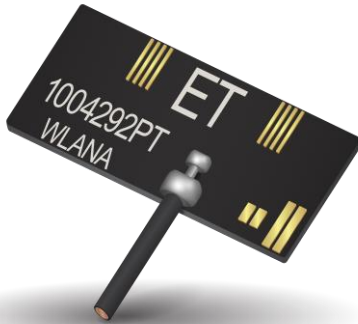


Part No. 1004292PT

Wi-Fi Tunable PCB 5 GHz Embedded Antenna

5 GHz

Supports: Wi-Fi applications, Agriculture, Automotive, Bluetooth, Zigbee, WLAN, Smart Home, Healthcare, Digital Signage



Ethertronics' 1004292PT is a versatile off-board PCB antenna ideal for 5 GHz Wi-Fi applications where off-board implementation is advantageous and necessary. 1004292PT is ideal for systems requiring a multiple antenna solution.

1004292PT offers easy on-the-go tuning capability right on the antenna face, that is ideal for prototyping. The tuned antenna can then be hardwired by Ethertronics for mass production.

Custom cable and connector options are available. Please contact us for more information.

PCB Wi-Fi Tunable Embedded Antenna with Cable

5.150 - 5.825 GHz

KEY BENEFITS

Stay-in-Tune

Ethertronics antenna technology provides superior RF field containment, resulting in less interaction with surrounding components.

Quicker Time-to-Market

By optimizing antenna size, performance and emissions, customer and regulatory specifications are more easily met.

Reliability

Products are the latest RoHS version compliant

APPLICATIONS

- Embedded design
- Cellular, Headsets, Tablets
- Gateway, Access Point
- Handheld
- Telematics Tracking
- Healthcare M2M, Industrial devices
- Smart Grid
- OBD-II

Electrical Specifications

Typical Performance using 100 mm cable tested on PC-ABS

| Frequency | 5.150 – 5.825 GHz |
|----------------------|--------------------|
| Peak Gain | 4.8 dBi |
| Average Efficiency | 70% |
| VSWR Match | 2.0 :1 max |
| Feed Point Impedance | 50 ohms unbalanced |
| Polarization | Linear |
| Power Handling | 2 Watt CW |

Mechanical Specifications & Ordering Part Number

| Ordering Part # | 1004292PT-AA10L0100 |
|-----------------------|--|
| Dimensions (mm) | 22.0 x 8.0 x 0.4 (Height up to 1.80 at soldering point) |
| Weight (grams) | 0.9 |
| Cable/ Connector (mm) | Length: 100, Diameter: 1.13, Color: Black; u.FI compatible connector |
| Mounting | Adhesive on bottom side of antenna |
| Packaging | PE bags |

*Additional variations available with different cable lengths, colors and connectors.

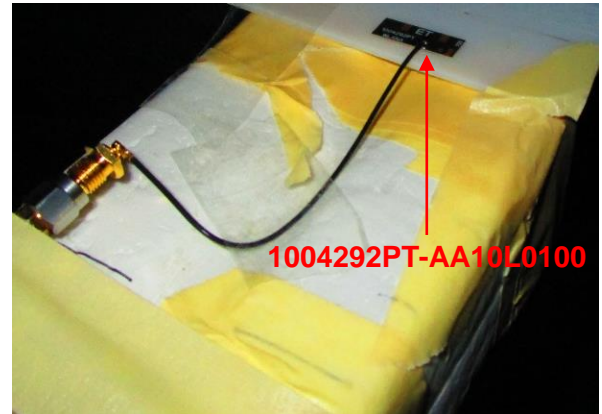
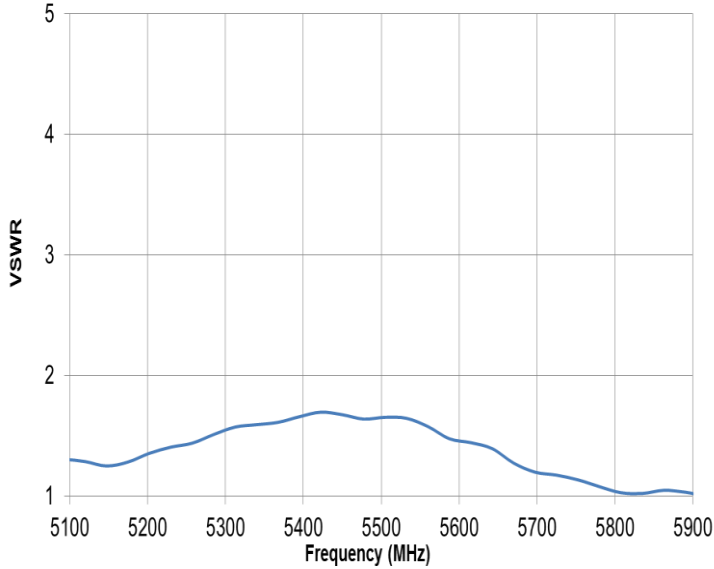


5 GHz Ethertronics' Embedded Antenna Specifications
Ethertronics produces a wide variety of standard and custom antennas to meet user needs.

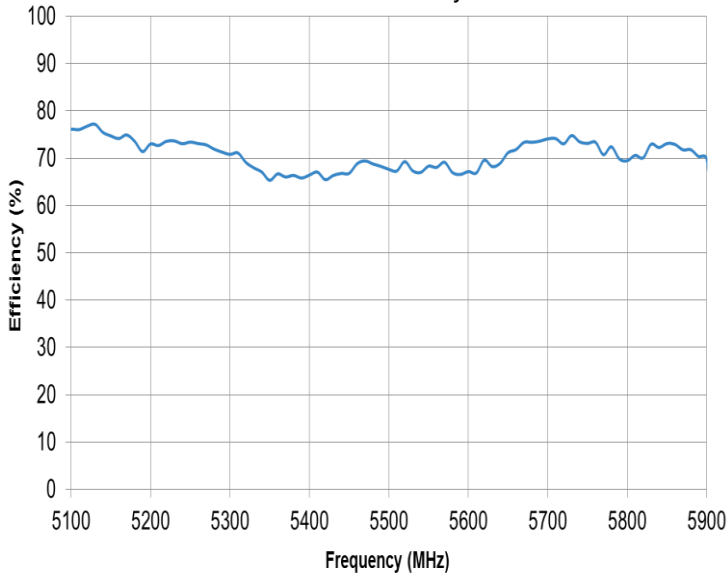
Typical VSWR, Efficiency and Peak Gain plots

Measured in free space with PC/ABS loading and 100 mm cable

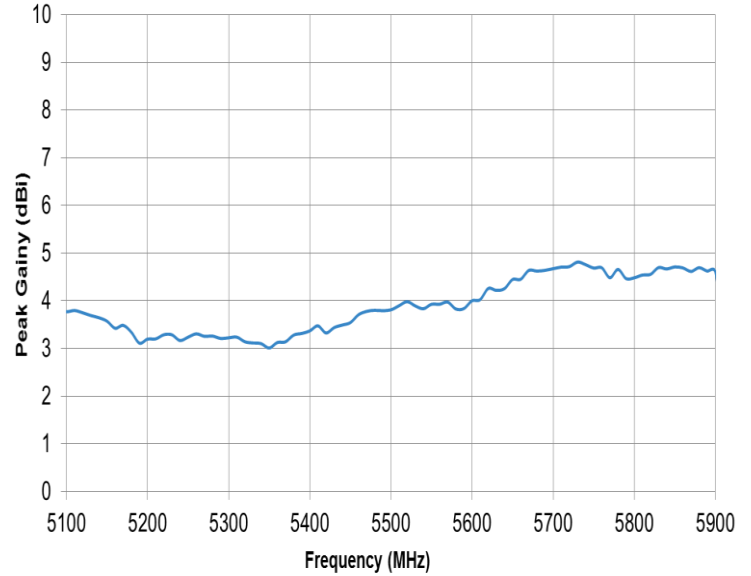
5 GHz VSWR



5 GHz Efficiency



5 GHz Peak Gain

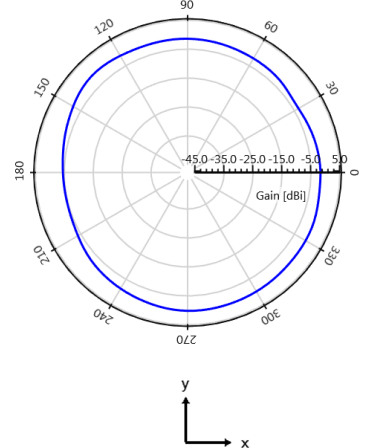
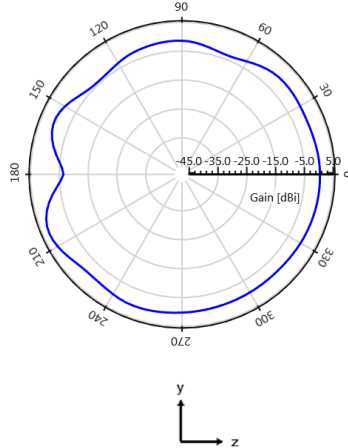
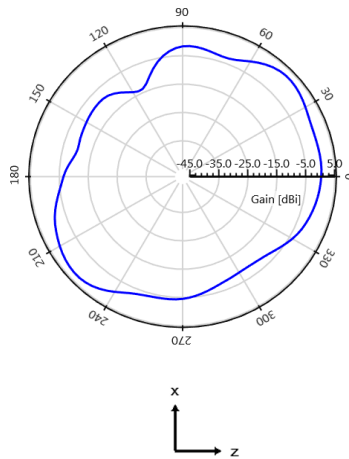
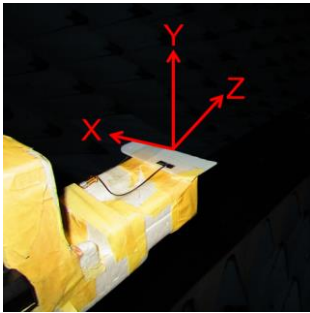




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Radiation Patterns Plots

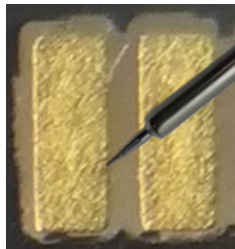
Measured with PC/ABS loading and 100 mm cable
Typical Performance @ 5200 MHZ



Antenna Tuning Procedure

This antenna has unique features enabling limited range RF tuning by solder bridging or cutting specified area. Ease of tuning for any application on the fly with a soldering iron and knife. Tuning optional if required.

Antenna Tuning (Low)

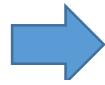
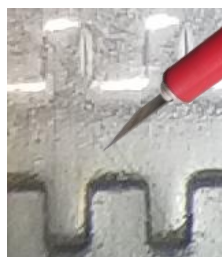


*Add bridge of solder to connect pads for tuning

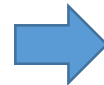


Filled Gap

Antenna Tuning (High)



*Scratch solder mask to expose copper layer



*Cut trace through copper layer



Cut Gap

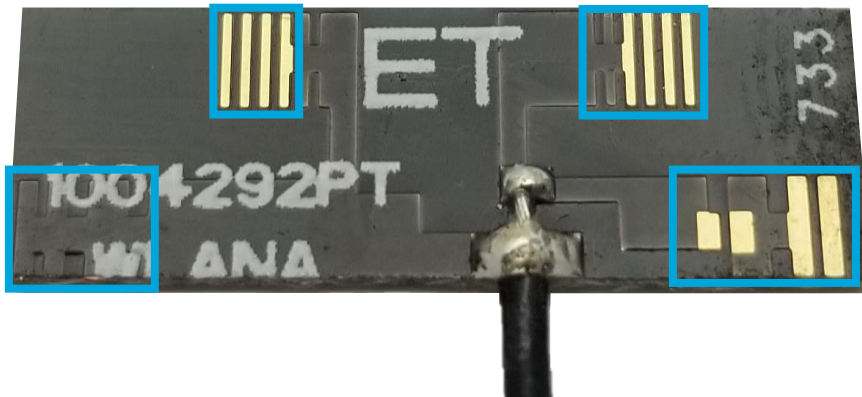


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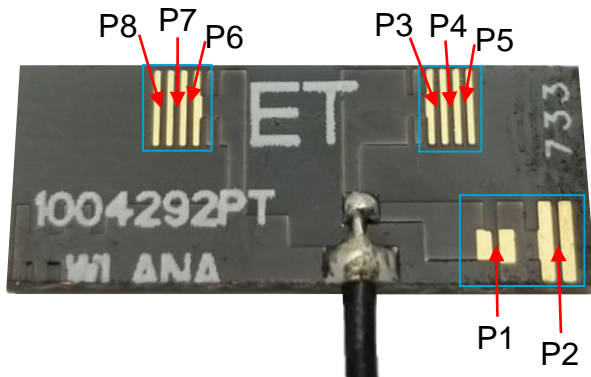
Antenna Tuning

This antenna has unique features enabling limited range RF tuning by solder bridging or cutting specified area. Ease of tuning for any application on the fly with a soldering iron and knife.

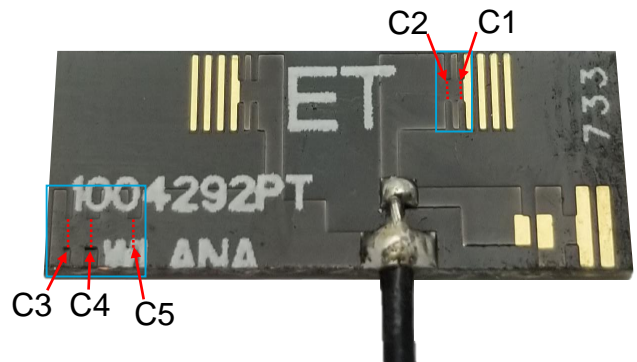
Antenna Tuning Structure



***Solder bridge between pads for frequency tuning**



***Cut Pads for frequency tuning**

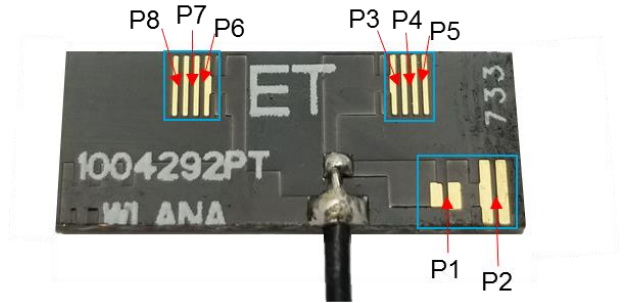
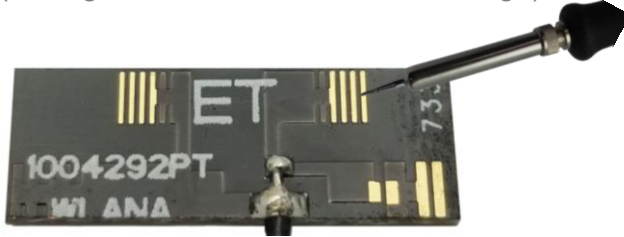




5 GHz Ethertronics' Embedded Antenna Specifications
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Tuning Options (Low)

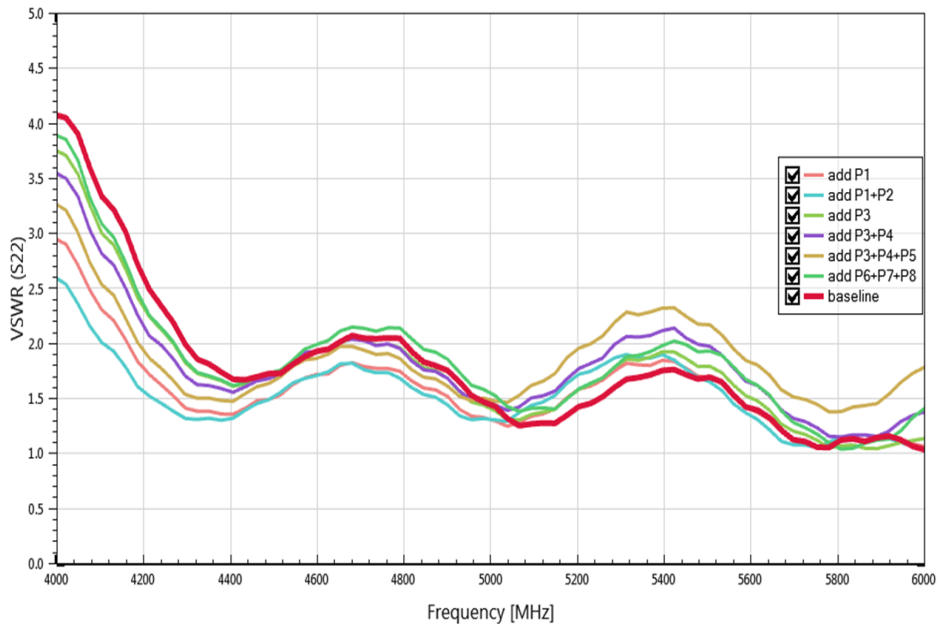
Stages 2-7 (Tuning antenna "Low" with solder bridge)



***Tune Frequency Lower**

Apply **Solder Bridge** to designated Stages for optimal tuning.

| Stage | Pads | Frequency Shift (MHz) | |
|--------------------|----------|-----------------------|------|
| Stage 1 (Baseline) | DNI | N/A | |
| Shift Low | Stage 2 | P1 | -134 |
| | Stage 3 | P1+P2 | -190 |
| | Stage 4 | P3 | -27 |
| | Stage 5 | P3+P4 | -62 |
| | Stage 6 | P3+P4+P5 | -109 |
| | Stage 7 | P6+P7+P8 | -29 |
| Shift High | Stage 8 | C1 | 17 |
| | Stage 9 | C2 | 32 |
| | Stage 10 | C3 | 36 |
| | Stage 11 | C4 | 107 |
| | Stage 12 | C5 | 222 |



*Measured in free space with PC/ABS loading and 100 mm cable

Stage 1



Stage 2



Stage 3



Stage 4



Stage 5



Stage 6



Stage 7

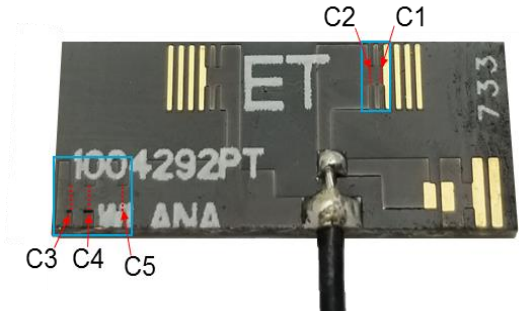




5 GHz Ethertronics' Embedded Antenna Specifications
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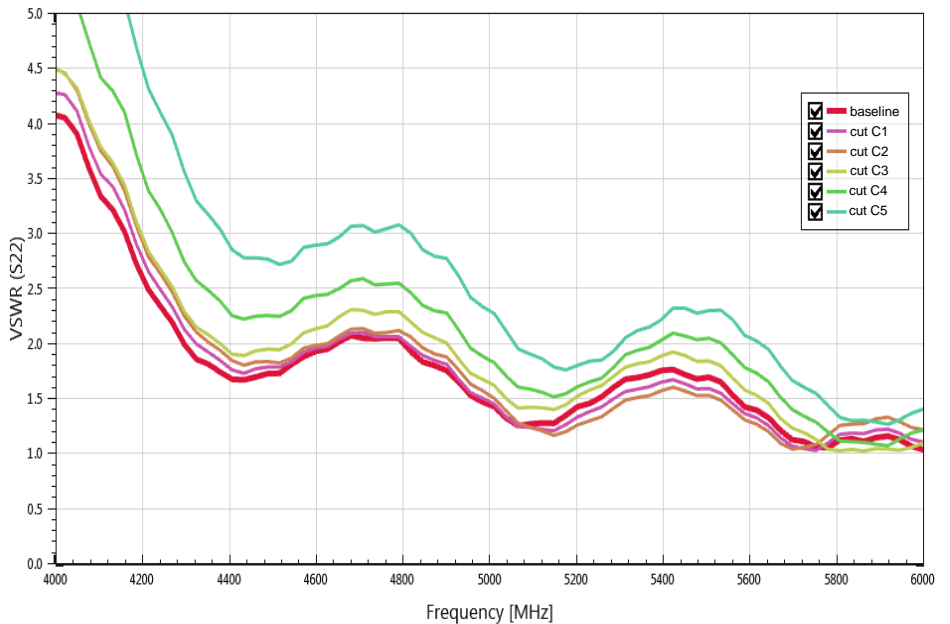
Tuning Options (High)

Stages 8-12 (Tuning antenna "High" applying cut on designated area)



*Ex: Tune Frequency Higher
Apply **Cut** to designated stage for optimal tuning.

| | Stage | Pads | Frequency Shift (MHz) |
|------------|--------------------|----------|-----------------------|
| | Stage 1 (Baseline) | DNI | N/A |
| Shift Low | Stage 2 | P1 | -134 |
| | Stage 3 | P1+P2 | -190 |
| | Stage 4 | P3 | -27 |
| | Stage 5 | P3+P4 | -62 |
| | Stage 6 | P3+P4+P5 | -109 |
| | Stage 7 | P6+P7+P8 | -29 |
| Shift High | Stage 8 | C1 | 17 |
| | Stage 9 | C2 | 32 |
| | Stage 10 | C3 | 36 |
| | Stage 11 | C4 | 107 |
| | Stage 12 | C5 | 222 |



*Measured in free space with PC/ABS loading and 100 mm cable

Stage 1



Stage 8



Stage 9



Stage 10



Stage 11



Stage 12





5 GHz Ethertronics' Embedded Antenna Specifications
Ethertronics produces a wide variety of standard and custom antennas to meet user needs.

Mechanical Dimensions

Typical antenna dimensions (mm)

| Part Number | A (mm) | B (mm) | C (mm) | D (mm) | Connector Orientation |
|---------------------|------------|-----------|-----------|-----------|-----------------------|
| 1004292PT-AA10L0100 | 22.0 ± 0.3 | 8.0 ± 0.3 | 1.8 (max) | 100 ± 3.0 | Face Down |

*Total Height of 1.8 mm includes the cable solder connection

*Connector shown in photo below is "Face Down"

