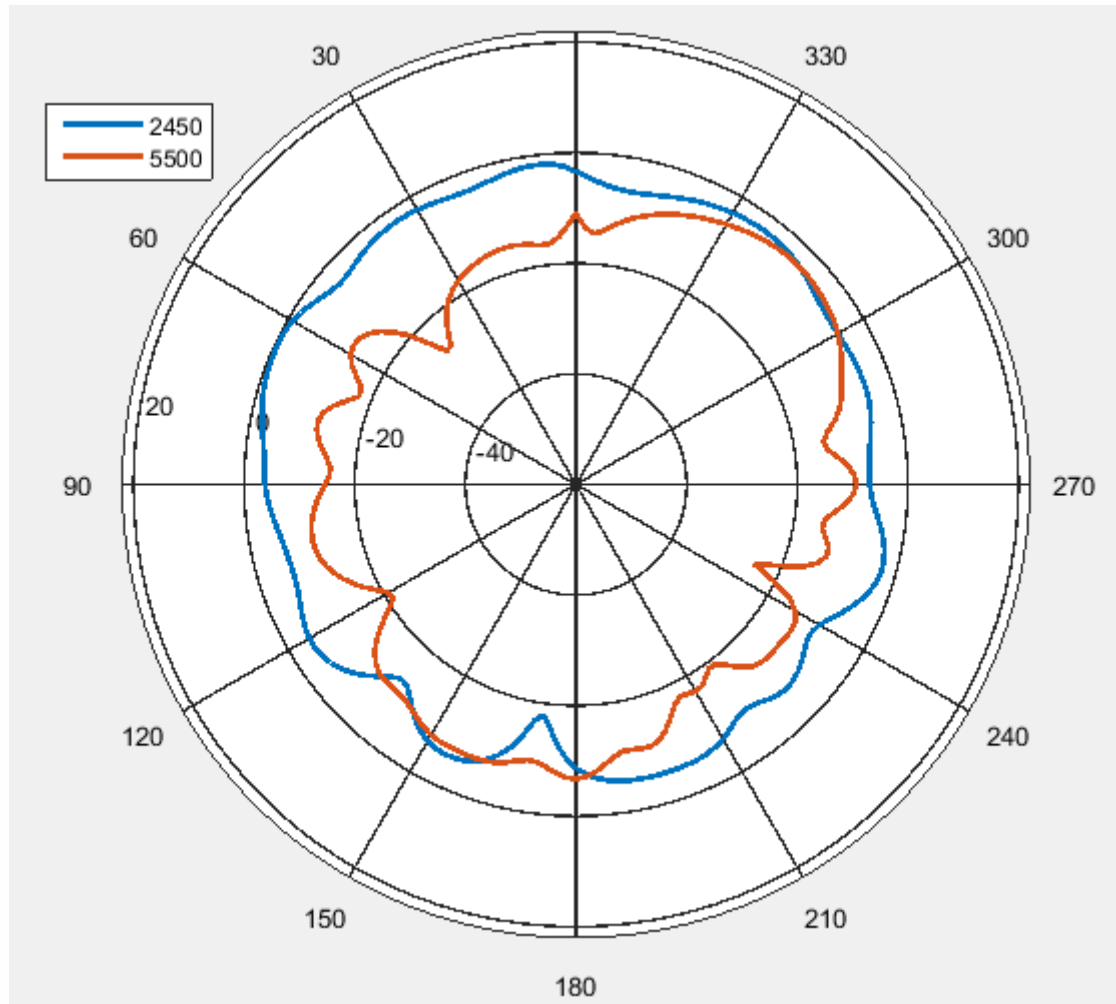
(2) Y-Z Plane:

V Phi=90

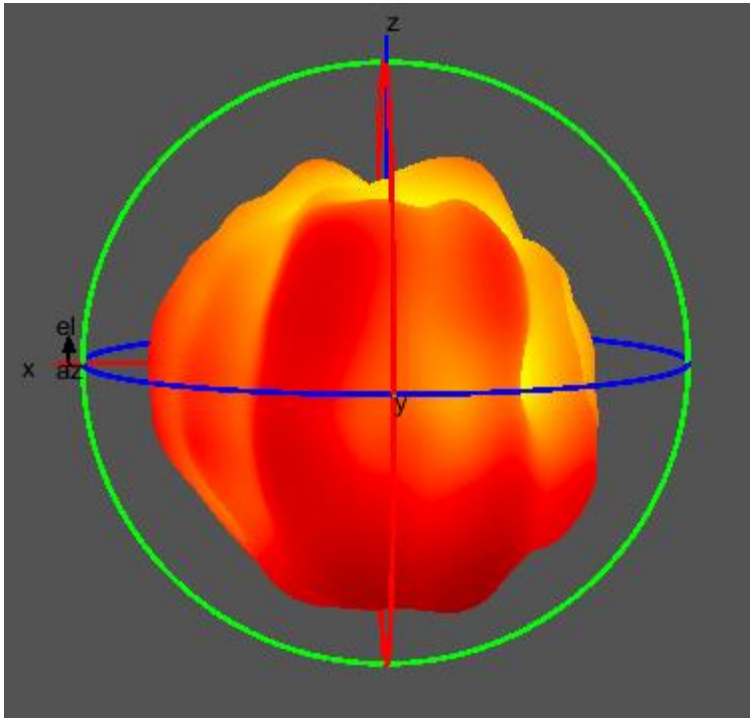


(2) X-Y Plane:

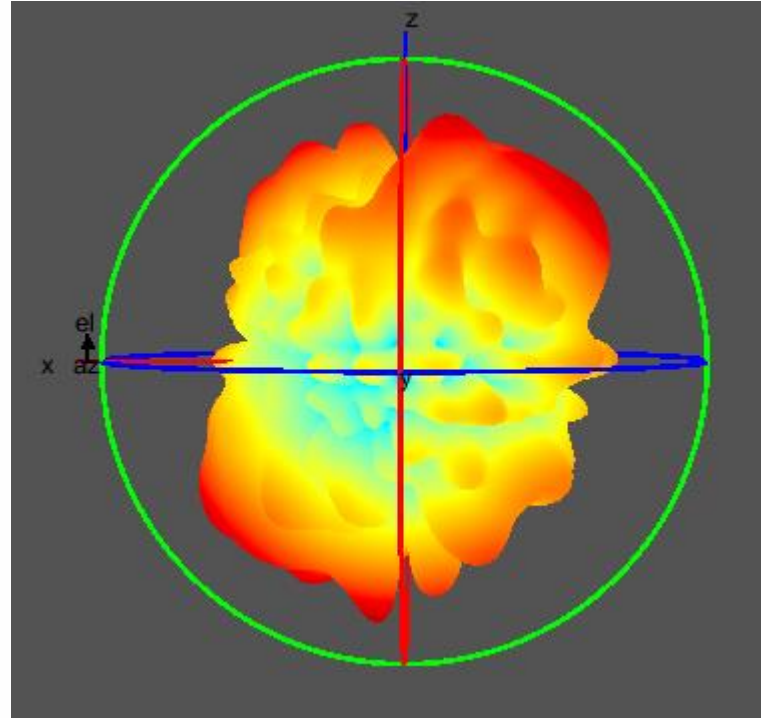
H Theta=90



(4) Typical Free Space 3D Radiation Pattern at 2450MHz 5500MHz:



2450MHz



5500MHz

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