

# APPROVAL SHEET

RoHS  
compliance

**CUSTOMER** : 凌華  
**ISSUE DATE** : 2021.12.01

| APPROVED          |             |            |             |
|-------------------|-------------|------------|-------------|
|                   |             |            |             |
| COMPANY           | APPROVED BY | CHECK BY   | PREPARED BY |
|                   | Wayne Yang  | Wayne Yang | Iris Lin    |
| APPROVAL NO :     |             |            |             |
| MODEL : PC-W09-01 |             |            |             |
| Customer NO :     |             |            |             |



**Product Name:** WiFi 2.4G/5.8GHz Antenna

**Part Number:** PC-W09-01

**Features:**

- Support WiFi 2.4G/5.8GHz Bands
- Cable: 1.37 mm Mini-Coax
- IPEX 4L Connector
- Customizable Cables and Connectors
- RoHS & RECH Compliant

**Applications:**

- Smart Home
- Surveillance Cameras
- Connected Wearable Device
- Router and Gateway

# WiFi 2.4G/5.8GHz Antenna

**MODEL: PC-W09-01**

Rev.A

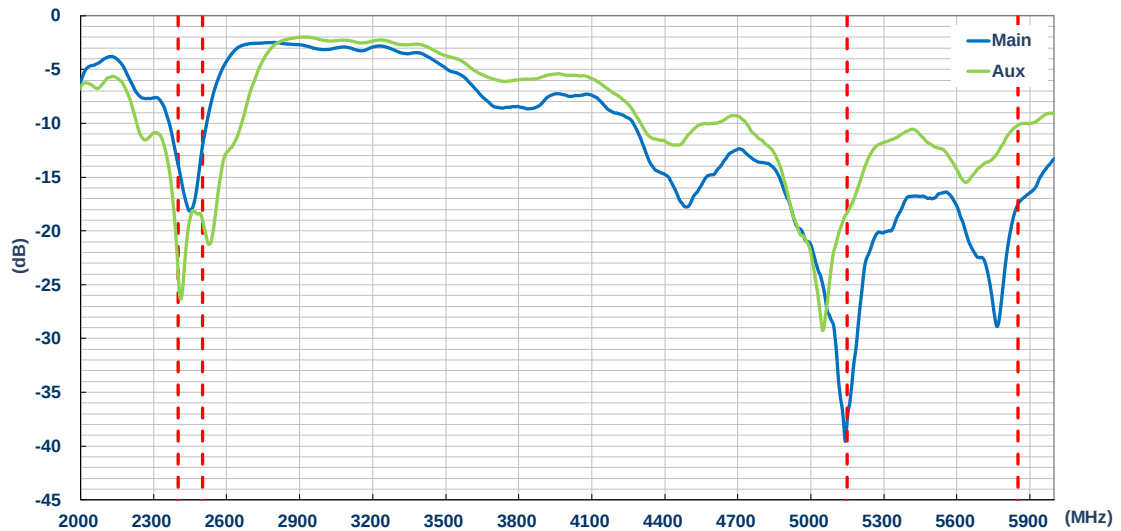
## I. Specifications:

| Items                      |      | Specifications              |       |       |       |       |       |       |
|----------------------------|------|-----------------------------|-------|-------|-------|-------|-------|-------|
| Electrical Characteristics |      |                             |       |       |       |       |       |       |
| Frequencies (MHz)          |      | 2400                        | 2450  | 2500  | 5150  | 5350  | 5750  | 5850  |
| Efficiency (%)             | Main | 66.99                       | 69.02 | 66.53 | 69.50 | 55.21 | 69.02 | 74.64 |
|                            | Aux  | 78.16                       | 71.78 | 68.23 | 65.31 | 65.31 | 64.71 | 62.81 |
| Average Gain (dBi)         | Main | -1.74                       | -1.61 | -1.77 | -1.58 | -2.58 | -1.61 | -1.27 |
|                            | Aux  | -1.07                       | -1.44 | -1.66 | -1.85 | -1.85 | -1.89 | -2.02 |
| Peak Gain (dBi)            | Main | 0.24                        | 0.41  | 1.31  | 2.92  | 2.01  | 2.46  | 2.24  |
|                            | Aux  | 0.99                        | 0.75  | 1.41  | 1.77  | 2.89  | 2.66  | 2.33  |
| V.S.W.R                    |      | < 2                         |       |       |       |       |       |       |
| Return Loss (dB)           |      | < -10                       |       |       |       |       |       |       |
| Impedance (Ω)              |      | 50                          |       |       |       |       |       |       |
| Polarization               |      | Linear                      |       |       |       |       |       |       |
| Physical Condition         |      |                             |       |       |       |       |       |       |
| Dimensions (mm)            |      | 23.0(L) x 10.0(W) x 0.25(T) |       |       |       |       |       |       |
| Connector                  |      | IPEX 4L                     |       |       |       |       |       |       |
| Cable                      |      | 1.37 mm Mini-Coax           |       |       |       |       |       |       |
| Cable Length (mm)          |      | 110                         |       |       |       |       |       |       |
| Environmental Conditions   |      |                             |       |       |       |       |       |       |
| Operation Temperature (°C) |      | -40 ~ +85                   |       |       |       |       |       |       |
| Storage Temperature (°C)   |      | -40 ~ +85                   |       |       |       |       |       |       |
| Relative Humidity          |      | 95% non-condensing          |       |       |       |       |       |       |

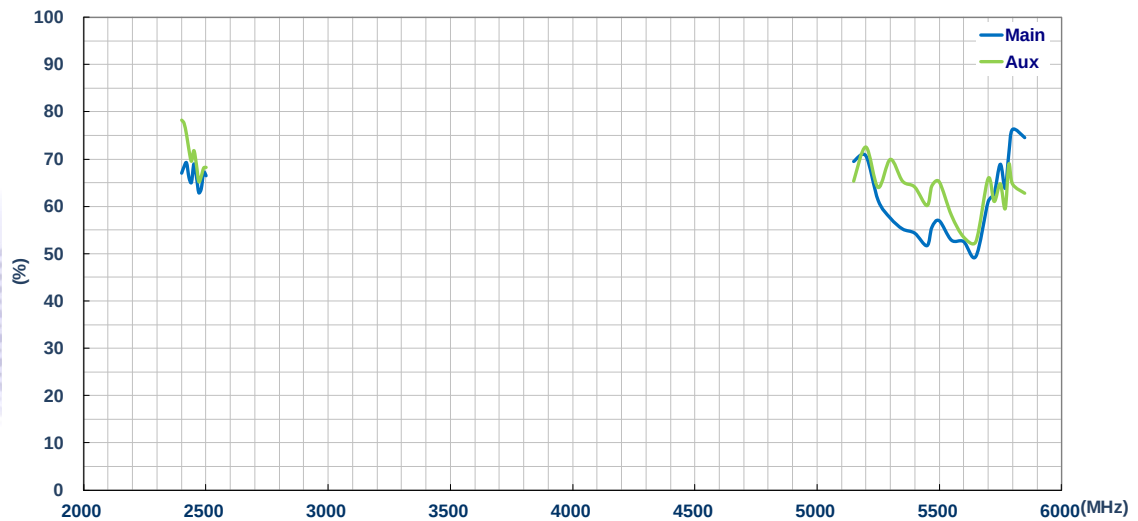
© Unictron Technologies Corp.  
All specifications subject to change without notice.

## II. Antenna Technical Parameters:

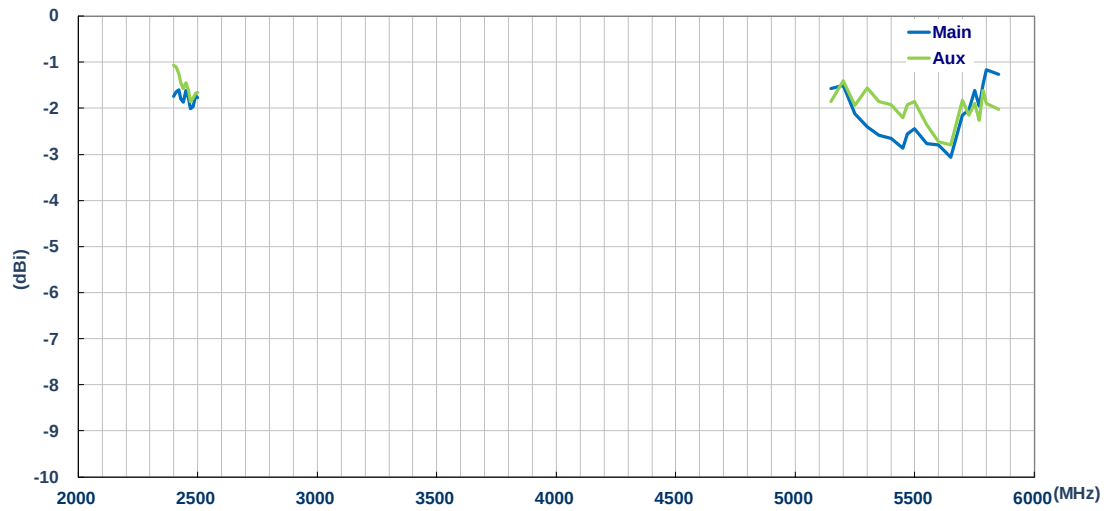
S11 (dB)



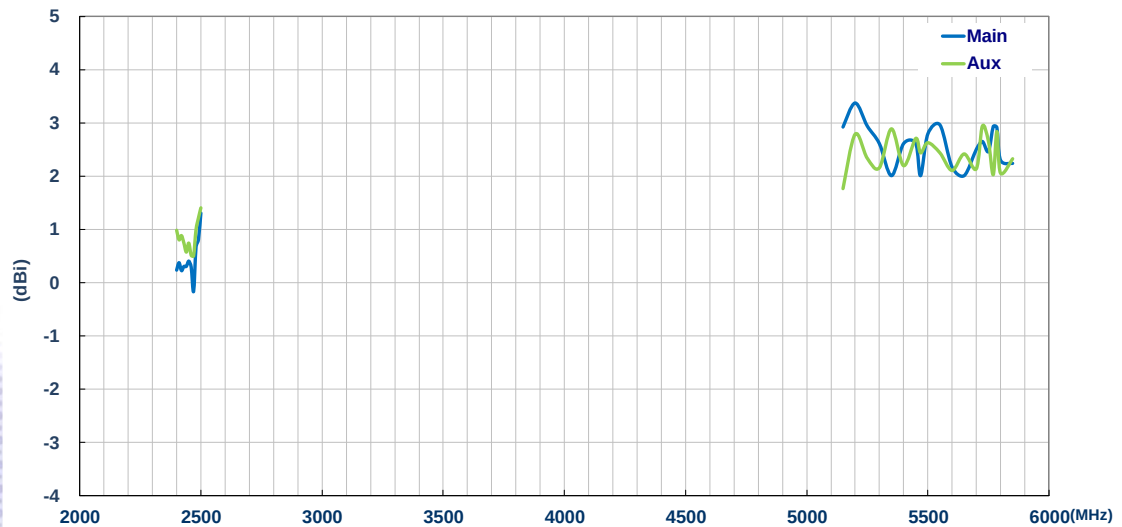
Efficiencny (%)



Average Gain (dBi)

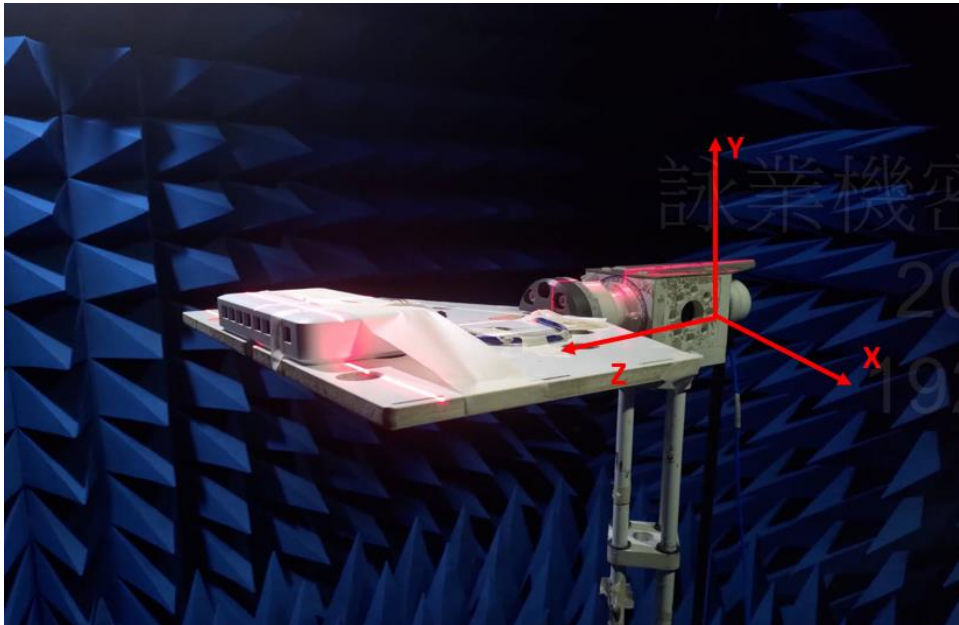


Peak Gain (dBi)



### III. Antenna Radiation Pattern Measurement:

The antenna radiation patterns are measured in 3D Anechoic Chamber.  
The measurement setup is as show below,

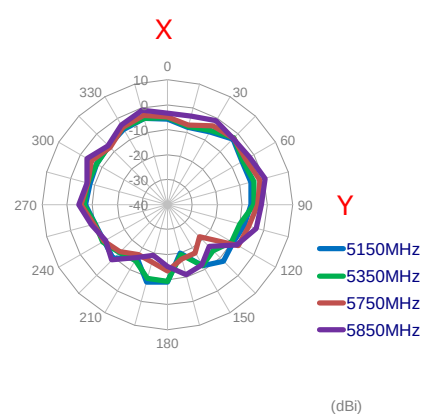
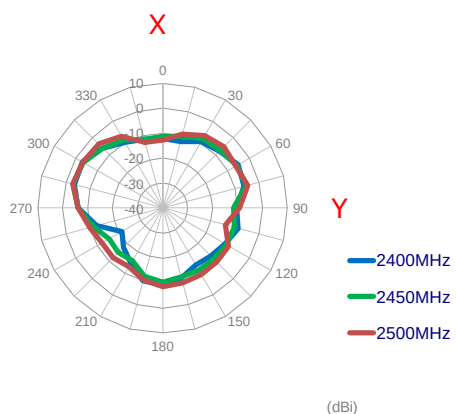


© Unictron Technologies Corp.  
All specifications subject to change without notice.

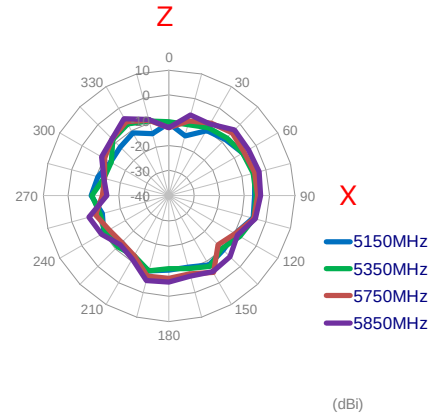
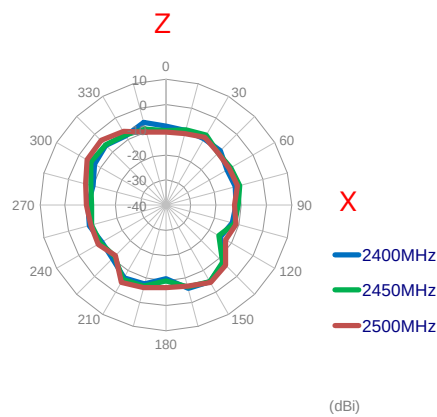
#### A) 2D Radiation Pattern:

##### Main

X-Y plane

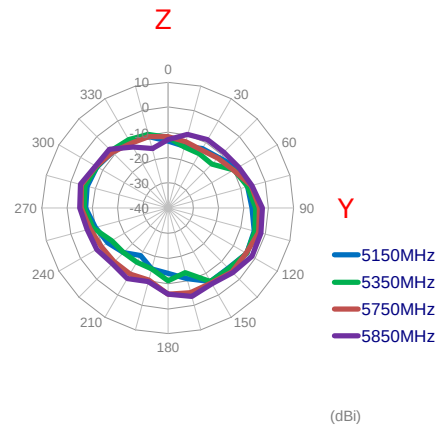
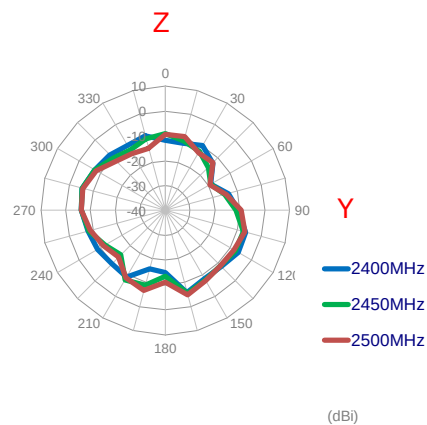


## X-Z plane



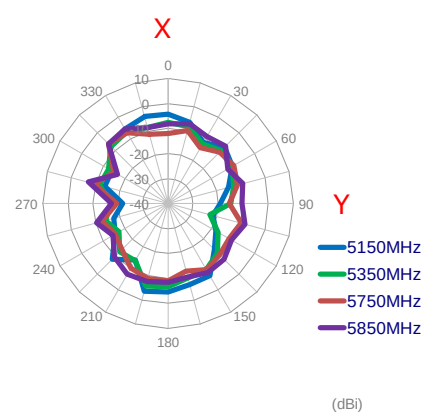
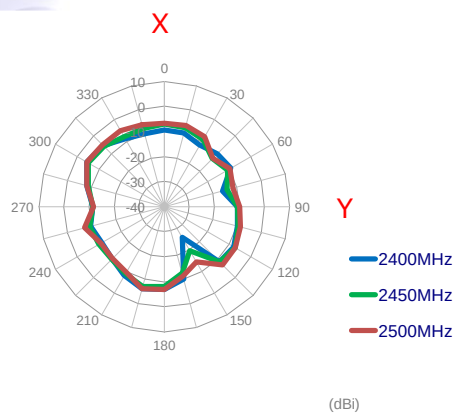
© Unictron Technologies Corp.  
All specifications subject to change without notice.

## Y-Z plane



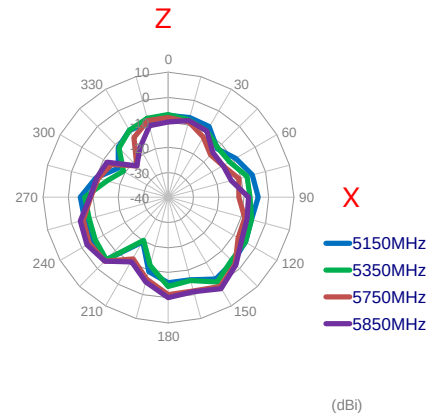
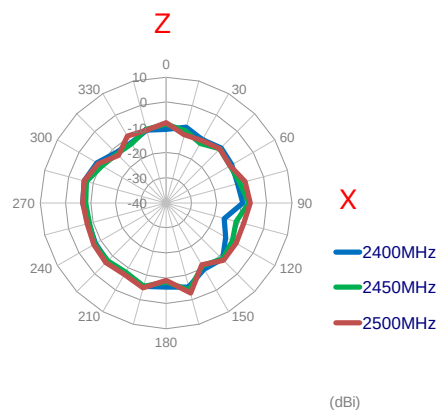
## Aux

## X-Y plane



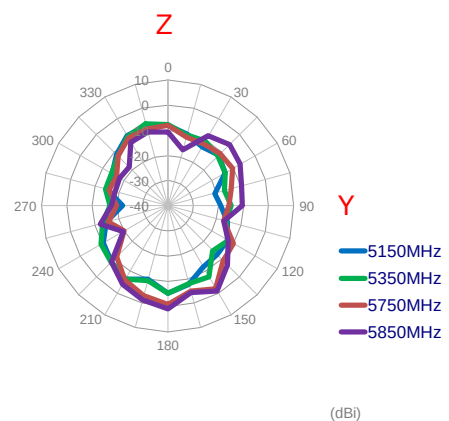
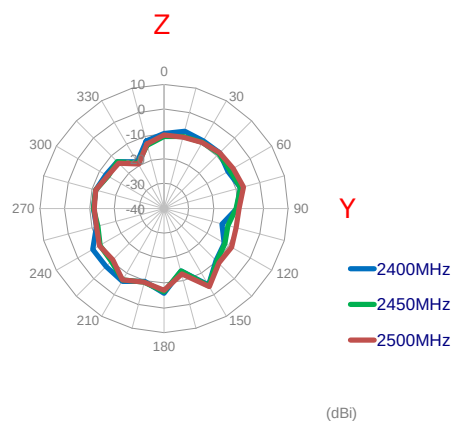


## X-Z plane



© Unictron Technologies Corp.  
All specifications subject to change without notice.

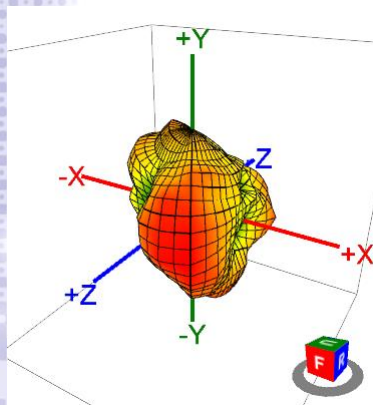
## Y-Z plane



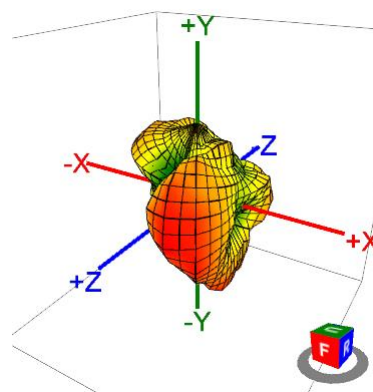
## B) 3D Radiation Pattern:

### Main

2400MHz

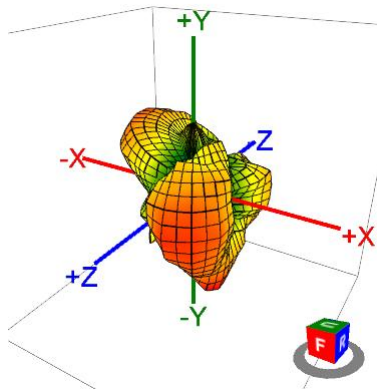


2450MHz

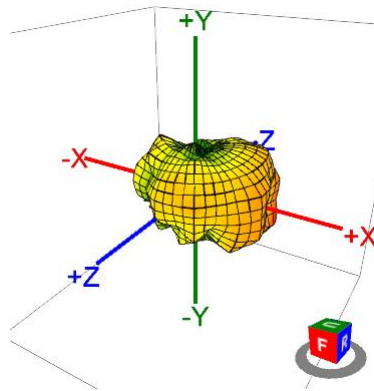




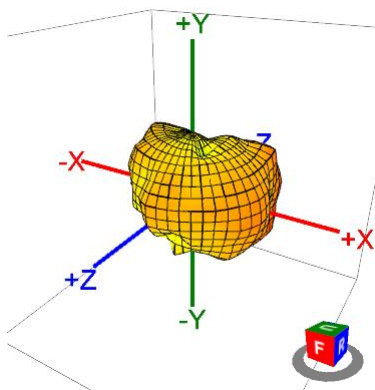
2500MHz



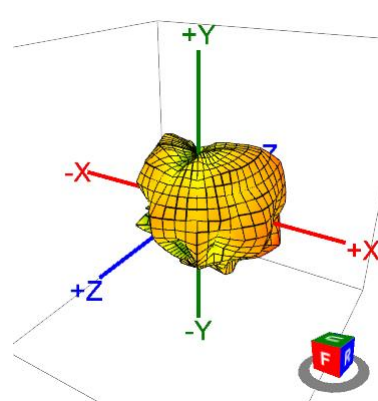
5150MHz



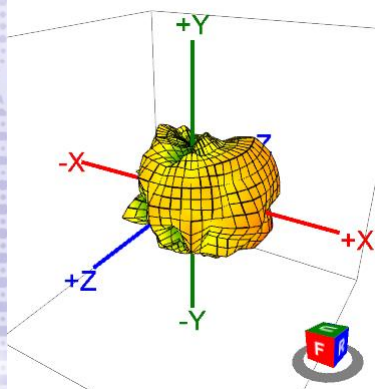
5350MHz



5750MHz

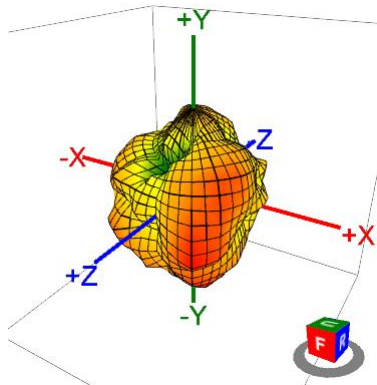


5850MHz

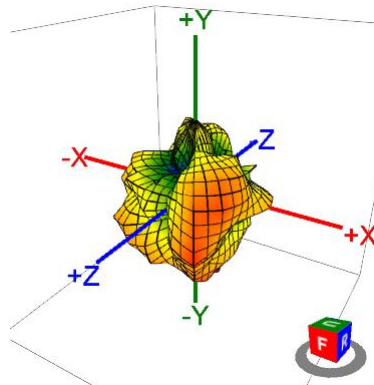


**Aux**

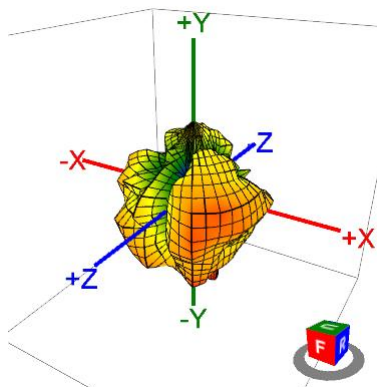
2400MHz



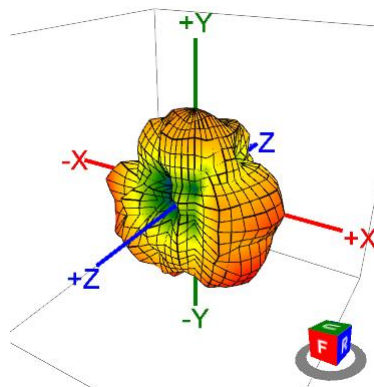
2450MHz



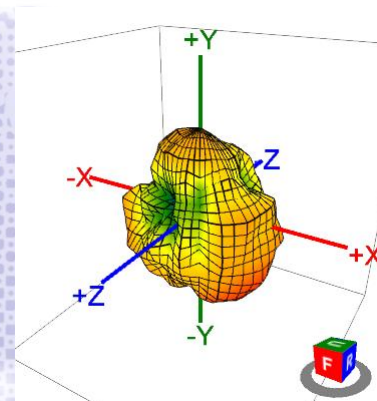
2500MHz



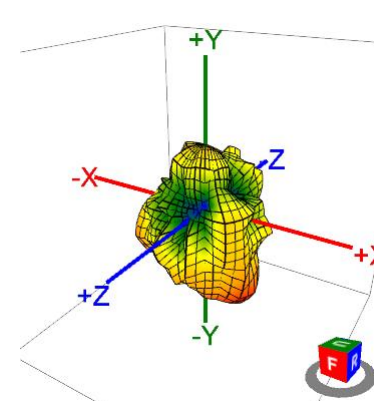
5150MHz



5350MHz

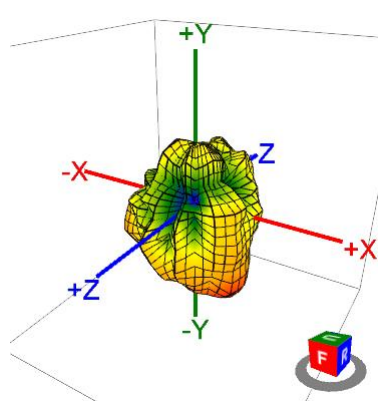


53750MHz

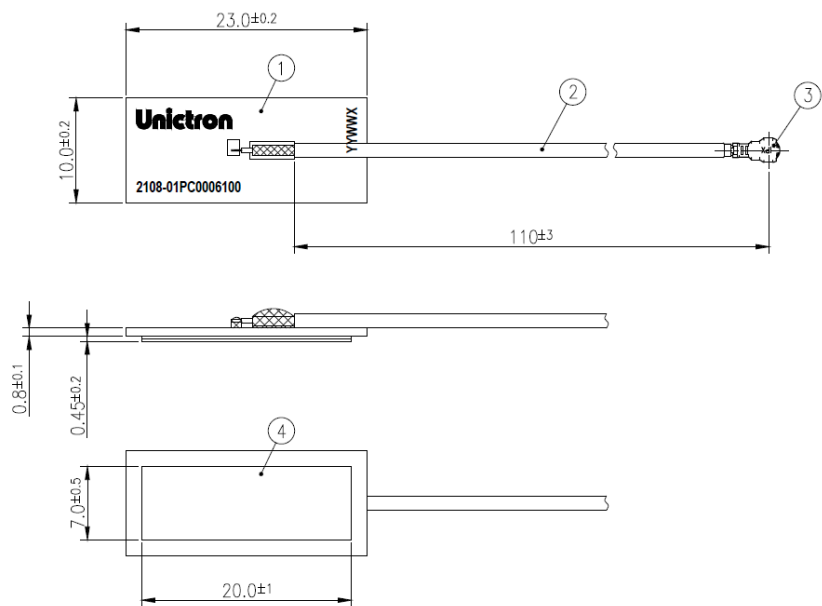


© Unictron Technologies Corp.  
All specifications subject to change without notice.

5850MHz



#### IV. Mechanical Drawing (Unit:mm):



Notes :

1. All material must be RoHS compliant.
2. IP Code : None.

| 4  | Double Adhesive                  | 3M/9888T      | White Liner | 1   |
|----|----------------------------------|---------------|-------------|-----|
| 3  | IPEX 4L Connector(20632-001R-37) | Copper Alloy  | Au Plated   | 1   |
| 2  | OD1.37 Coaxial Cable             | FEP           | Black       | 1   |
| 1  | PCB Board                        | NP-140 (0.8t) | Green       | 1   |
| No | NAME                             | MATERIAL      | FINISH      | QTY |

## V. Highest Peak Gain with Cable Loss (dBi): [values found in spec sheets]

| Antenna vendor Part Number (main & aux parts) | Type   | Antenna Vendor | 2400 | 5150 | 5350 | 5850 | Cable loss               | Connector Type | Cable length |
|-----------------------------------------------|--------|----------------|------|------|------|------|--------------------------|----------------|--------------|
| Main : PC-W09-01                              | dipole |                | 1.31 | 2.92 | 2.01 | 2.24 | 2.4G : 1.63<br>5G : 2.52 | I-PEX MHF4-L   | 110mm        |
| AUX : PC-W09-01                               | dipole |                | 1.41 | 1.77 | 2.89 | 2.33 | 2.4G : 1.63<br>5G : 2.52 | I-PEX MHF4-L   | 110mm        |

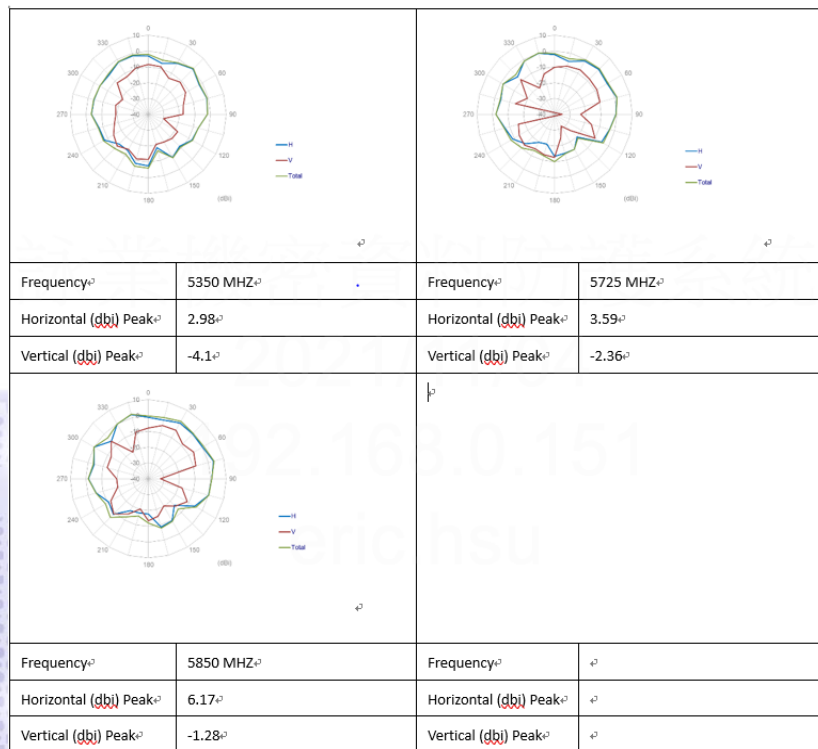
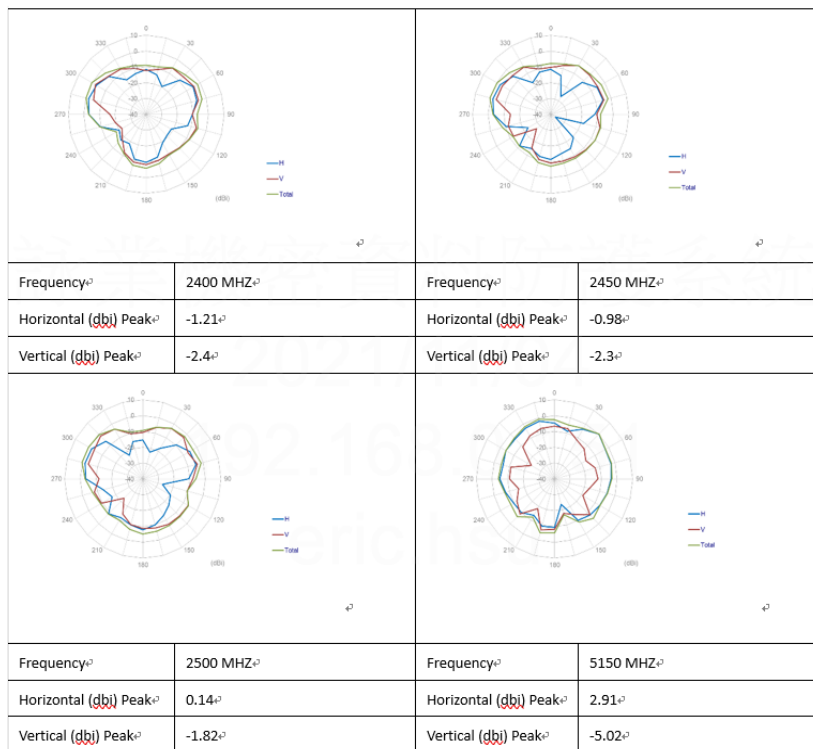
© Unictron Technologies Corp.  
All specifications subject to change without notice.



## VI. Antenna Gain Data:

### Main

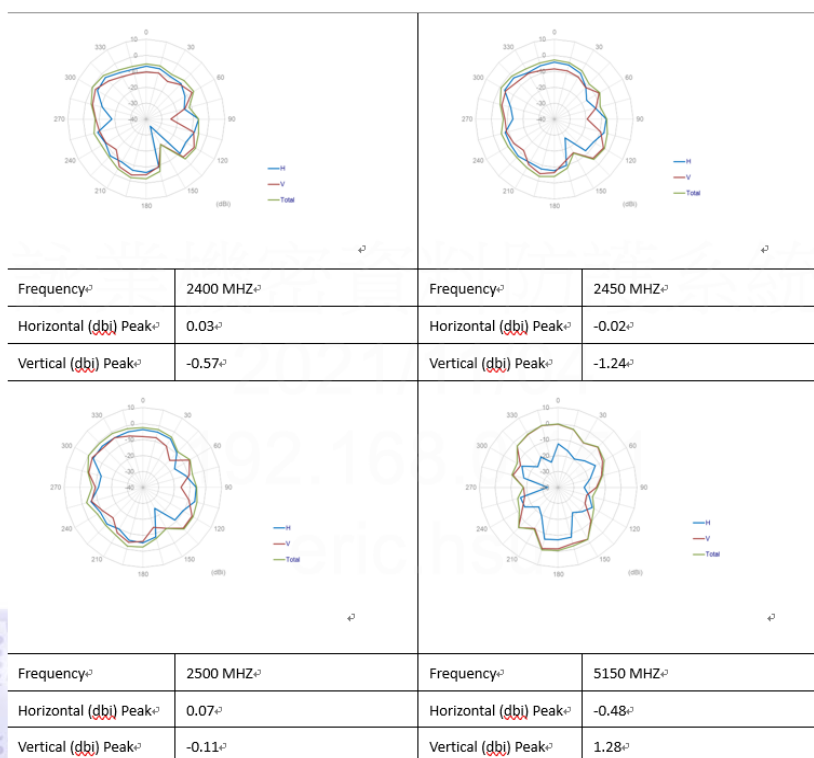
| Antenna Gain Data |         |         |               |            |                |
|-------------------|---------|---------|---------------|------------|----------------|
| Frequencies (MHz) | H (dBi) | V (dBi) | Average (dBi) | Peak (dBi) | Efficiency (%) |
| 2400              | -1.21   | -2.40   | -1.74         | 0.24       | 66.99          |
| 2450              | -0.98   | -2.30   | -1.61         | 0.41       | 69.02          |
| 2500              | 0.14    | -1.82   | -1.77         | 1.31       | 66.53          |
| 5150              | 2.91    | -5.02   | -1.58         | 2.92       | 69.50          |
| 5350              | 2.98    | -4.10   | -2.58         | 2.01       | 55.21          |
| 5725              | 3.59    | -2.36   | -1.61         | 2.46       | 69.02          |
| 5850              | 6.17    | -1.28   | -1.27         | 2.24       | 74.64          |



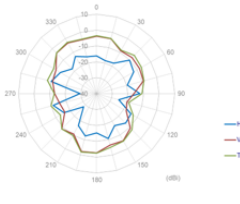
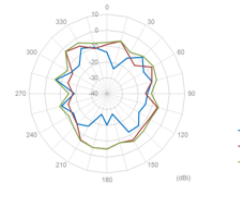
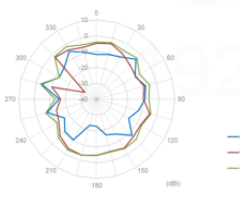
## Aux

| Antenna Gain Data    |         |         |                  |               |                   |
|----------------------|---------|---------|------------------|---------------|-------------------|
| Frequencies<br>(MHz) | H (dBi) | V (dBi) | Average<br>(dBi) | Peak<br>(dBi) | Efficiency<br>(%) |
| 2400                 | 0.03    | -0.57   | -1.07            | 0.99          | 78.16             |
| 2450                 | -0.02   | -1.24   | -1.44            | 0.75          | 71.78             |
| 2500                 | 0.07    | -0.11   | -1.66            | 1.41          | 68.23             |
| 5150                 | -0.48   | 1.28    | -1.85            | 1.77          | 65.31             |
| 5350                 | -1.25   | 2.42    | -1.85            | 2.89          | 65.31             |
| 5725                 | 3.03    | 5.81    | -1.89            | 2.66          | 64.71             |
| 5850                 | 4.92    | 6.81    | -2.02            | 2.33          | 62.81             |

© Unictron Technologies Corp.  
All specifications subject to change without notice.





|                                                                                   |                       |                                                                                    |                       |
|-----------------------------------------------------------------------------------|-----------------------|------------------------------------------------------------------------------------|-----------------------|
|  |                       |  |                       |
| Frequency <sup>①</sup>                                                            | 5350 MHz <sup>②</sup> | Frequency <sup>①</sup>                                                             | 5725 MHz <sup>②</sup> |
| Horizontal (dBi) Peak <sup>③</sup>                                                | -1.25 <sup>④</sup>    | Horizontal (dBi) Peak <sup>③</sup>                                                 | 3.03 <sup>④</sup>     |
| Vertical (dBi) Peak <sup>③</sup>                                                  | 2.42 <sup>④</sup>     | Vertical (dBi) Peak <sup>③</sup>                                                   | 5.81 <sup>④</sup>     |
|  |                       |  |                       |
| Frequency <sup>①</sup>                                                            | 5850 MHz <sup>②</sup> | Frequency <sup>①</sup>                                                             | ④ <sup>⑤</sup>        |
| Horizontal (dBi) Peak <sup>③</sup>                                                | 4.92 <sup>④</sup>     | Horizontal (dBi) Peak <sup>③</sup>                                                 | ④ <sup>⑤</sup>        |
| Vertical (dBi) Peak <sup>③</sup>                                                  | 6.81 <sup>④</sup>     | Vertical (dBi) Peak <sup>③</sup>                                                   | ④ <sup>⑤</sup>        |

© Unictron Technologies Corp.  
All specifications subject to change without notice.