

Dual-Band Wi-Fi Antenna 02102140-07905M2

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

WE'RE MAKING WAVES

Revision History (Required)

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

WE'RE MAKING WAVES

Contents

- 1. Galtronics Dual Band Wi-Fi Antenna 4
- 2. Features 4
- 3. Specifications and Interface..... 4
- 4. Return Loss..... 5
- 5. Gain, Directivity and Efficiency..... 5
- 6. Radiation Pattern..... 6

Figures

- Figure 1 Return Loss 5
- Figure 2 Measurement Orientation..... 6
- Figure 3 Radiation Patterns 9

1. Galtronics Dual Band Wi-Fi Antenna

The Galtronics 02102140-07905M2 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: 3.2 dBi in 2400 MHz band and 3.4 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	3.2 dBi in 2400 MHz band and 3.4 dBi in 5000 MHz band
VSWR	2:1
Feed Impedance	50 Ω
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

WE'RE MAKING WAVES

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	2.7	4.8	60.84%
	2450	2.9	4.9	63.14%
	2500	3.2	5.1	64.60%
	Average			62.86%

Dual Band Wi-Fi Antenna	Frequency (MHz)	Peak Gain (dBi)	Antenna Directivity (dBi)	Terminal Efficiency (%)
	5150	3.4	4.7	73.21%
	5250	2.8	4.4	69.72%
	5350	3.2	4.3	76.93%
	5750	3.3	4.5	76.17%
	5850	3.4	4.8	73.11%
	Average			73.83%

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

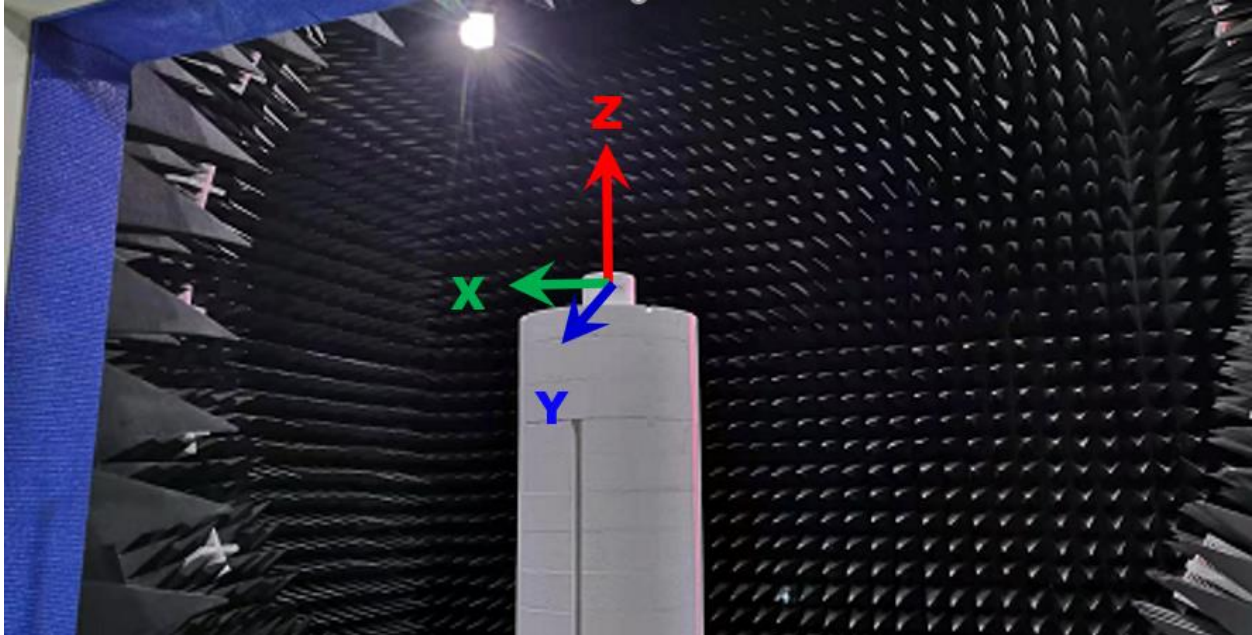
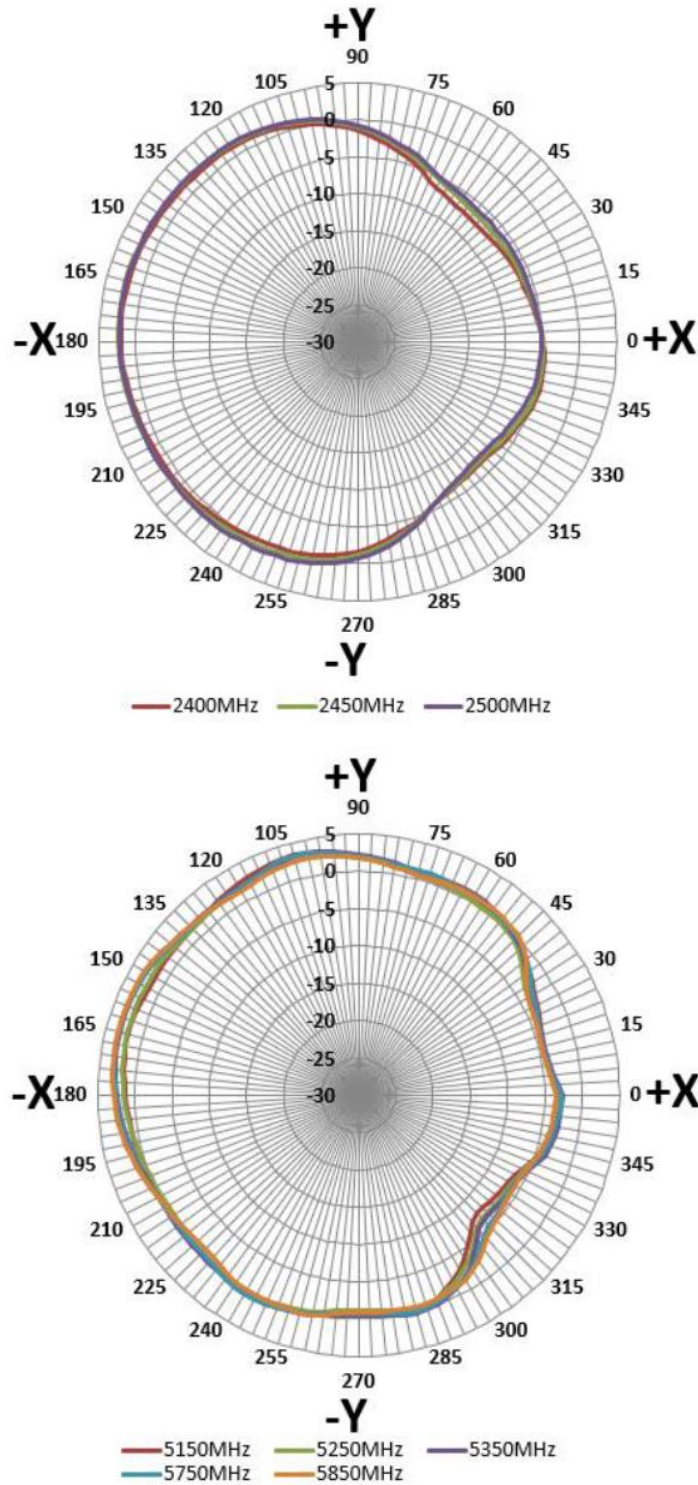


Figure 2 Measurement Orientation

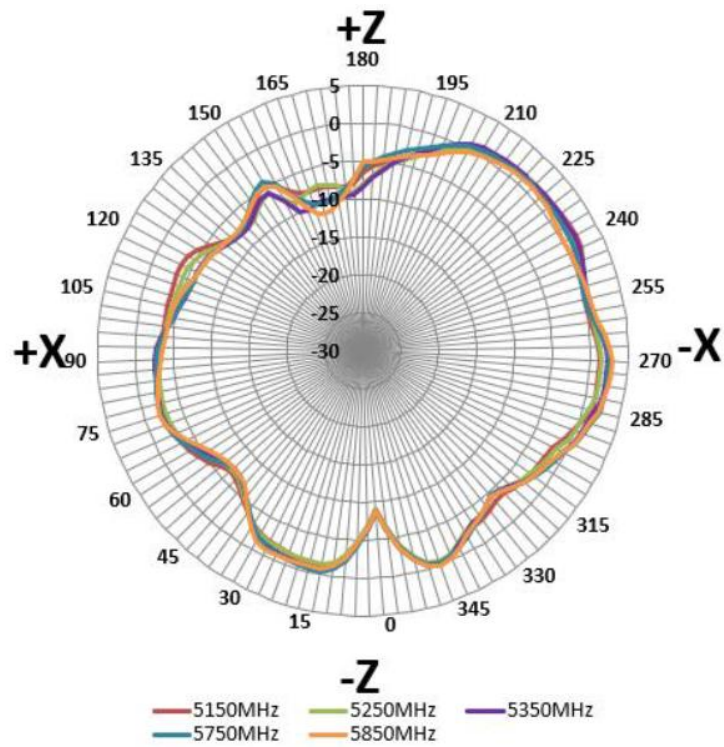
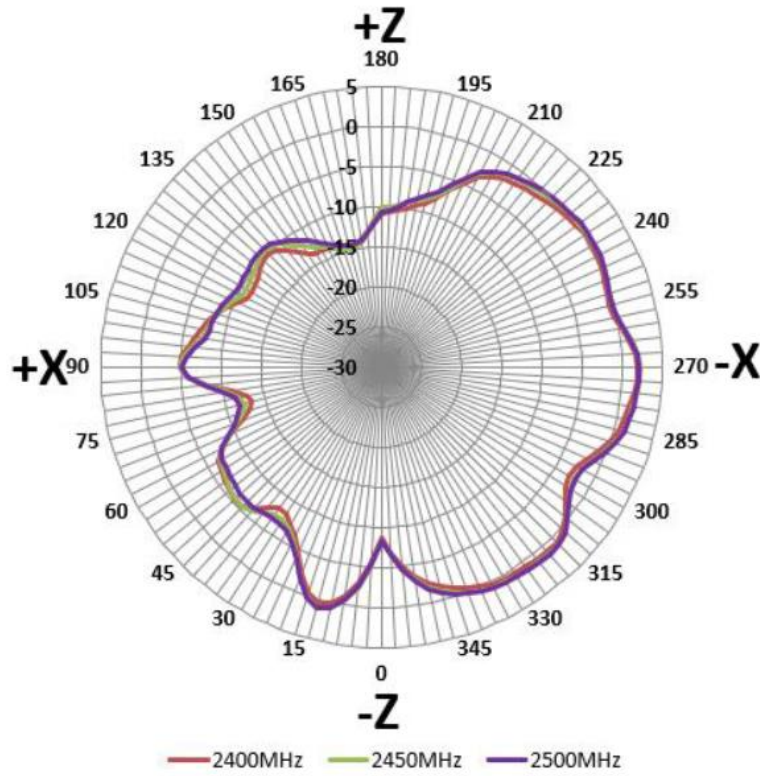
WE'RE MAKING WAVES

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



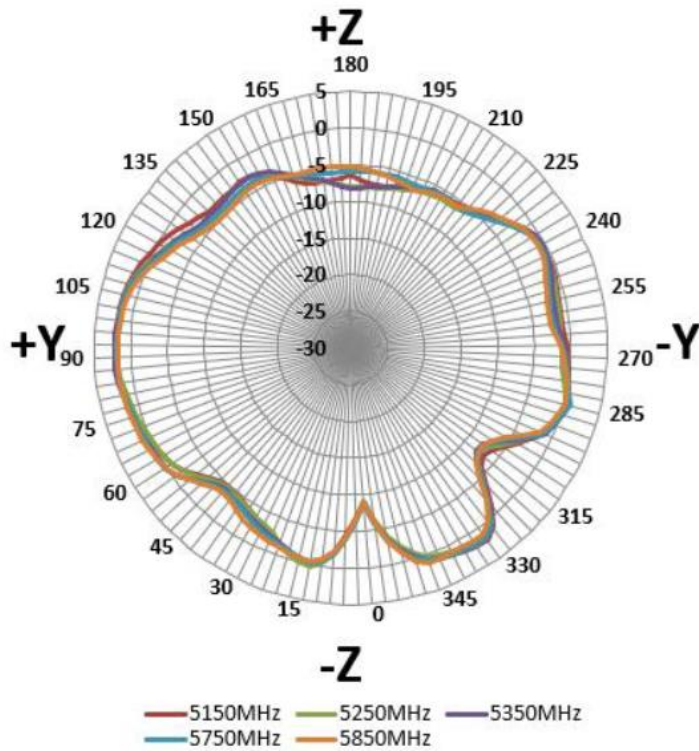
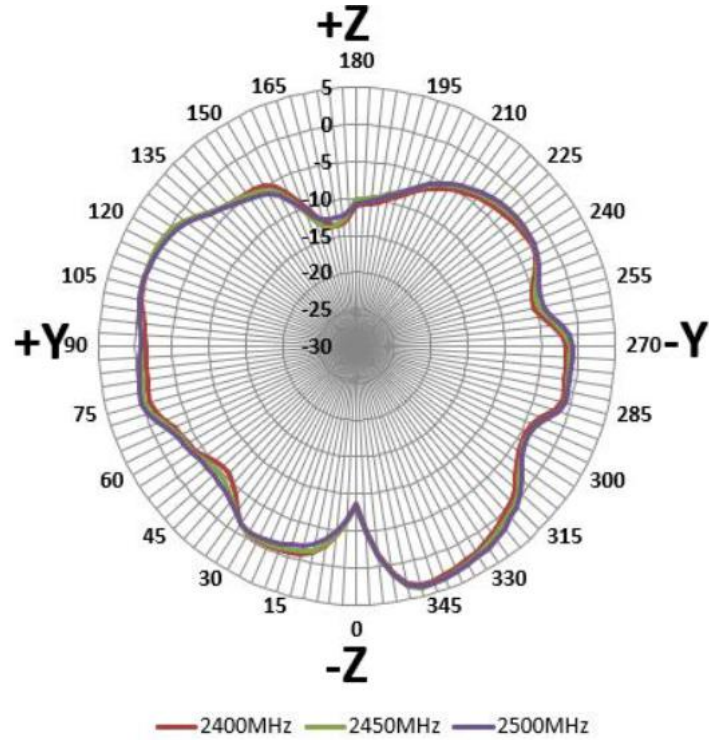
(A). Azimuth plane (XY plane) radiation pattern

WE'RE MAKING WAVES



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

WE'RE MAKING WAVES



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

Figure 3 Radiation Patterns in Wi-Fi Dual Band.