

Dual-Band Wi-Fi Antenna 02102140-07905M1

Engineering Data Sheets

Galtronics Embedded Antenna

8930 S. Beck Avenue Suite #103
Tempe, Arizona 85284-2891 USA
Tel: 1-480-496-5100
Fax: 1-480-598-2766

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Revision History (Required)

Revisions	Date	Note
S1	Oct 18, 2023	Initial draft
S2	Dec 12, 2023	Updated

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1. Galtronics Dual Band Wi-Fi Antenna

The Galtronics 02102140-07905M1 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: 2.9 dBi in 2400 MHz band and 3.1 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	2.9 dBi in 2400 MHz band and 3.1 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 1.04 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.

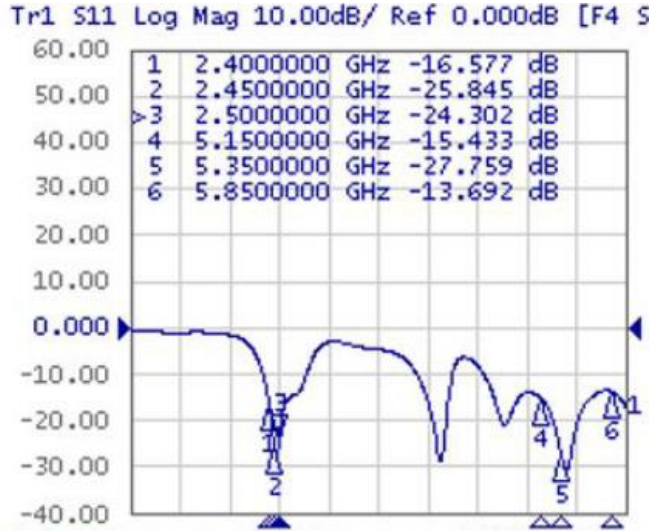


Figure 1 Return Loss

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	2.4	4.6	60.57%
	2450	2.5	4.7	60.57%
	2500	2.9	4.8	65.75%
	Average			62.30%

Dual Band Wi-Fi Antenna	Frequency (MHz)	Peak Gain (dBi)	Antenna Directivity (dBi)	Terminal Efficiency (%)
	5150	3.0	4.3	74.47%
	5250	3.1	4.5	72.09%
	5350	3.1	4.5	72.33%
	5750	2.8	4.1	73.72%
	5850	2.8	4.3	71.66%
	Average			72.85%

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6. Radiation Pattern

Figure 2 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 ($\Phi=90^\circ$).

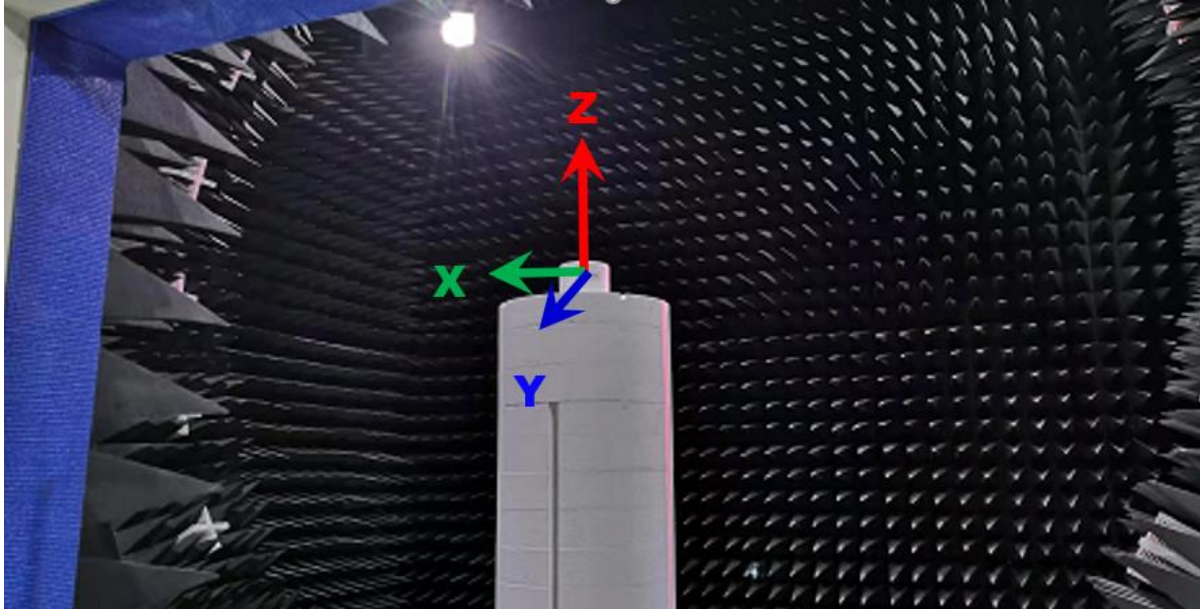
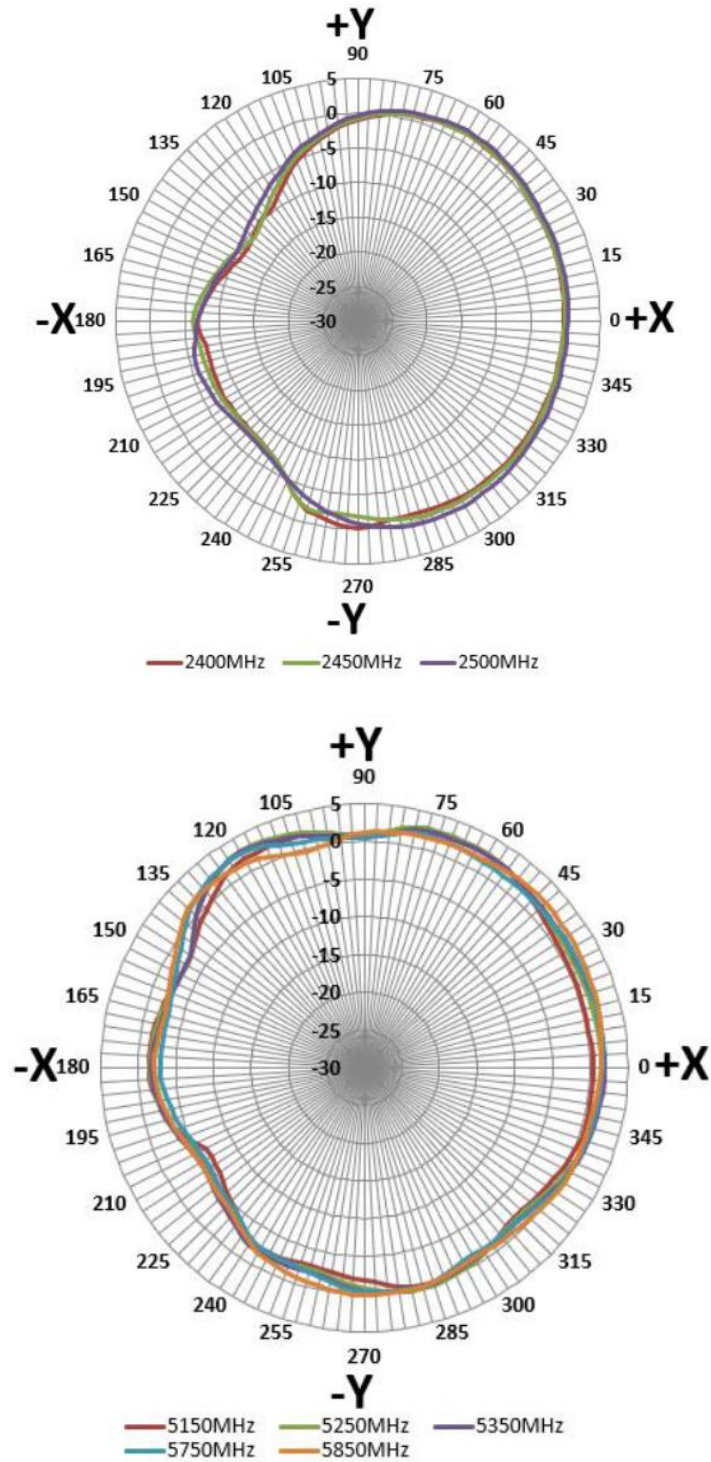


Figure 2 Measurement Orientation

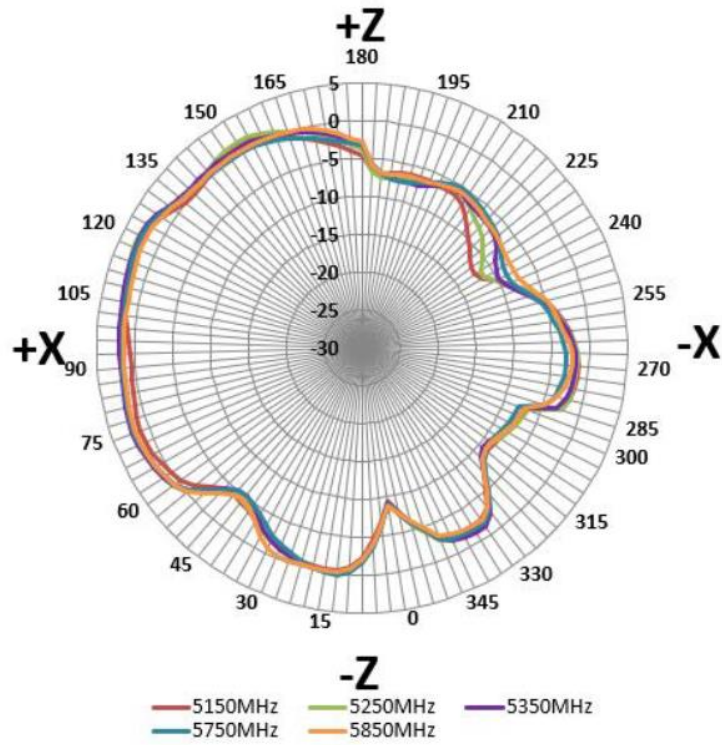
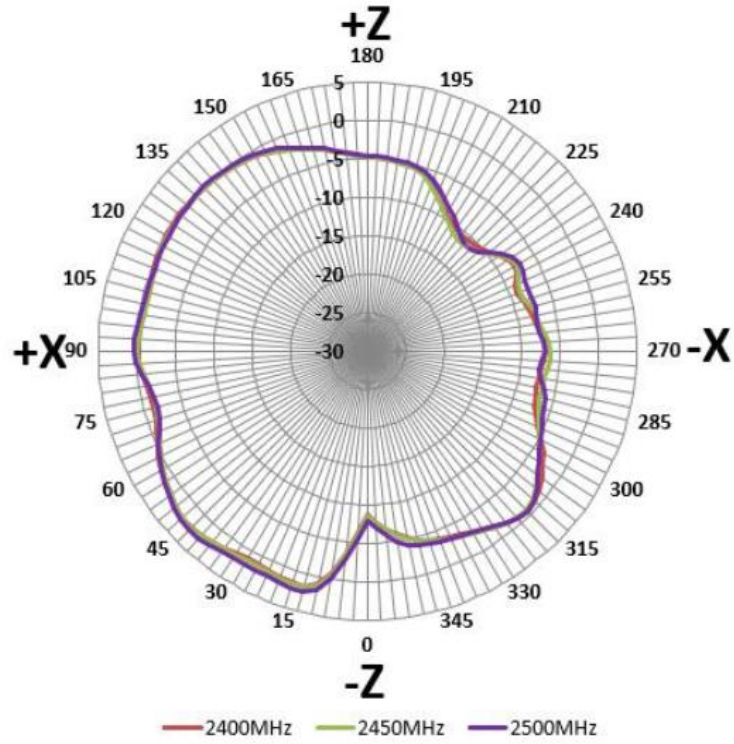
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Figure 3 (A), (B) and (C) show the radiation pattern in three major planes.



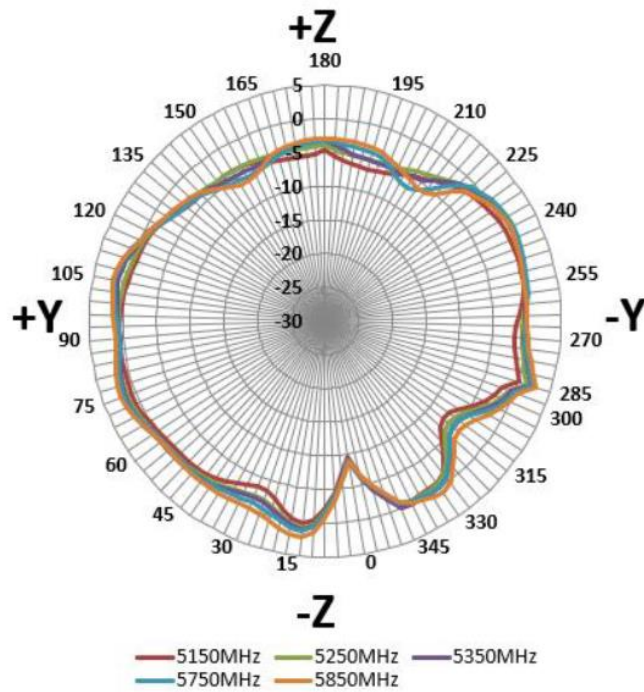
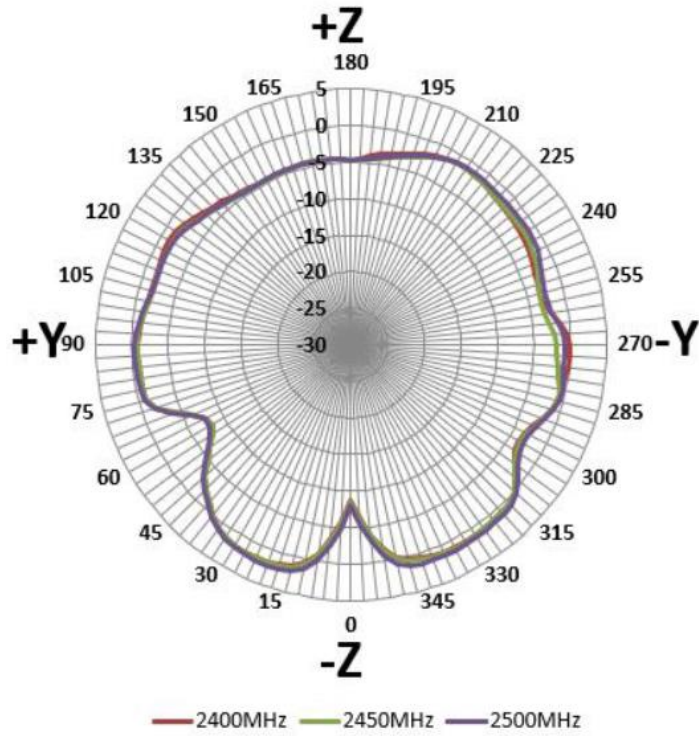
(A). Azimuth plane (XY plane) radiation pattern

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

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

Figure 3 Radiation Patterns in Wi-Fi Dual Band.