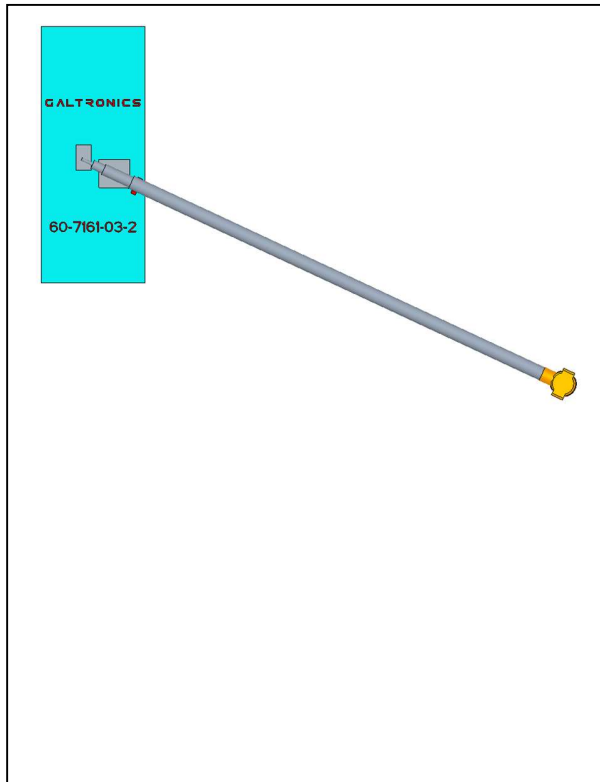




*Figure 1 Galtronics 02102073-08050-2 Wi-Fi  
2.4GHz Band Antenna*

## Wi-Fi 2.4GHz Band Antenna

02102073-08050-2

Engineering Data Sheets

### Galtronics Embedded Antenna

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## Revision History (Required)

| Revisions | Date         | Note            |
|-----------|--------------|-----------------|
| S1        | Apr 28, 2024 | Initial draft   |
| S2        | May 21,2024  | Tuned antenna   |
| S3        | May 22,2024  | Upgrade drawing |
|           |              |                 |
|           |              |                 |
|           |              |                 |

## Disclaimers

The document is proprietary, which may be changed without notice. Please communicate with Galtronics sale team to verify before finalizing your product design.

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## 1. Galtronics Wi-Fi 2.4GHz Antenna

The Galtronics 02102073-08050-2 antenna is a balanced dipole type Wi-Fi 2.4GHz Antenna that operates in 2400-2500 MHz band. It provides high efficient radiation with good cost benefit. The antenna can be mounted on a customer device with double sided adhesive foam tape or antenna carrier and connected to the radio through a cable with U.FL connector.

## 2. Features

- Operates in 2400-2500MHz band
- Peak gain: 2.65 dBi in 2400 MHz band
- High efficiency
- U.FL connector interface
- Mounted by double sided adhesive foam tape or antenna carrier

## 3. Specifications and Interface

|                    |                                                                                                |
|--------------------|------------------------------------------------------------------------------------------------|
| Standard           | Wi-Fi 2.4GHz Band                                                                              |
| Frequency Range    | 2400 – 2500 MHz                                                                                |
| Peak Gain          | 2.65 dBi in 2400 MHz band                                                                      |
| VSWR               | 2:1                                                                                            |
| Feed Impedance     | 50 $\Omega$                                                                                    |
| Power Handling     | 30 dBm                                                                                         |
| Interface          | U.FL                                                                                           |
| Antenna Dimensions | 25.2 x 10.2 x 0.84 mm (L x W x T)                                                              |
| Temperature Range  | Operating: -20° C to +60° C (-4° F to +140° F)<br>Storage: -20° C to +60° C (-4° F to +140° F) |
| Humidity Range     | Operating: 10% to 85% non-condensing<br>Storage: 5% to 90% non-condensing                      |

## 4. Return Loss

The antenna was tested with antenna mounted on a 100 x 100 x 2.3mm ABS evaluation board with 1.6mm thickness double-sided tape and a 178 mm long cable (Cable Total Length is 185mm).

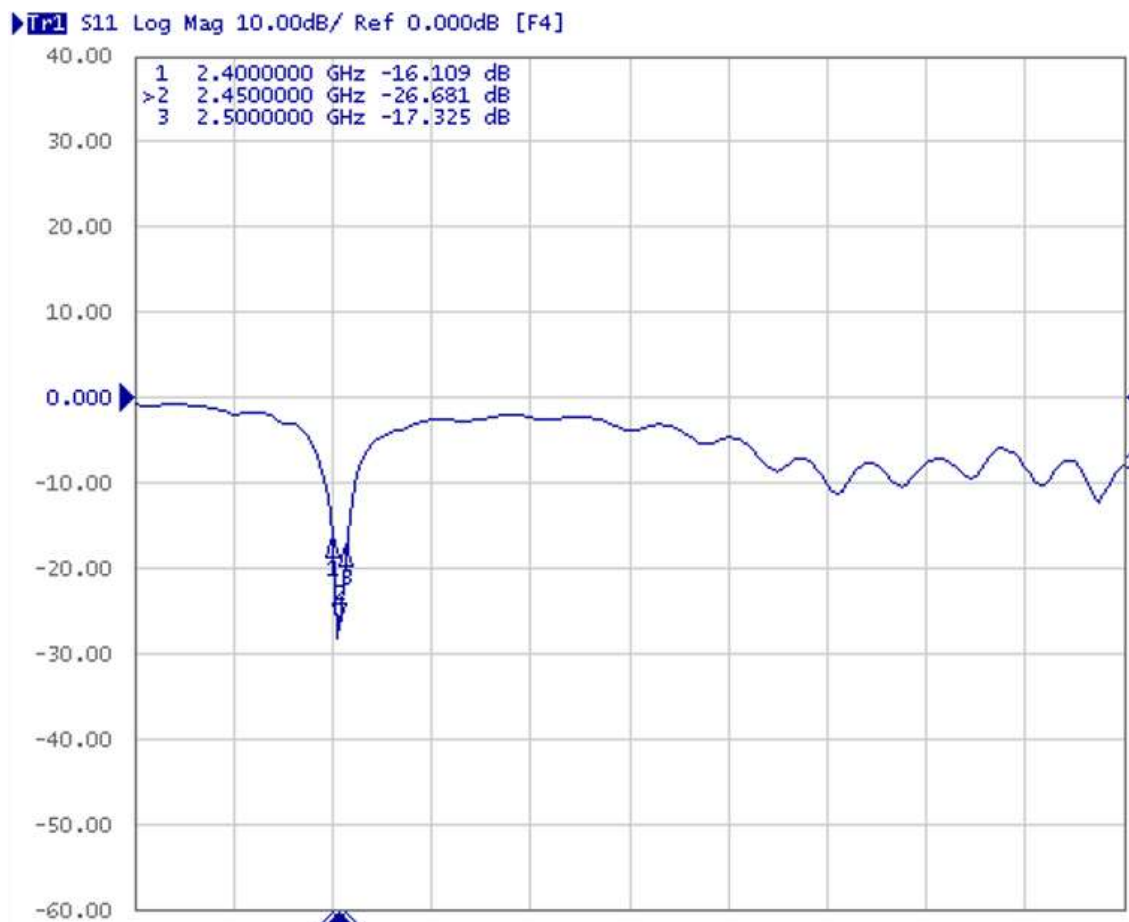


Figure 2 Return Loss

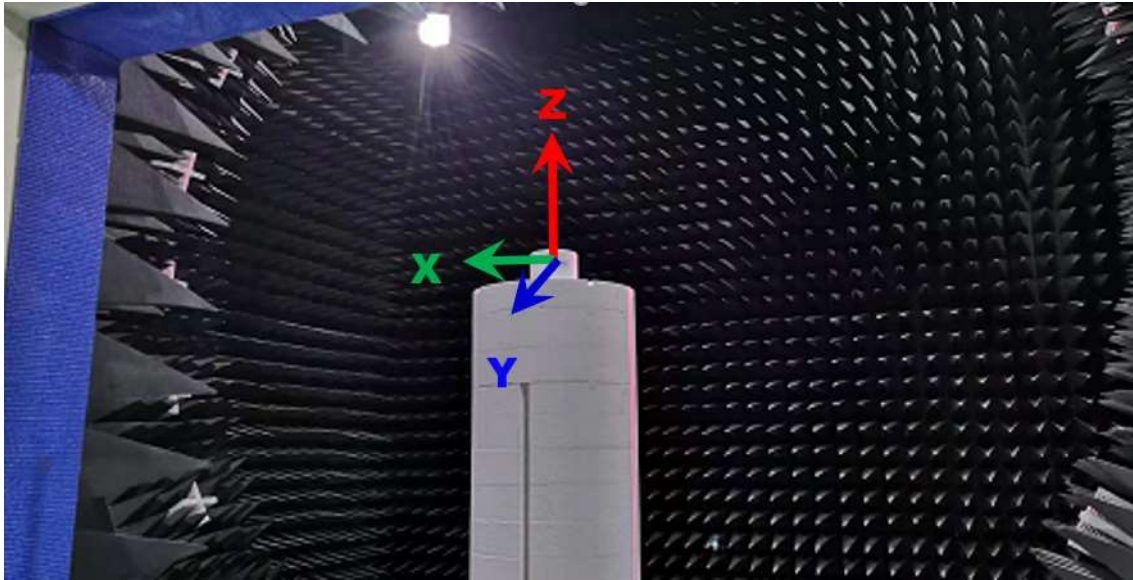
## 5. Gain, Directivity and Efficiency

Table 1. Peak Gain, Directivity and Efficiency

|        | Freq<br>(MHz) | Peak<br>Gain<br>(dBi) | Antenna<br>Directivity<br>(dBi) | Terminal<br>Efficiency |
|--------|---------------|-----------------------|---------------------------------|------------------------|
| 2.4GHz | 2400          | 2.65                  | 4.26                            | 69.14%                 |
|        | 2450          | 2.65                  | 4.28                            | 68.64%                 |
|        | 2500          | 2.54                  | 4.19                            | 68.30%                 |
|        | Average       |                       |                                 | 68.69%                 |

## 6. Radiation Pattern

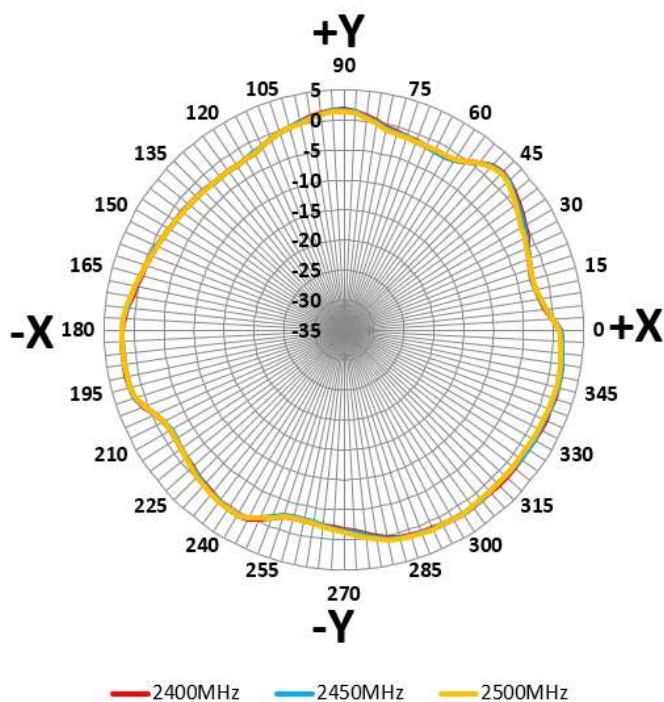
Figure 3 shows the antenna measurement coordinate system in anechoic chamber. Azimuth plane is XY plane ( $\Theta=0^\circ$ ), Elevation 1 plane is XZ plane ( $\Phi=0^\circ$ ) and Elevation 2 plane is YZ plane ( $\Phi=90^\circ$ ).



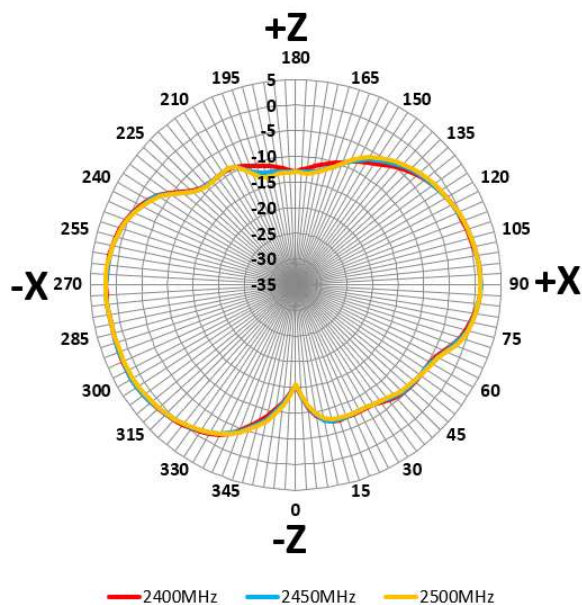
*Figure 3 Measurement Orientation*

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Figure 3 (A), (B) and (C) show the radiation pattern in three major planes.

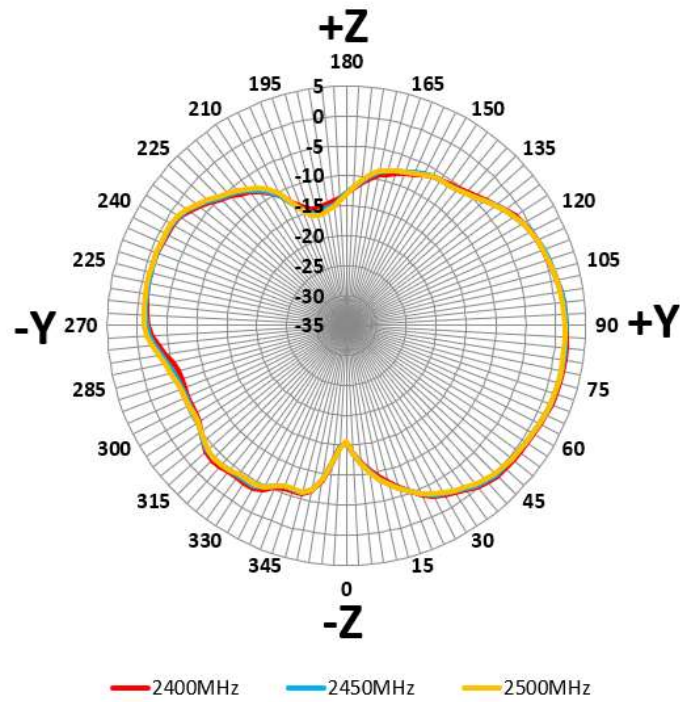


(A). Azimuth plane (XY plane) radiation pattern



(B). Elevation 1 plane (XZ plane) radiation pattern

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(C). Elevation 2 plane (YZ plane) radiation pattern

*Figure 4 Radiation Patterns of Wi-Fi 2.4GHz Antenna*