

Dual-Band Wi-Fi Antenna

02102140-07905-2

Engineering Data Sheets

Galtronics Embedded Antenna

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Revision History (Required)

Revisions	Date	Note
S1	Apr 26, 2023	Initial draft
S2	Sep 12, 2023	Modify antenna
S3	Dec 26, 2023	Updated

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 Dual Band Wi-Fi Antenna

The Galtronics 02102140-07905-2 antenna is a Dual Band Wi-Fi Antenna that operates in 2400-2500 MHz and 5150-5850 MHz bands. It provides high efficient radiation with good cost benefit. The antenna can be mounted on a customer device by double sided adhesive foam tape and connected to the radio through a U.FL connector.

2. Features

- Operates in 2400-2500 MHz and 5150-5850 MHz bands
- Peak gain: 3.3 dBi in 2400 MHz band and 4.0 dBi in 5000 MHz band.
- High efficiency
- U.FL connector interface
- Mounted by double sided adhesive foam tape

3. Specifications and Interface

Standard	Wi-Fi Dual Band
Frequency Range	2400-2500 MHz and 5150-5850 MHz
Peak Gain	3.3 dBi in 2400 MHz band and 4.0 dBi in 5000 MHz band
VSWR	2:1
Feed Impedance	50Ω
Power Handling	30 dBm
Interface	U.FL
Antenna Dimensions	24 mm x 17.8 mm x 1 mm (L x W x T)
Temperature range	Operating: -20° C to +60° C (-4° F to +140° F) Storage: -20° C to +60° C (-4° F to +140° F)
Humidity Range	Operating: 10% to 85% non-condensing Storage: 5% to 90% non-condensing

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4. Return Loss

The antenna was mounted inside the housing with 1.6mm thickness double-sided tape and cable loss is included in test results.



Figure 1 Return Loss

5. Gain, Directivity and Efficiency

Table 1 Peak Gain, Directivity & Efficiency

Dual Band Wi-Fi Antenna	Frequency (MHz)	Peak Gain (dBi)	Antenna Directivity (dBi)	Terminal Efficiency (%)
	2400	3.1	5.2	60.47%
	2450	2.9	5.1	60.28%
	2500	3.3	5.1	65.60%
	Average			62.12%

Dual Band Wi-Fi Antenna	Frequency (MHz)	Peak Gain (dBi)	Antenna Directivity (dBi)	Terminal Efficiency (%)
	5150	3.4	4.7	73.59%
	5250	3.6	5.1	70.77%
	5350	3.3	4.8	70.21%
	5750	4.0	5.3	74.78%
	5850	4.0	5.3	73.93%
	Average			72.66%

6. Radiation Pattern

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

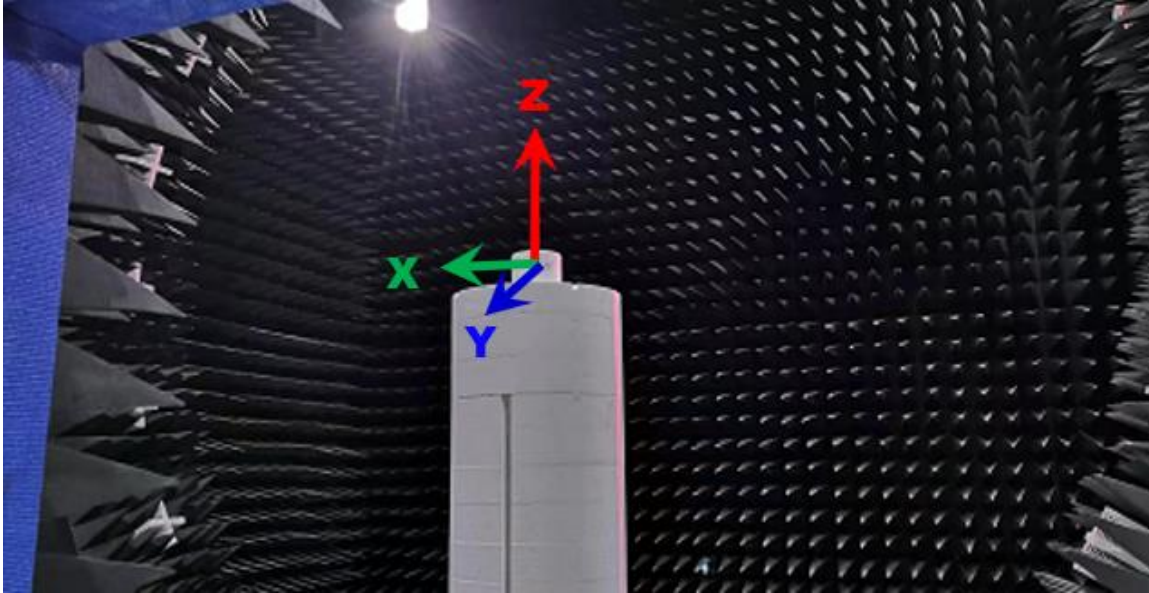
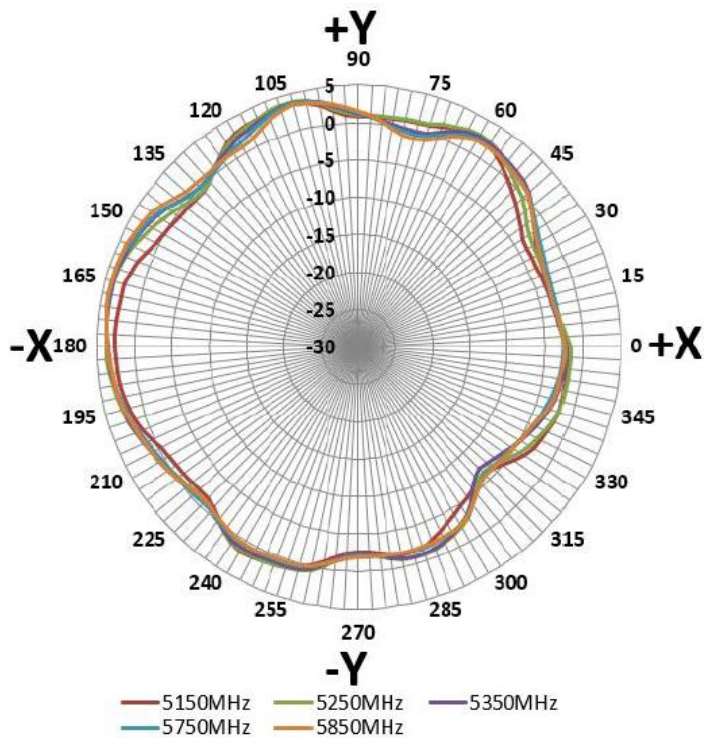
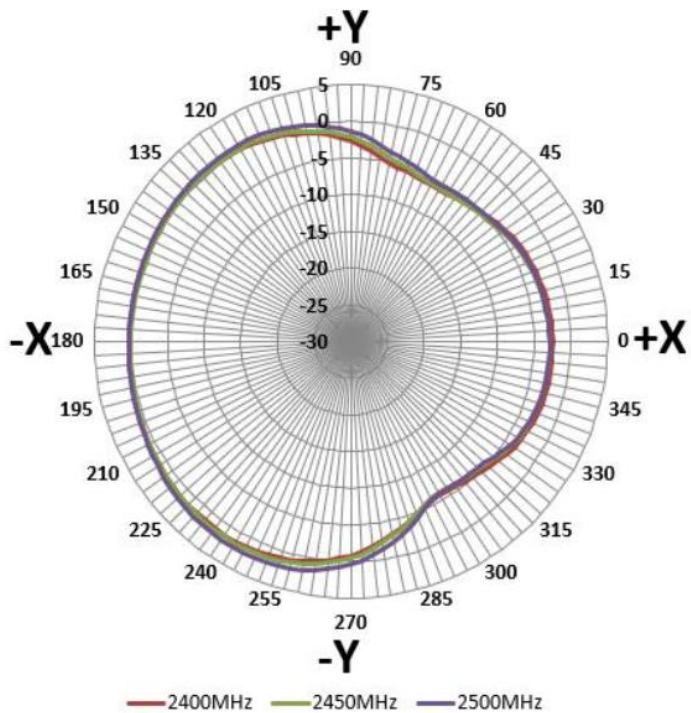


Figure 2 Measurement Orientation

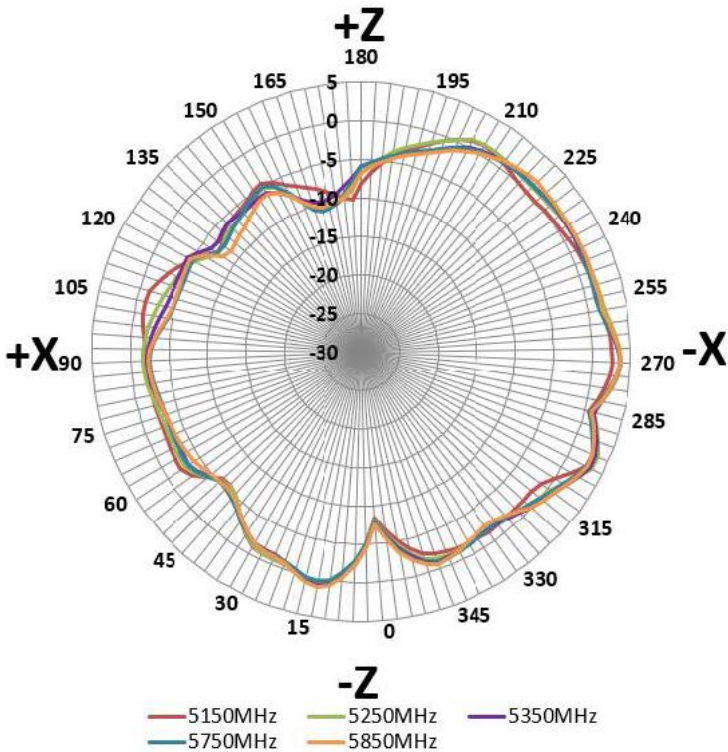
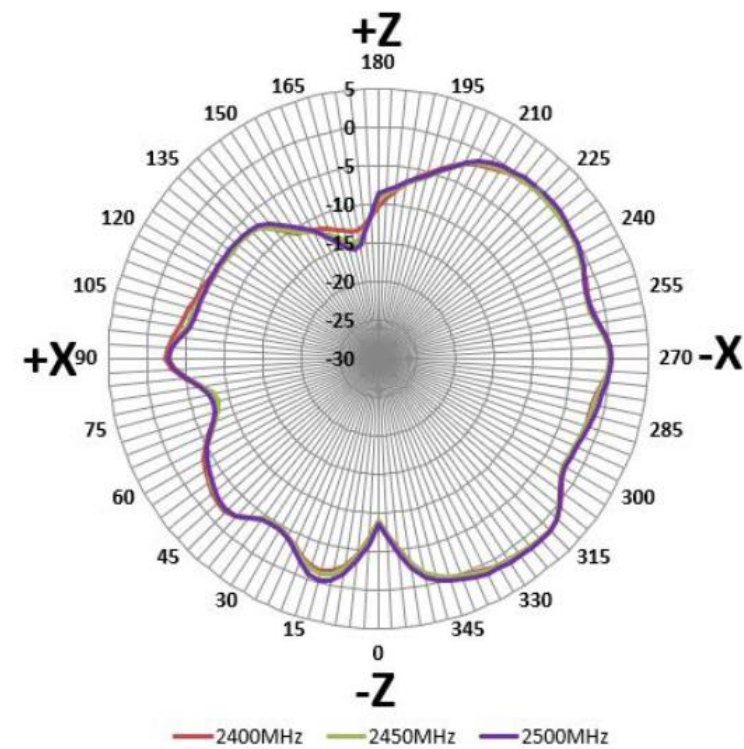
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X-Y PLANE



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X-Z PLANE



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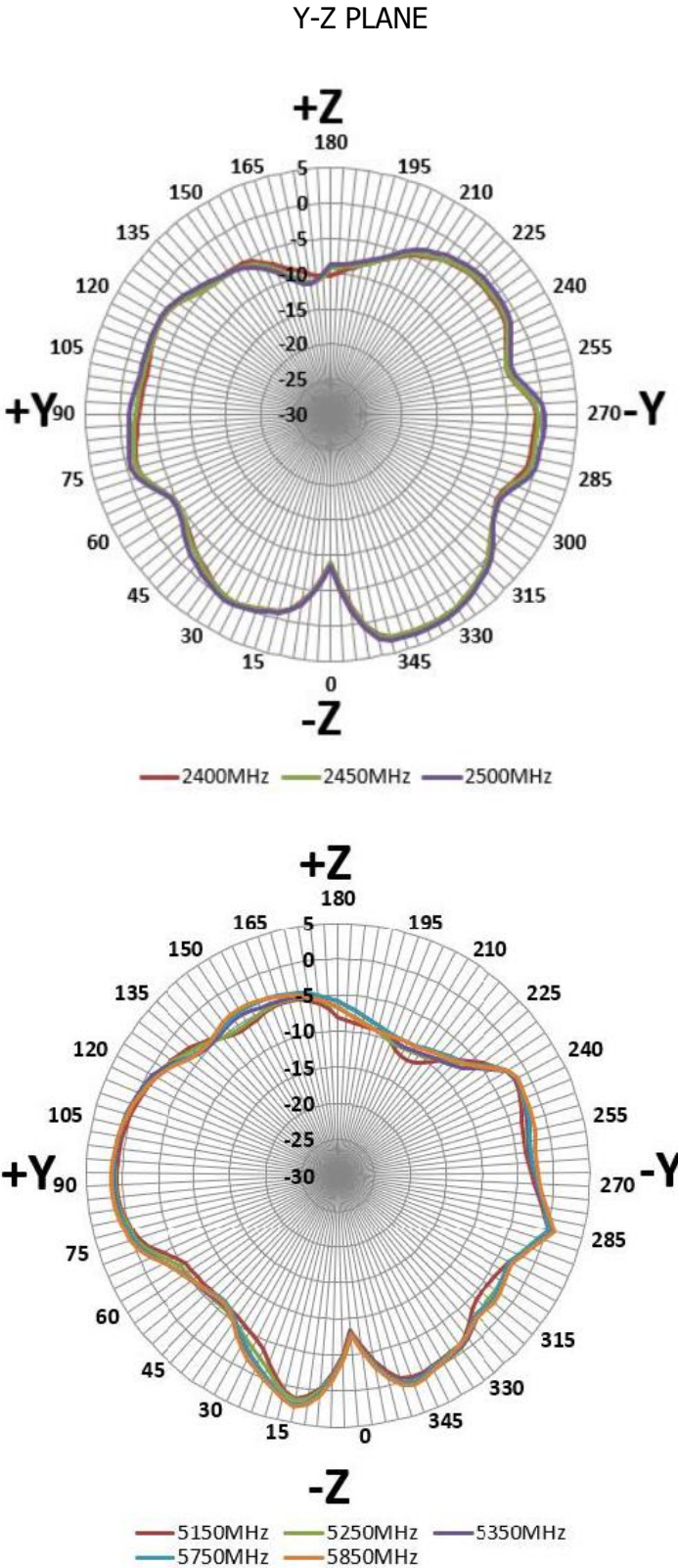


Figure 3 Radiation Patterns in Wi-Fi Dual Band.