

Specification

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|-------------|---|--|
| Part No. | : | WLA.01 |
| Model | : | 2.4GHz High Efficiency Loop Antenna |
| Description | : | 2.5dBi 2400MHz to 2500MHz WLAN/WIFI/Bluetooth/Zigbee |
| Features | : | 3.2*1.6*0.5mm Low Profile Peak gain 2.5dBi 50 Ohm Impedance |
| | | RoHS ✓ |





1. Introduction

The WLA.01 2.4GHz Loop antenna is a high efficiency, miniature SMD, edge mounted ceramic antenna for very small space requirements for Wi-Fi, WLAN, Zigbee, Bluetooth, and 802.11 applications. The WLA.01 uses the main PCB as its ground plane, thereby increasing Antenna Efficiency. It is tuned for different PCB sizes by simply changing the value of the matching circuit. At 3.2mm*1.6mm*0.5mm, the WLA.01 is one of the smallest antennas available worldwide. This antenna is delivered on tape and Reel.

1.1 Applications

- *Bluetooth earphone systems
- *Hand-held devices when Bluetooth/Wi-Fi functions are needed, e.g., Smart phone.
- *IEEE802.11 b/g
- *ZigBee
- *Wireless PCMCIA cards or USB dongle

2. Specifications

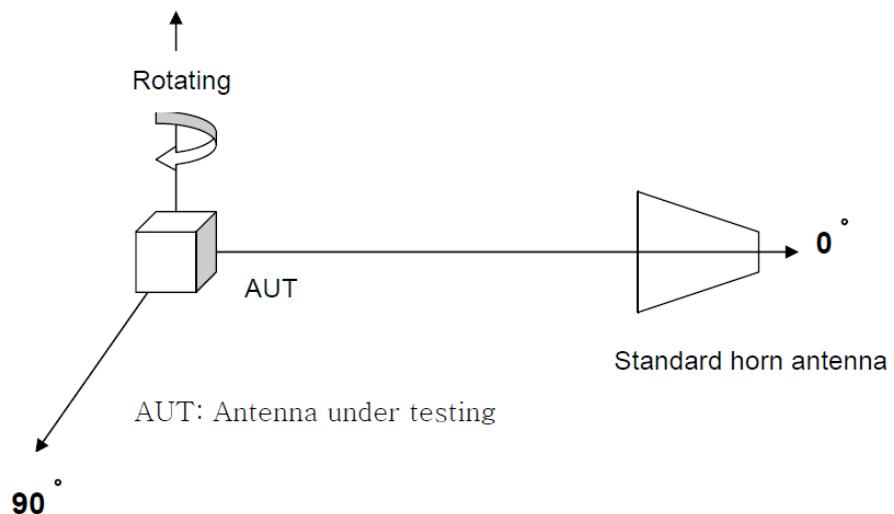
The WLA.01 is designed to mount at the center of the edge of an evaluation board of 80 x 40mm. The antenna performance was measured with the WLA.01 mounted on the evaluation board with SMA(F) connector.

| No | Parameter | Specification* |
|---------------|------------------------------|------------------------------|
| 1 | Center Frequency | 2400-2500MHz |
| 2 | Dimensions | 3.2*1.6*0.5mm |
| 3 | VSWR | 2 max |
| 4 | Polarization | Linear |
| 5 | Bandwidth | 100MHz min. |
| 6 | Gain | Peak 2.5dBi typ. |
| 7 | Efficiency | 84% typ. |
| 8 | Impedance | 50 Ω |
| Mechanical | | |
| 9 | Dimensions | 3.2*1.6*0.5mm |
| 10 | Material | Ceramic |
| Environmental | | |
| 11 | Operating Temperature | -40°C~+85°C |
| 12 | Storage Temperature | -40°C~+105°C |
| 13 | Temperature Coefficient (τf) | 0 ± 20 ppm @-20°C to +80°C |
| | Recommended Reel Storage | 5°C to 40°C |
| 14 | Condition | Relative Humidity 20% to 70% |

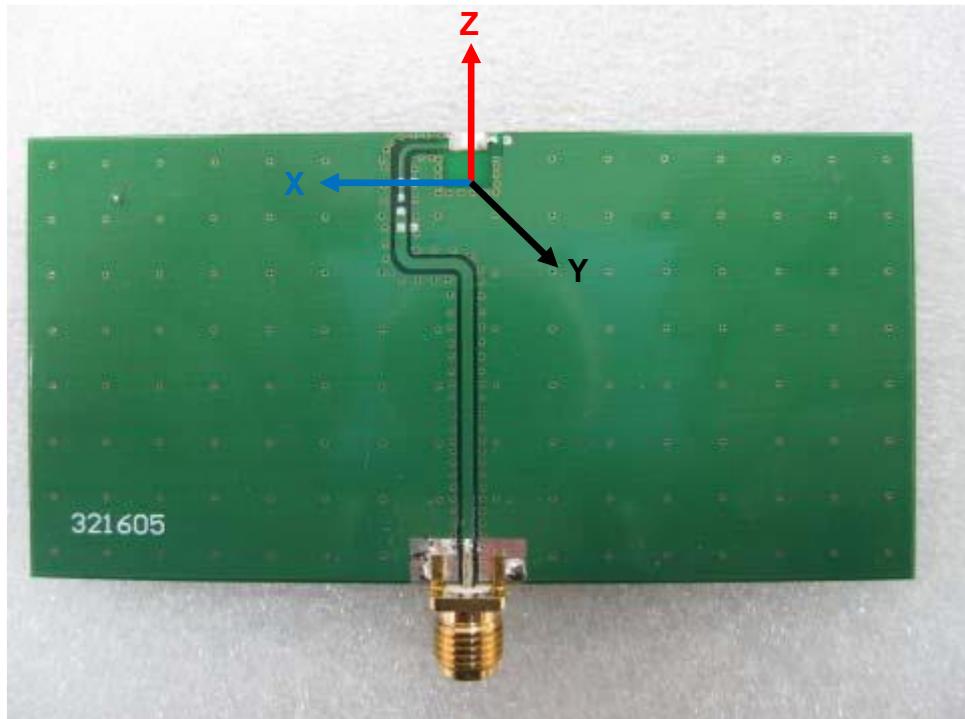
* The data was measured by a CTIA Authorized Test Lab.

** Center frequency will be offset to working frequency according to the conditions of user's Ground plane and radome.

4. Radiation Pattern (Customize Design)

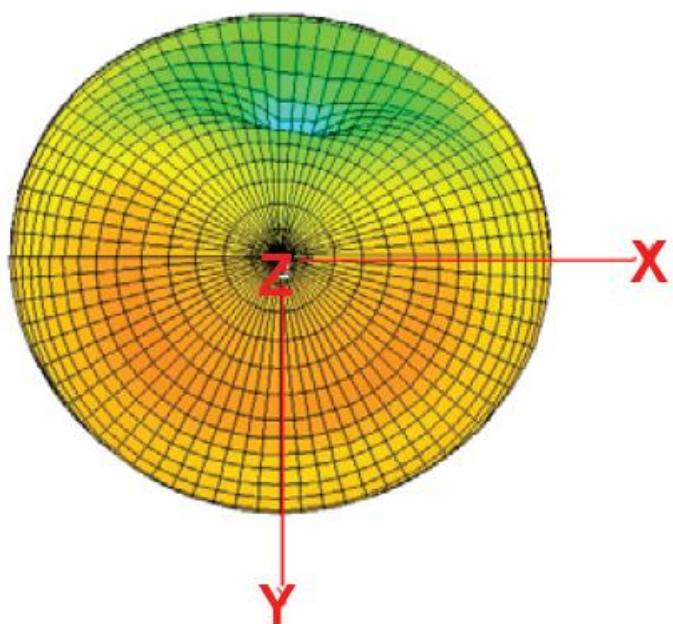


4.1 Radiation Pattern (80mmX40mm ground plane)

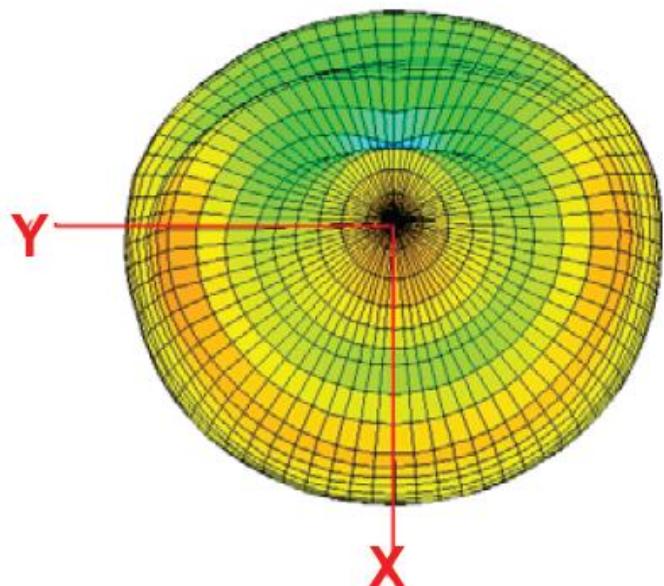


4.2 3D Gain pattern @2442MHz

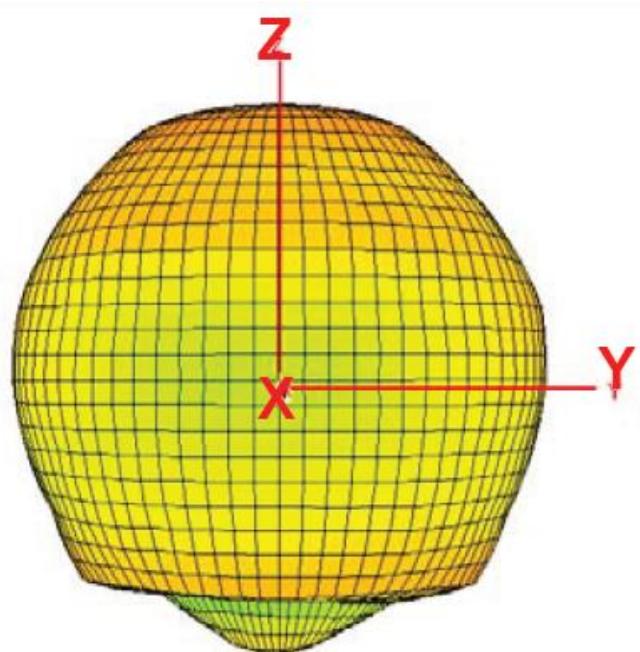
Azimuth = -180.0
Elevation = 0.0
Roll = 0.0



Azimuth = -180.0
Elevation = -5.1
Roll = 180.0



Azimuth = 0.0
Elevation = -90.0
Roll = 180.0



4.3 Efficiency Table

| Frequency(MHz) | 2400 | 2410 | 2420 | 2430 | 2442 | 2450 | 2460 | 2470 | 2480 | 2490 | 2500 |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Efficiency(dB) | -1.38 | -1.04 | -0.85 | -0.74 | -0.73 | -0.76 | -0.86 | -1.05 | -1.18 | -1.27 | -1.40 |
| Efficiency(%) | 72.83 | 78.71 | 82.27 | 84.39 | 84.53 | 84.04 | 82.00 | 78.60 | 76.14 | 74.64 | 72.50 |
| Gain(dBi) | 1.47 | 1.81 | 2.10 | 2.40 | 2.50 | 2.50 | 2.37 | 2.10 | 1.90 | 1.87 | 1.75 |

4.4 Efficiency vs Frequency

