

# Antenna



連騰科技股份有限公司

*The Most Appropriate Antenna for Your Design!*

*Advanced Wireless & Antenna Inc.*

## I-series 5.0 Value 10.1 WLAN Antenna Test Report

**ADVANCED-CONNECTEK INC.**

**Wireless Communications BU.**

**2023.02.20**



# Executive Summary

*Advanced Wireless & Antenna Inc.*

*Advanced Wireless & Antenna Inc.*

*Advanced Wireless & Antenna Inc.*

- **Purpose**

Antenna study for I-series 5.0 Value10.1. Result as following.

- **Agenda**

- Test Environment and Equipment
- Antenna Positions and Dimensions
- Antenna Test Data

Test Result : Antenna VSWR

Test Result : Antenna Efficiency & Peak Gain

Test Result : Antenna 2D Radiation Patternn

# Test Environment and Equipments

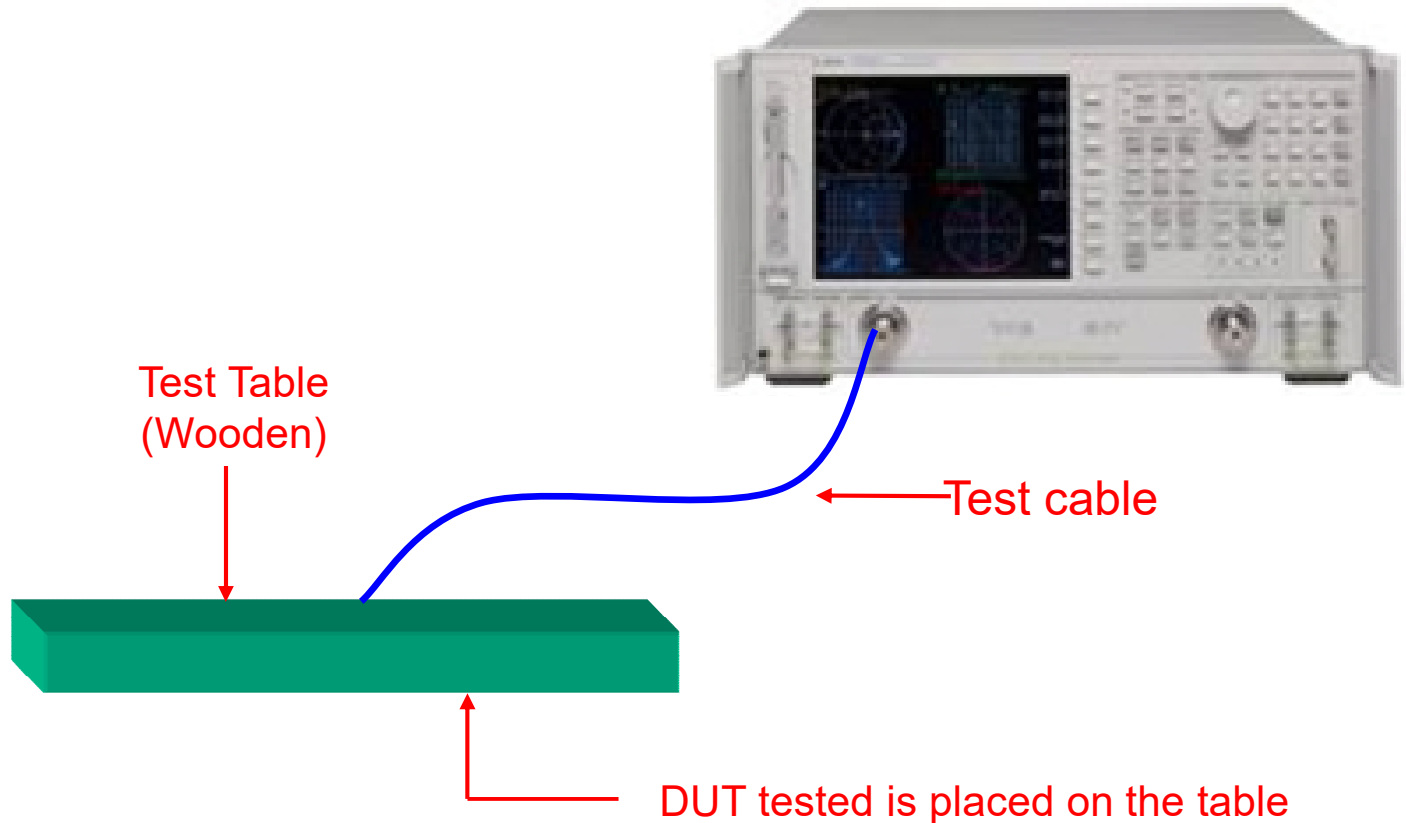
Advanced Wireless & Antenna Inc.

Advanced Wireless & Antenna Inc.

Advanced Wireless & Antenna Inc.

## S-Parameter test

- Network Analyzer(Agilent-E5071C)
- Testing range from 9KHz to 8.5GHz



# Test Environment and Equipments

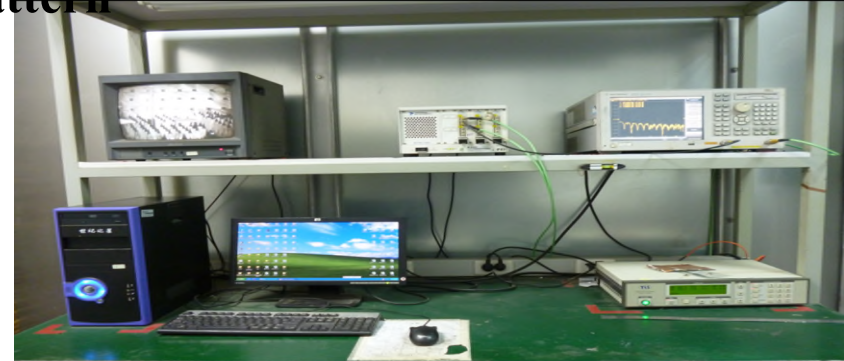
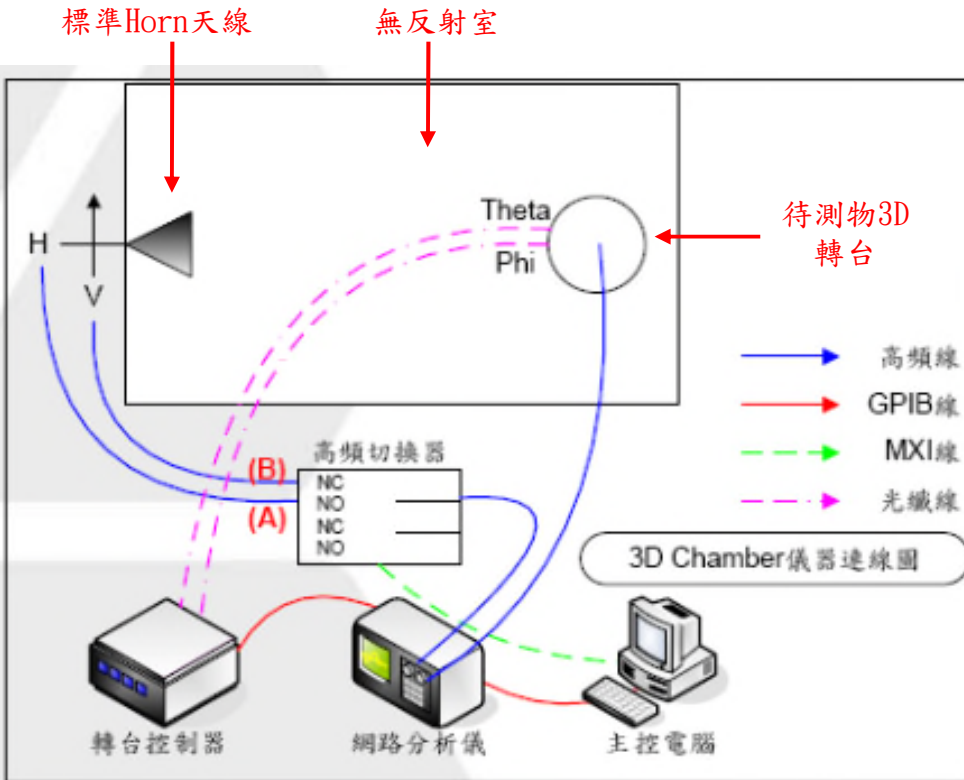
Advanced Wireless & Antenna Inc.

Advanced Wireless & Antenna Inc.

Advanced Wireless & Antenna Inc.

## The Gain, Efficiency, Directivity and 2D/3D Pattern

- ACON 3D Anechoic Chamber
- Chamber Room Size:  $L*W*H=9*4.7*4.7$  M



# Antenna Positions and Dimensions

Advanced Wireless & Antenna Inc.

Advanced Wireless & Antenna Inc.

Advanced Wireless & Antenna Inc.



排线需贴紧  
屏幕，防止  
靠近天线，  
影响天线性  
能。

## WIFI Main

Antenna Size : 46mm\*7.5mm\*0.8mm

Cable Length : 20mm

Cable OD:1.37

銅箔尺寸 : 10mm\*11.04mm

## WIFI Aux

Antenna Size : 46mm\*7.5mm\*0.8mm

Cable Length : 200mm

Cable OD:1.37

銅箔尺寸 : 10mm\*16.54mm

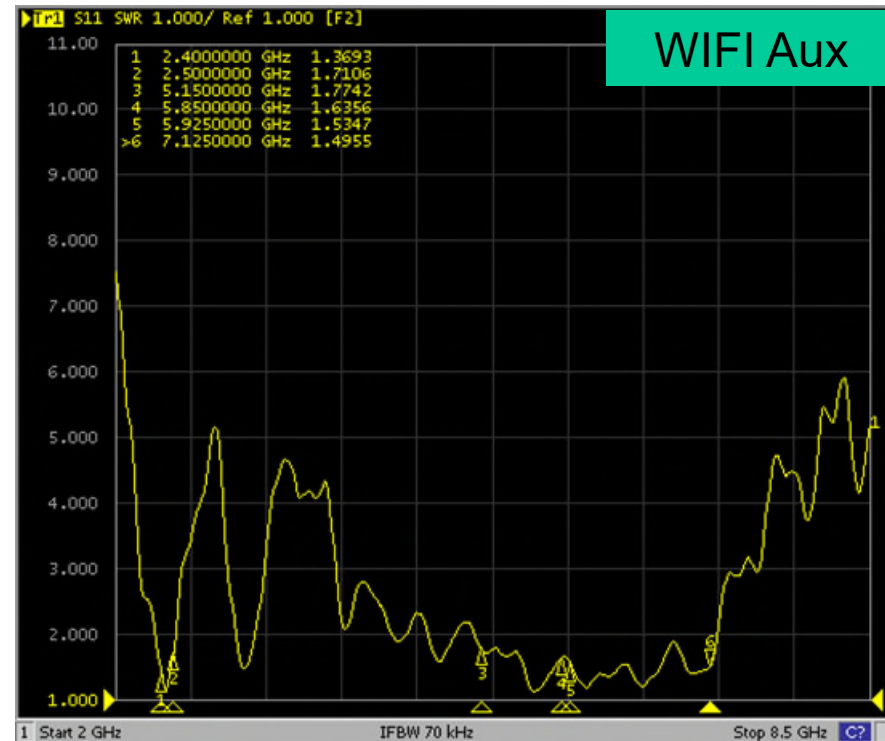
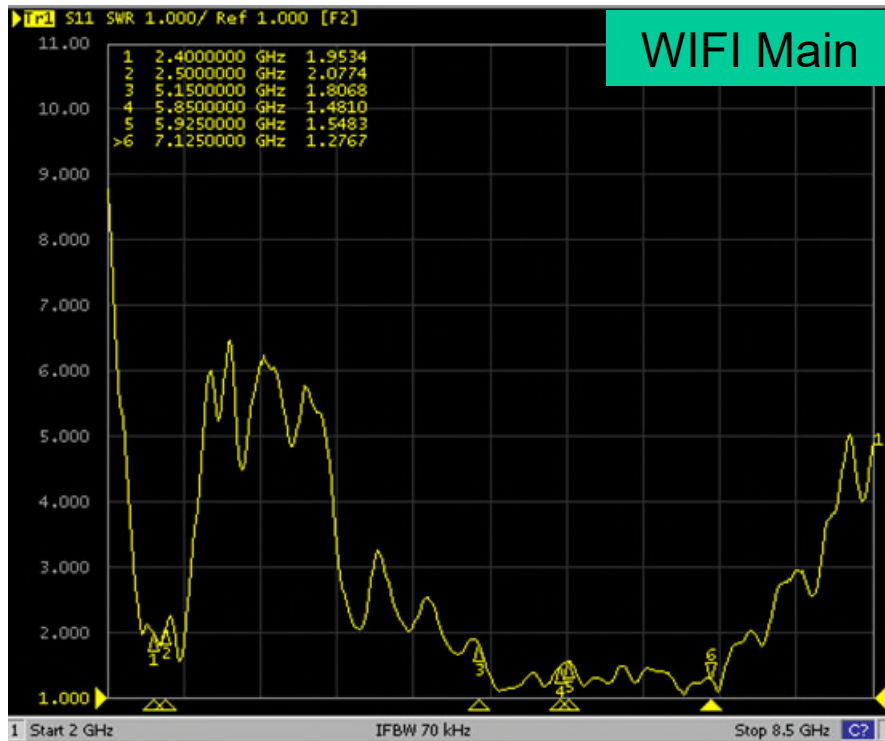


# Test Result:Antenna VSWR

Advanced Wireless & Antenna Inc.

Advanced Wireless & Antenna Inc.

Advanced Wireless & Antenna Inc.



# Test Result:Antenna Efficiency

Advanced Wireless & Antenna Inc.

Advanced Wireless & Antenna Inc.

Advanced Wireless & Antenna Inc.

**Main Antenna**

| Frequency<br>(MHz) | Efficiency<br>(dB) | Efficiency<br>(%) | peak<br>gain(dB) |
|--------------------|--------------------|-------------------|------------------|
| 2400               | -3.90              | 40.74             | 2.56             |
| 2450               | -3.83              | 41.40             | 2.01             |
| 2500               | -3.96              | 40.18             | 2.91             |
| 5150               | -3.87              | 41.02             | 1.67             |
| 5250               | -3.95              | 40.27             | 2.22             |
| 5350               | -4.13              | 38.64             | 2.44             |
| 5470               | -3.96              | 40.18             | 2.38             |
| 5600               | -4.04              | 39.45             | 2.26             |
| 5725               | -4.09              | 38.99             | 2.20             |
| 5750               | -3.95              | 40.27             | 2.14             |
| 5785               | -4.18              | 38.19             | 1.53             |
| 5800               | -4.14              | 38.55             | 1.89             |
| 5850               | -3.80              | 41.69             | 2.56             |

**Main Antenna**

| Frequency<br>(MHz) | Efficiency<br>(dB) | Efficiency<br>(%) | peak<br>gain(dB) |
|--------------------|--------------------|-------------------|------------------|
| 5925               | -3.95              | 40.27             | 1.56             |
| 6000               | -3.86              | 41.11             | 2.19             |
| 6100               | -3.57              | 43.95             | 1.82             |
| 6200               | -4.11              | 38.82             | 2.54             |
| 6300               | -4.16              | 38.37             | 2.12             |
| 6400               | -3.92              | 40.55             | 1.85             |
| 6500               | -4.01              | 39.72             | 1.86             |
| 6600               | -3.73              | 42.36             | 2.84             |
| 6700               | -3.96              | 40.18             | 2.35             |
| 6800               | -3.91              | 40.64             | 2.14             |
| 6900               | -4.12              | 38.73             | 1.84             |
| 7000               | -3.93              | 40.46             | 1.75             |
| 7125               | -3.69              | 42.76             | 2.28             |

# Test Result:Antenna Efficiency

Advanced Wireless & Antenna Inc.

Advanced Wireless & Antenna Inc.

Advanced Wireless & Antenna Inc.

| Aux Antenna        |                    |                   |                  |
|--------------------|--------------------|-------------------|------------------|
| Frequency<br>(MHz) | Efficiency<br>(dB) | Efficiency<br>(%) | peak<br>gain(dB) |
| 2400               | -3.92              | 40.55             | 1.81             |
| 2450               | -3.87              | 41.02             | 2.01             |
| 2500               | -3.97              | 40.09             | 1.79             |
| 5150               | -3.72              | 42.46             | 2.46             |
| 5250               | -4.05              | 39.36             | 1.79             |
| 5350               | -4.15              | 38.46             | 2.19             |
| 5470               | -3.63              | 43.35             | 1.64             |
| 5600               | -3.97              | 40.09             | 2.43             |
| 5725               | -4.11              | 38.82             | 2.70             |
| 5750               | -4.13              | 38.64             | 2.50             |
| 5785               | -4.08              | 39.08             | 2.03             |
| 5800               | -3.91              | 40.64             | 2.56             |
| 5850               | -4.12              | 38.73             | 1.81             |

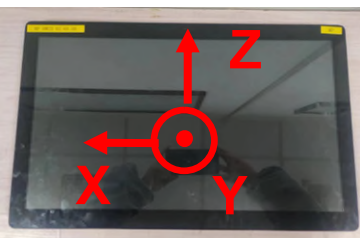
| Aux Antenna        |                    |                   |                  |
|--------------------|--------------------|-------------------|------------------|
| Frequency<br>(MHz) | Efficiency<br>(dB) | Efficiency<br>(%) | peak<br>gain(dB) |
| 5925               | -3.60              | 43.65             | 2.31             |
| 6000               | -4.15              | 38.46             | 2.26             |
| 6100               | -3.76              | 42.07             | 2.86             |
| 6200               | -3.67              | 42.95             | 2.26             |
| 6300               | -3.65              | 43.15             | 2.01             |
| 6400               | -3.89              | 40.83             | 2.44             |
| 6500               | -3.80              | 41.69             | 2.18             |
| 6600               | -3.74              | 42.27             | 2.72             |
| 6700               | -3.66              | 43.05             | 2.11             |
| 6800               | -3.79              | 41.78             | 2.46             |
| 6900               | -3.71              | 42.56             | 1.95             |
| 7000               | -3.84              | 41.30             | 2.42             |
| 7125               | -3.74              | 42.27             | 2.31             |

# Test Result:2D/3D Radiation Pattern MAIN

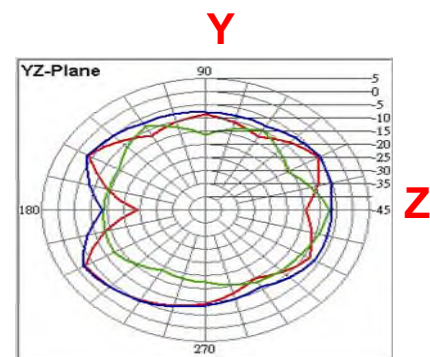
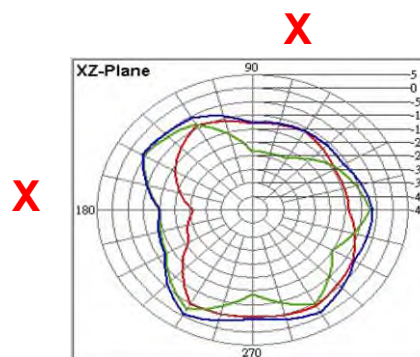
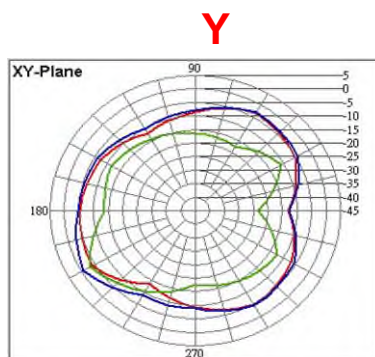
Advanced Wireless & Antenna Inc.

Advanced Wireless & Antenna Inc.

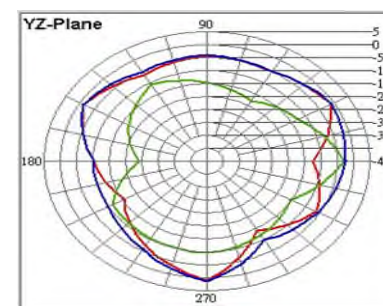
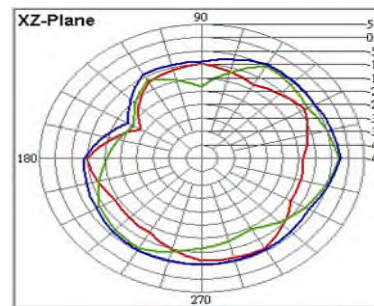
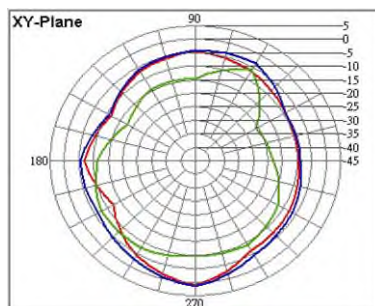
Advanced Wireless & Antenna Inc.



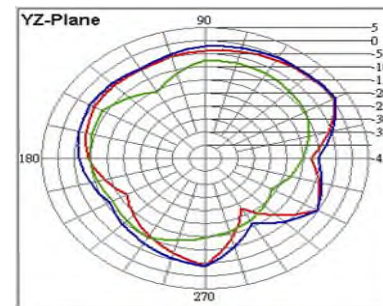
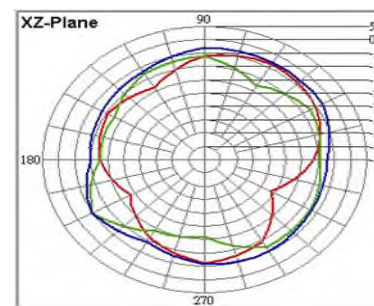
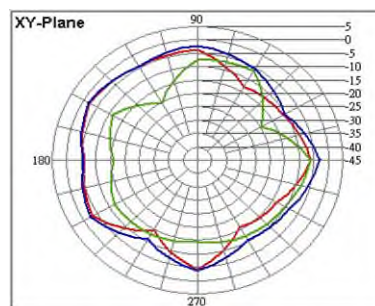
2400MHz



2450MHz



2500MHz



H-Pol



V-Pol



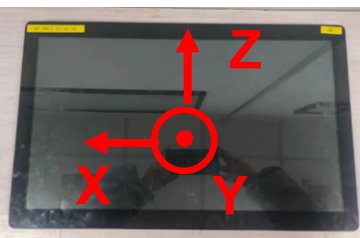
H+V

# Test Result:2D/3D Radiation Pattern MAIN

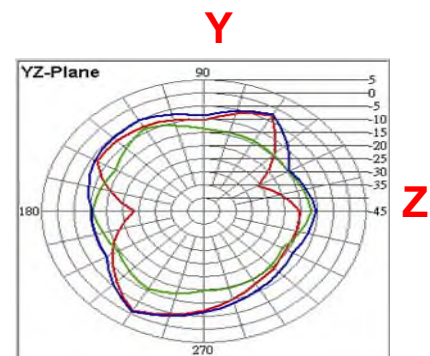
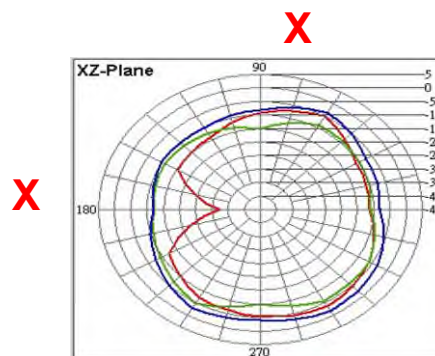
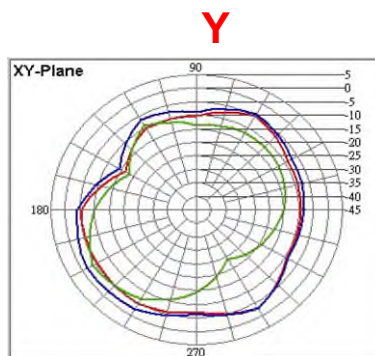
Advanced Wireless & Antenna Inc.

Advanced Wireless & Antenna Inc.

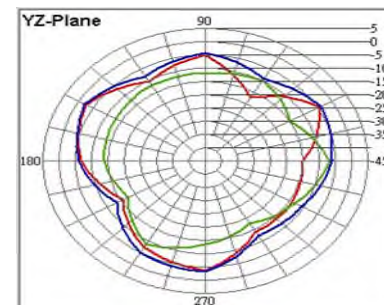
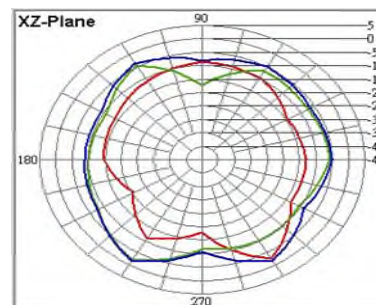
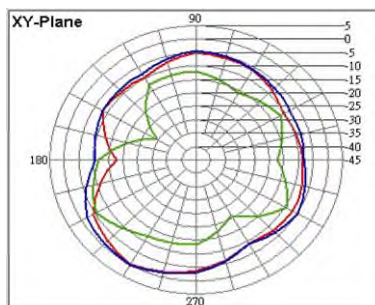
Advanced Wireless & Antenna Inc.



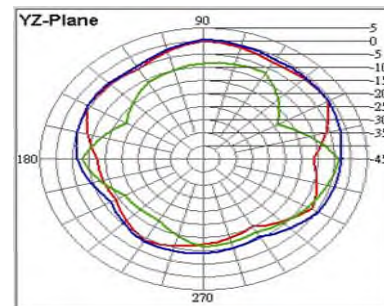
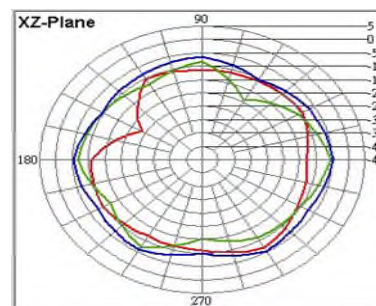
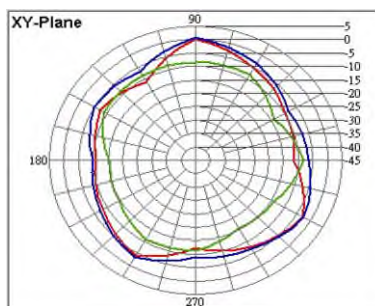
5150MHz



5470MHz



5850MHz



H-Pol



V-Pol



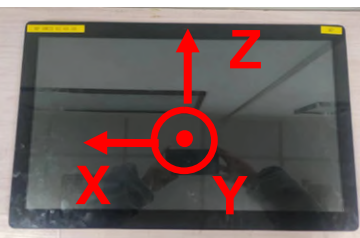
H+V

# Test Result:2D/3D Radiation Pattern MAIN

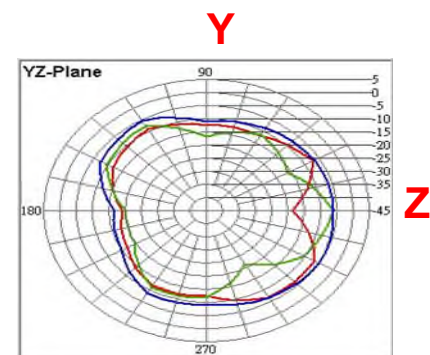
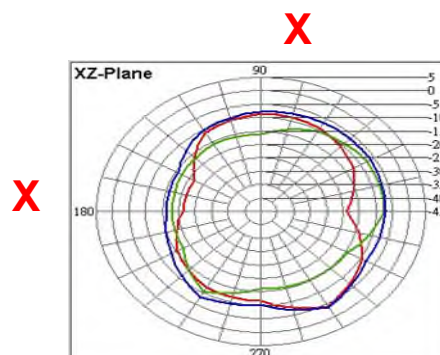
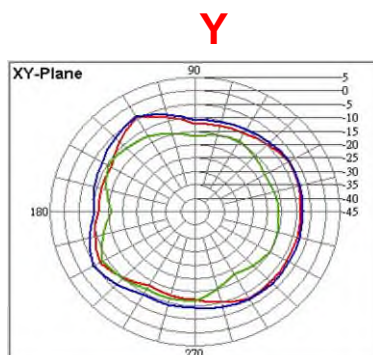
Advanced Wireless & Antenna Inc.

Advanced Wireless & Antenna Inc.

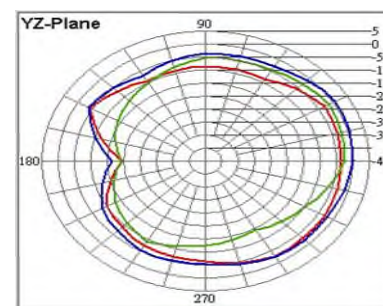
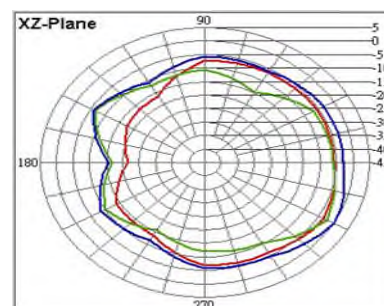
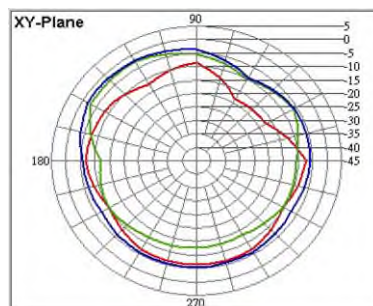
Advanced Wireless & Antenna Inc.



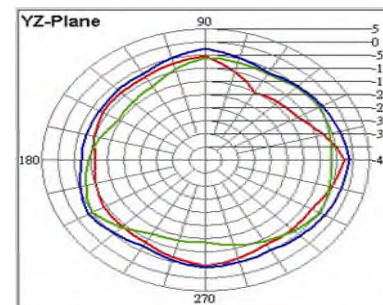
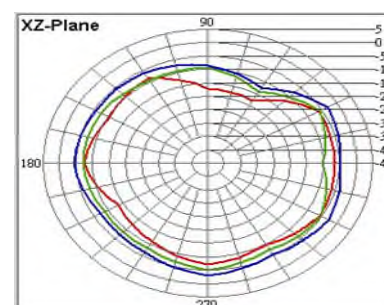
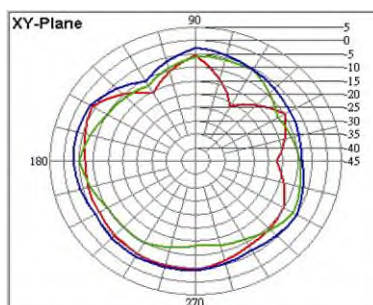
6100MHz



6500MHz



7125MHz

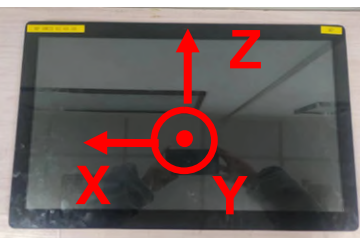


# Test Result: 2D/3D Radiation Pattern AUX

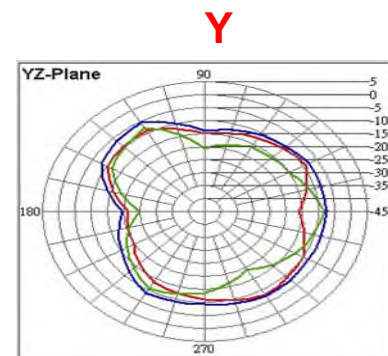
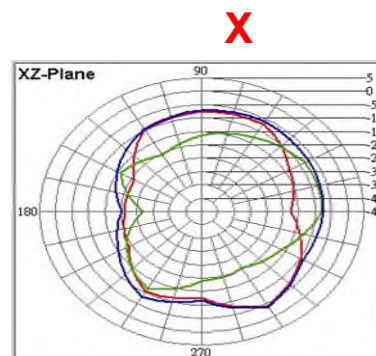
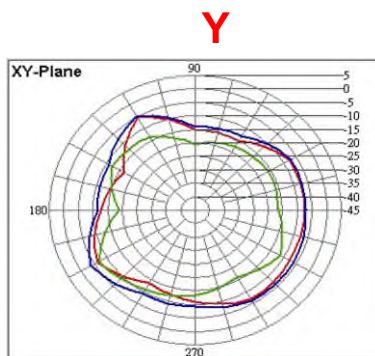
Advanced Wireless & Antenna Inc.

Advanced Wireless & Antenna Inc.

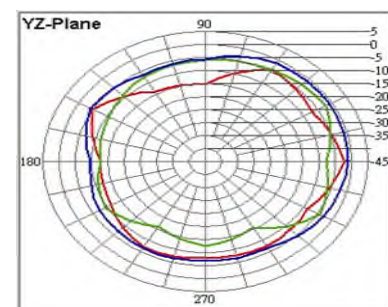
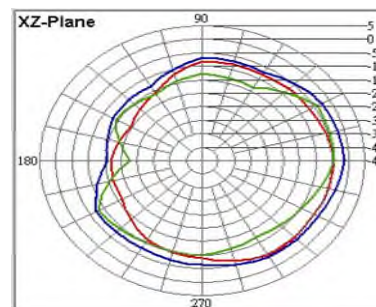
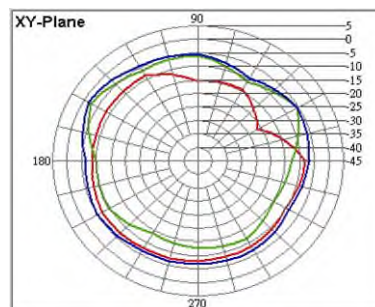
Advanced Wireless & Antenna Inc.



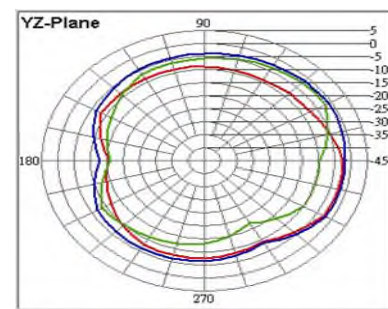
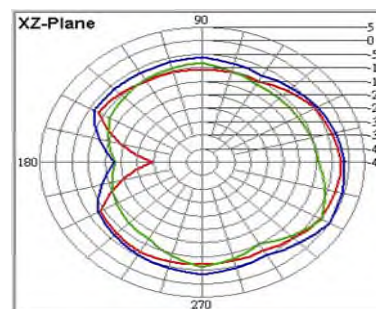
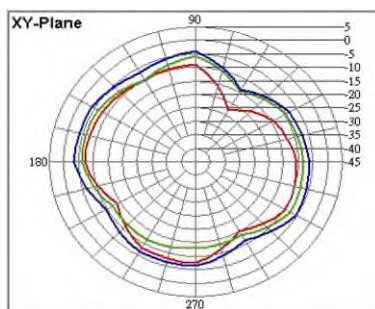
2400MHz



2450MHz



2500MHz



H-Pol



V-Pol



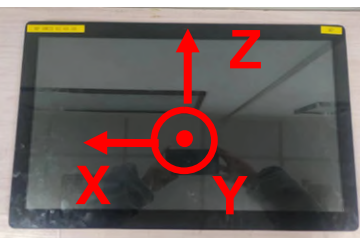
H+V

# Test Result: 2D/3D Radiation Pattern AUX

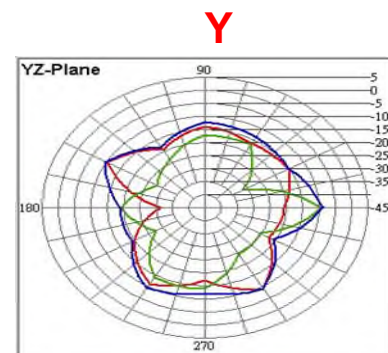
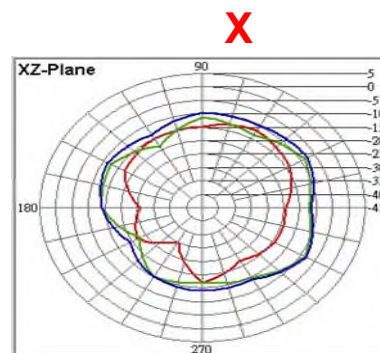
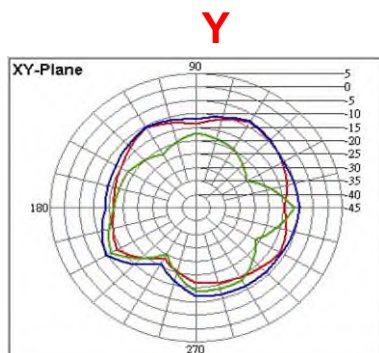
Advanced Wireless & Antenna Inc.

Advanced Wireless & Antenna Inc.

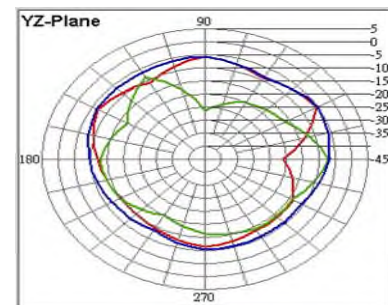
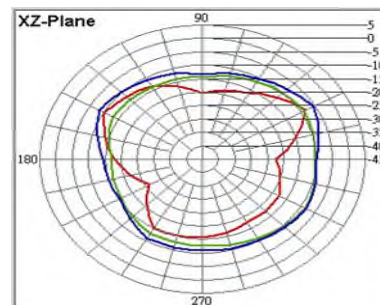
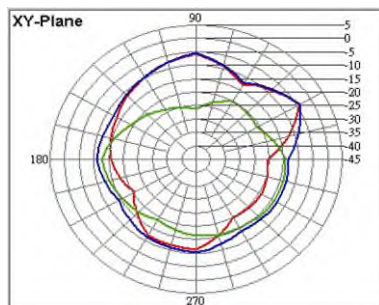
Advanced Wireless & Antenna Inc.



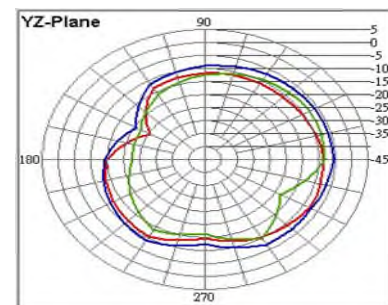
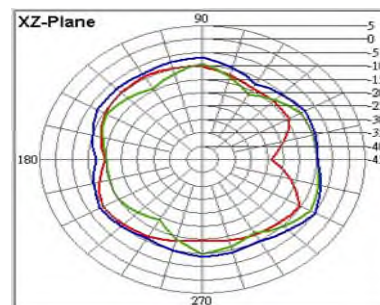
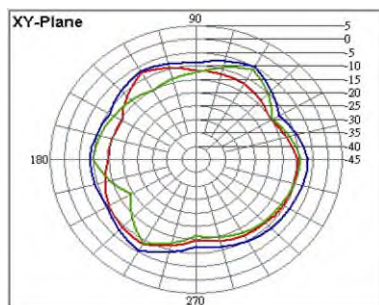
5150MHz



5470MHz



5850MHz



H-Pol



V-Pol



H+V

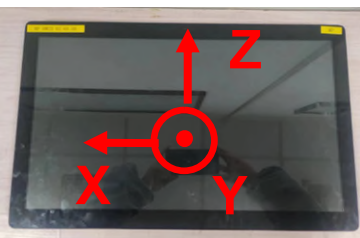
[www.awan-ant.com](http://www.awan-ant.com)

# Test Result: 2D/3D Radiation Pattern AUX

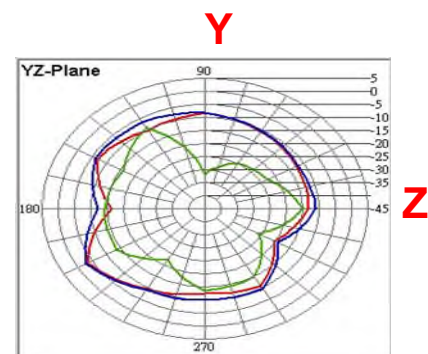
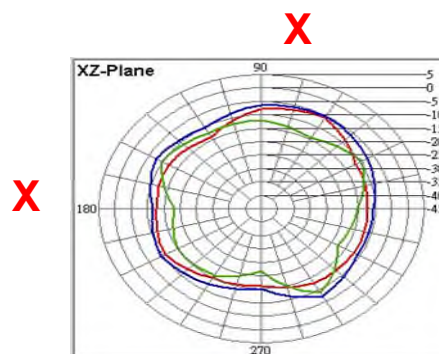
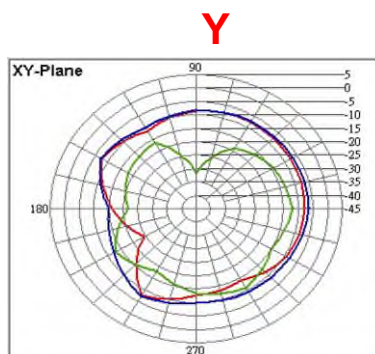
Advanced Wireless & Antenna Inc.

Advanced Wireless & Antenna Inc.

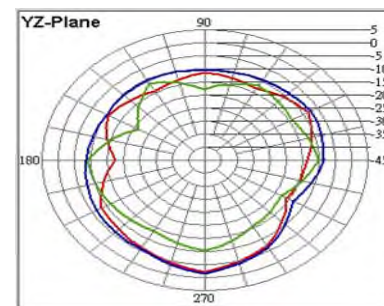
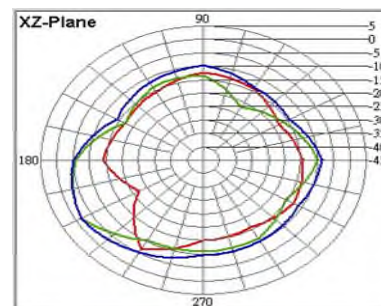
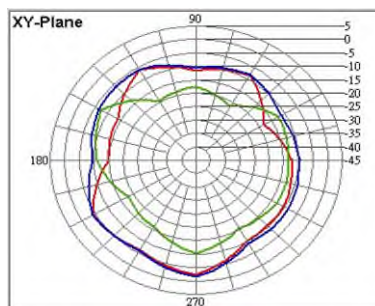
Advanced Wireless & Antenna Inc.



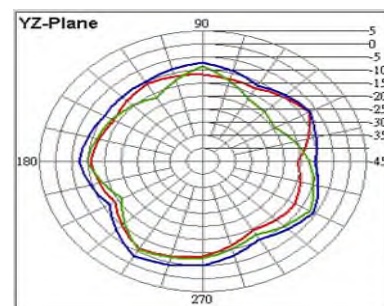
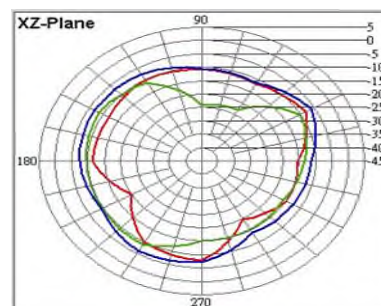
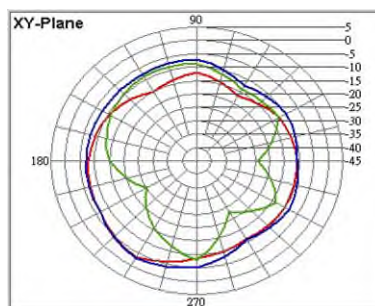
6100MHz



6500MHz



7125MHz



H-Pol



V-Pol



H+V

***Thank you!***

