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Part No. 1002427

ISM or ISM & BT or GPS Stamp Metal Embedded SMT Antenna

868 MHz, 915 MHz, 1.575 GHz, 2.4 GHz

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



Ethertronics' 1002427 stamp metal SMT antenna delivers the device designers' key needs for higher functionality and performance in smaller/thinner designs. This innovative antenna provides compelling advantages for all ISM, Bluetooth and GPS enabled devices.

Unique Form Factors Support Advanced Industrial Designs

Smaller, more efficient on board embedded antennas break through restrictive design rules and provide new freedom in component placement. 1002427 offers 3 configurations for tuning, ISM layout, ISM and BT layout or GPS layout.

ISM or ISM & BT or GPS Stamp Metal Embedded Antenna

868-915 MHz, 1.575-1.606 GHz, 2.4 GHz

KEY BENEFITS

Versatile Antenna

1002427 can be used to support ISM or GPS independently or ISM and BT combined, allowing reduced BOM complexity while maintaining great performances.

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 on 110 x 55 mm PCB in free space. Different antenna layout location per each frequency configuration tested.

| Frequency | ISM Layout 868-915 MHz | ISM & BT Layout 915 / 2450 MHz | | GPS Layout 1560—1606 MHz |
|----------------------|---------------------------|-----------------------------------|---------|-----------------------------|
| Peak Gain | 1.0 dBi | 3.0 dBi | 3.4 dBi | 1.8 dBi |
| Average Efficiency | 62% | 67% | 61% | 65% |
| 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 Number | 1002427 |
|----------------------|--|
| Size (mm) | 32.1 x 3.9 x 2.28 |
| Weight (grams) | 0.16 |
| Mounting | SMT, Through-Hole, (P&P) |
| Packaging | Tape & Reel, 5,400 pieces per box, 1,800 per reel |
| Demo Board | 1002427-01 |

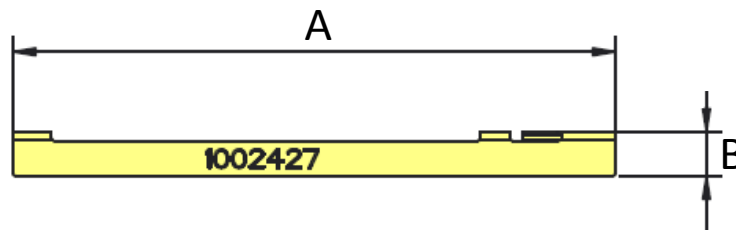
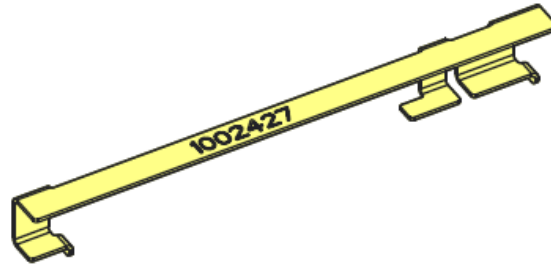


ISM / GPS / BT Stamp Metal Ethertronics' Antenna Specifications
Ethertronics produces a wide variety of standard and custom antennas to meet user needs.

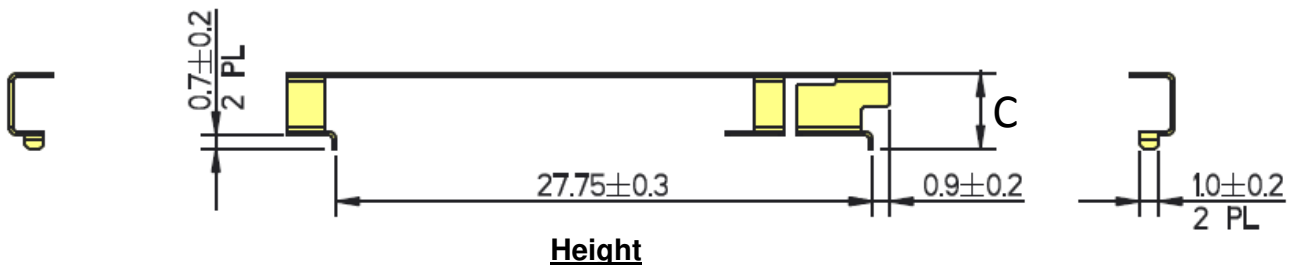
Antenna Dimensions (1002427)

Typical antenna dimensions (mm)

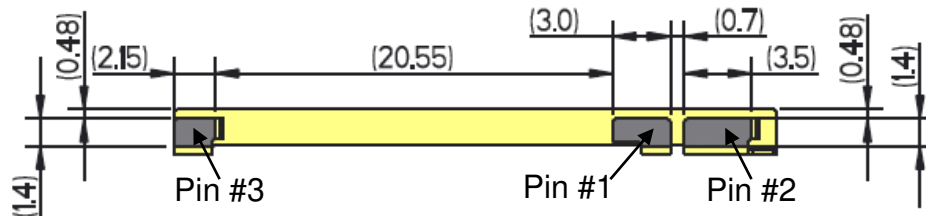
| Part Number | A (mm) | B (mm) | C (mm) |
|-------------|------------|------------|-----------|
| 1002427 | 31.2 ± 0.3 | 2.28 ± 0.3 | 3.9 ± 0.4 |



Top View



Height



Bottom View

| Pin# | Description |
|------|-------------|
| 1 | Feed |
| 2 | Ground |
| 3 | Dummy Pad |

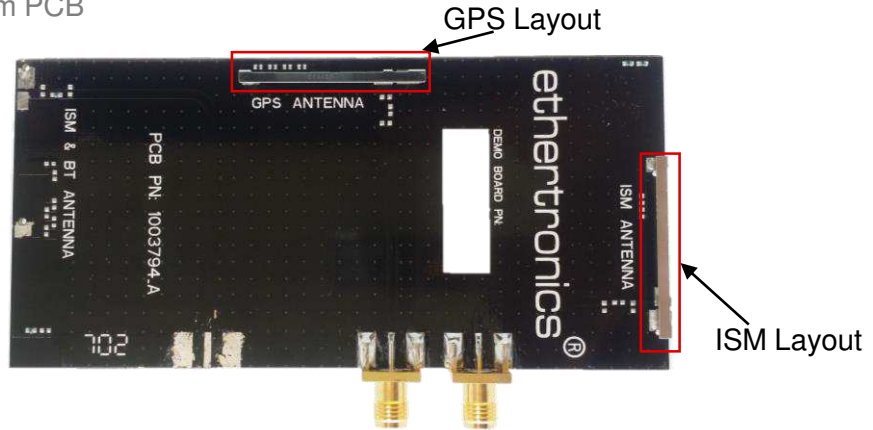


1002427 ISM or GPS layout performances (Single Band antenna)
Ethertronics produces a wide variety of standard and custom antennas to meet user needs.

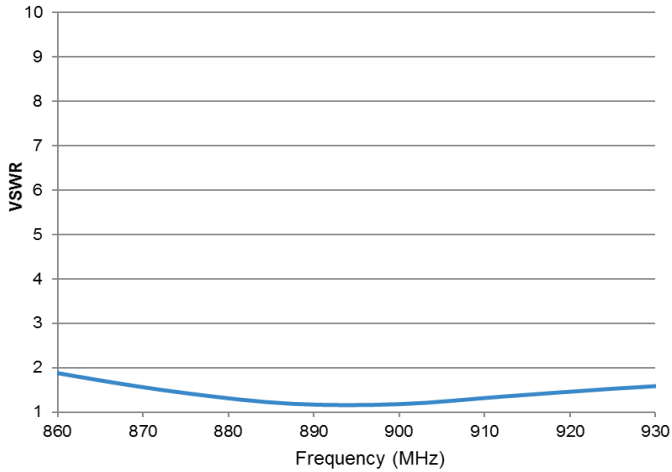
VSWR and Efficiency Plots (ISM layout or GPS layout, Single Band antenna)

Typical performance on 110 x 55 mm PCB

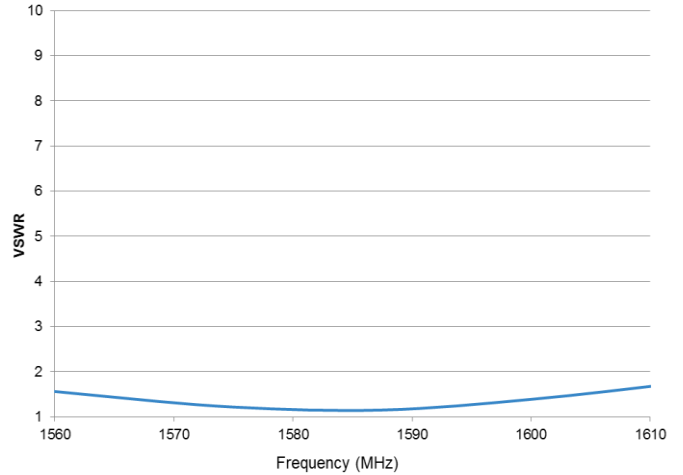
**Single Band antenna layout
(ISM or GPS)**



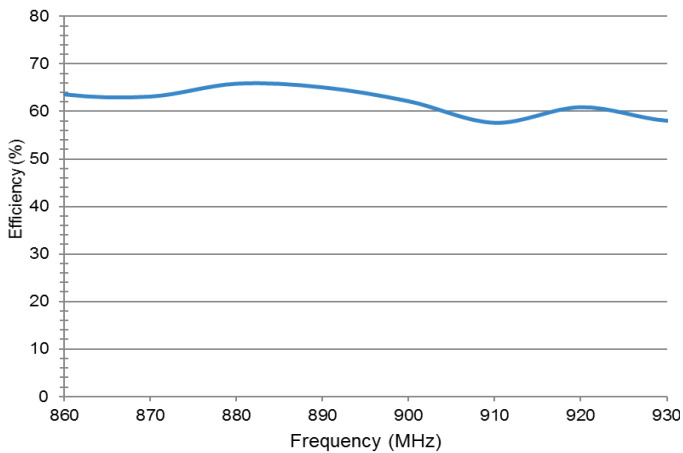
ISM VSWR



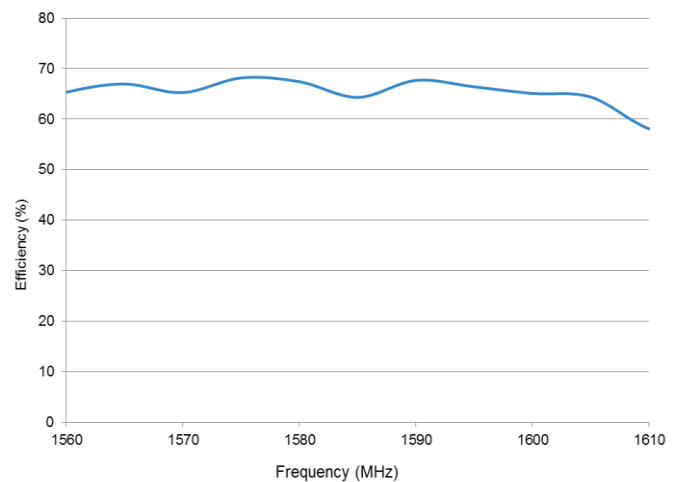
GPS VSWR



ISM Efficiency



GPS Efficiency





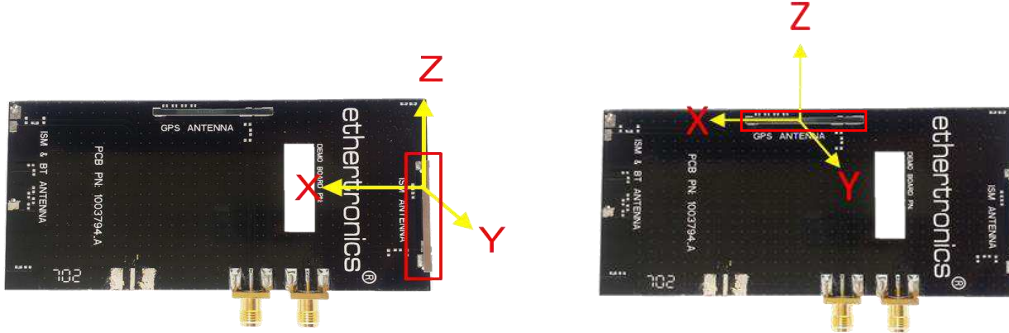
1002427 ISM or GPS layout performances (Single Band antenna)
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Antenna Radiation Patterns (ISM layout or GPS layout, Single Band antenna)

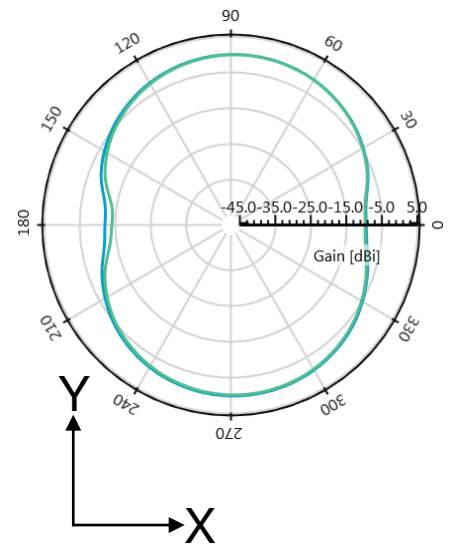
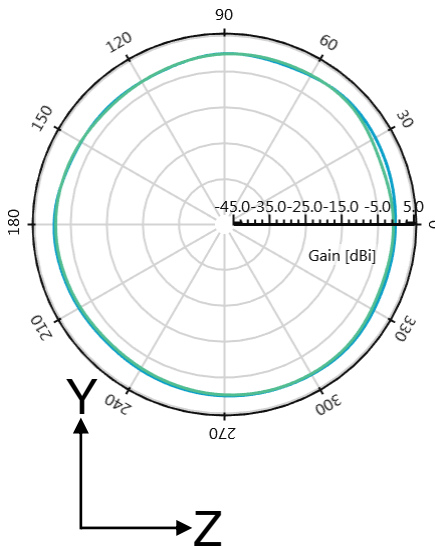
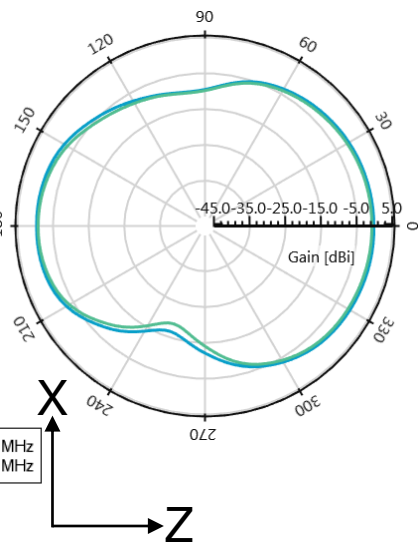
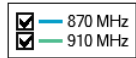
Typical performance on 110 x 55 mm PCB
Measured @ 870, 910, 1560, 1570, 1610 MHz

**Single Band antenna
(ISM Layout Orientation)**

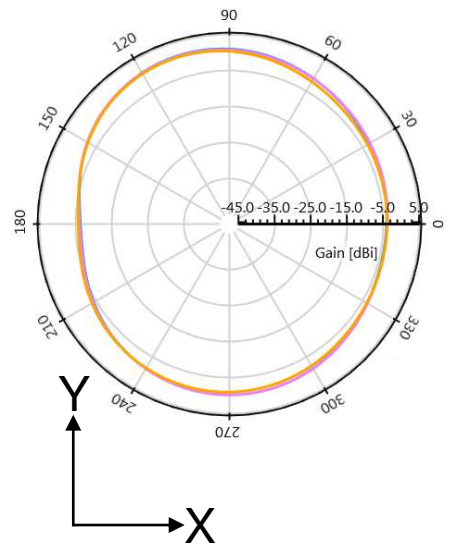
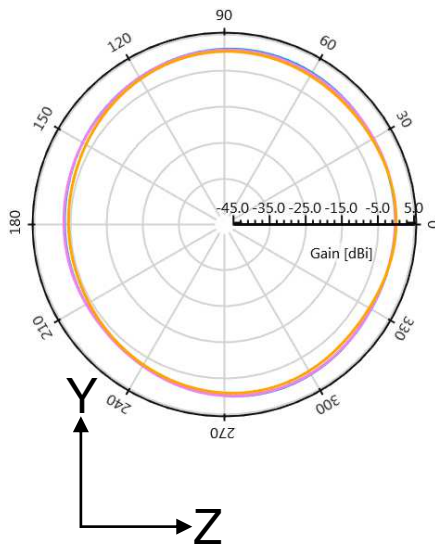
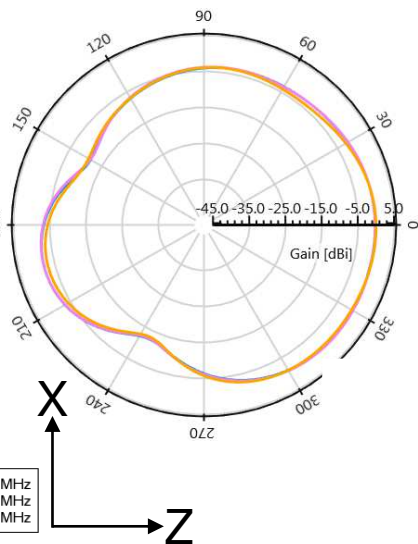
**Single Band antenna
(GPS Layout Orientation)**



Measured at 870 / 910 MHz
(ISM)



Measured at 1560, 1570, 1610 MHz
(GPS)

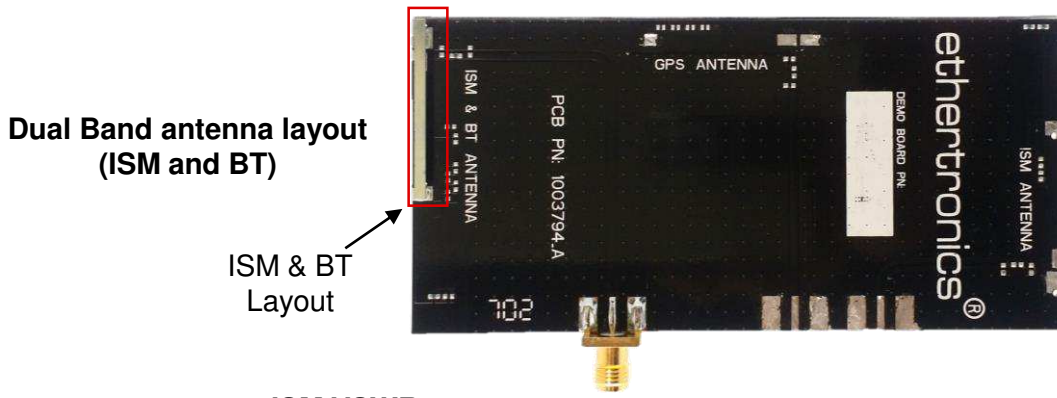




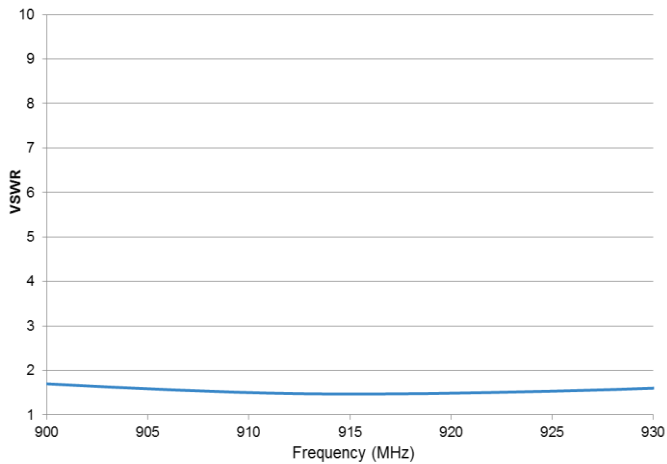
1002427 ISM & BT layout performances (Dual Band antenna)
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VSWR and Efficiency Plots (ISM and BT layout, Dual Band antenna)

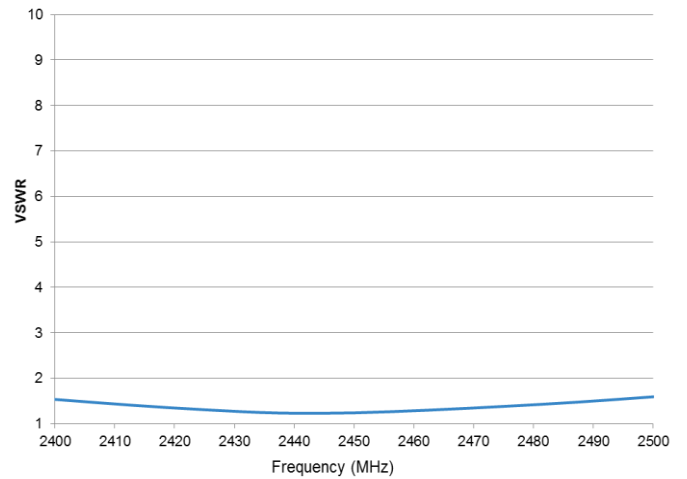
Typical performance on 110 x 55 mm PCB



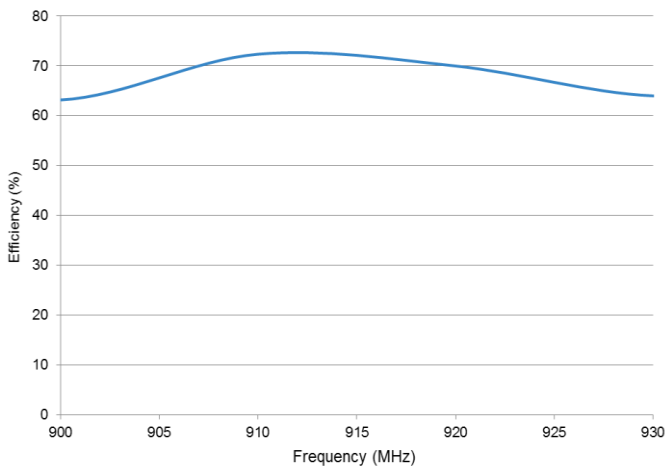
ISM VSWR



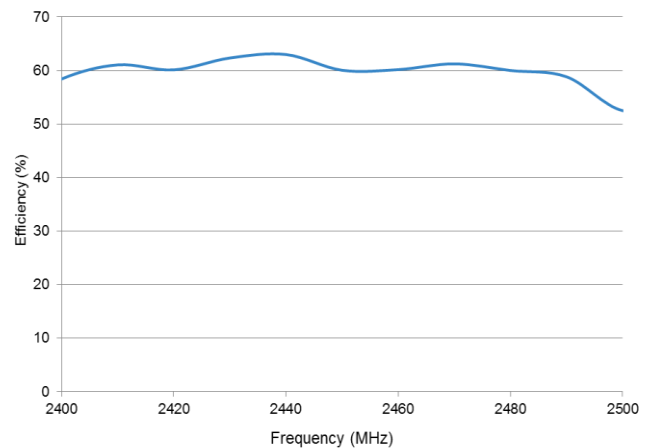
BT VSWR



ISM Efficiency



BT Efficiency



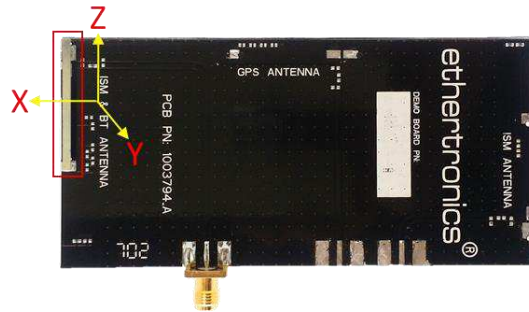


1002427 ISM & BT layout performances (Dual Band antenna)
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Antenna Radiation Patterns (ISM & BT layout, Dual Band antenna)

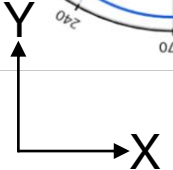
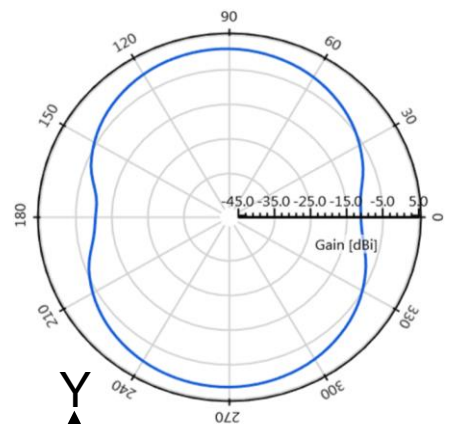
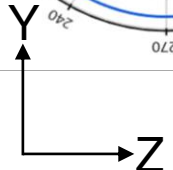
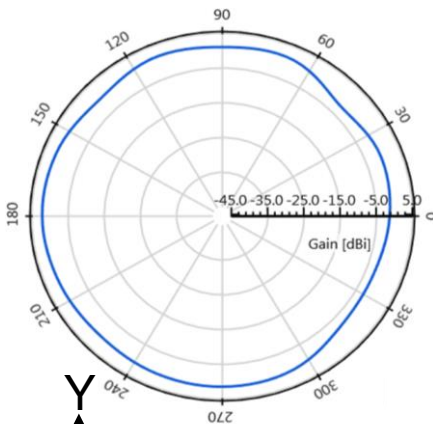
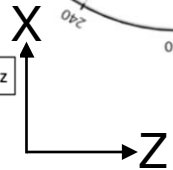
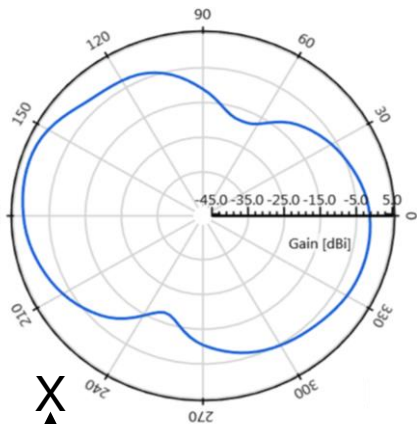
Typical performance on 110 x 55 mm PCB
Measured @ 910, 2450 MHz

**Dual Band antenna
(ISM & BT Layout Orientation)**



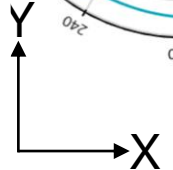
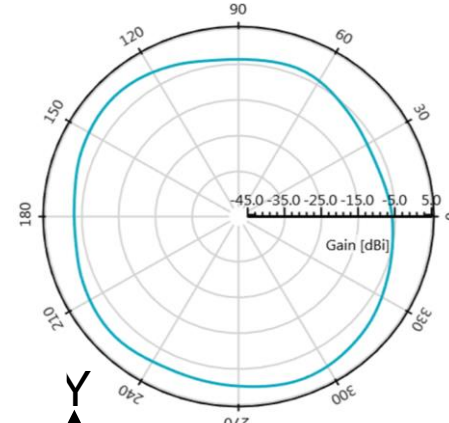
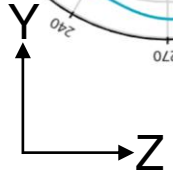
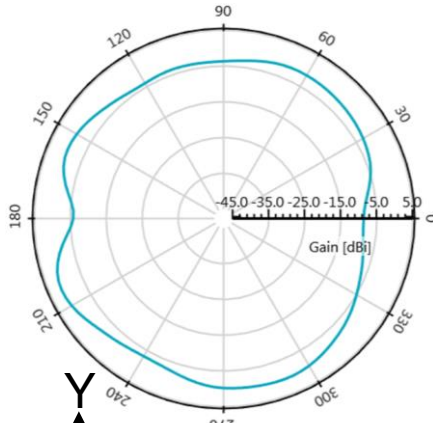
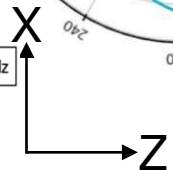
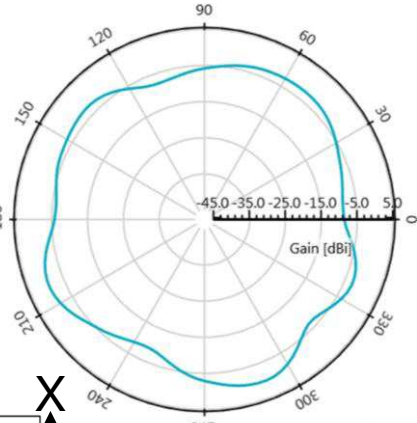
Measured at 910 MHz
(ISM)

910 MHz



Measured at 2450 MHz
(BT)

2450 MHz

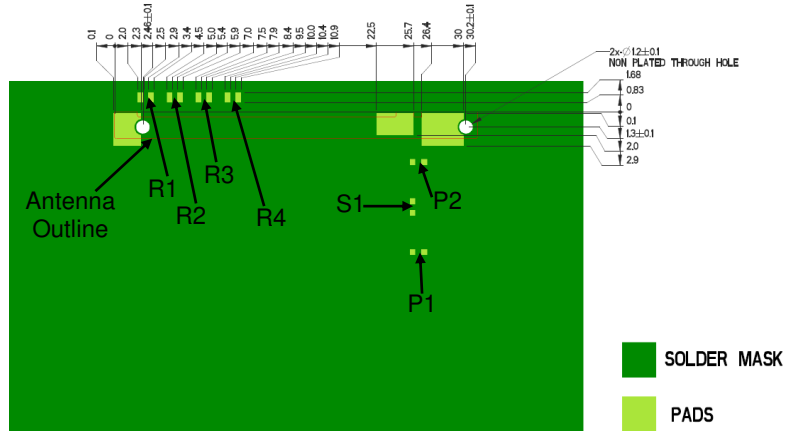
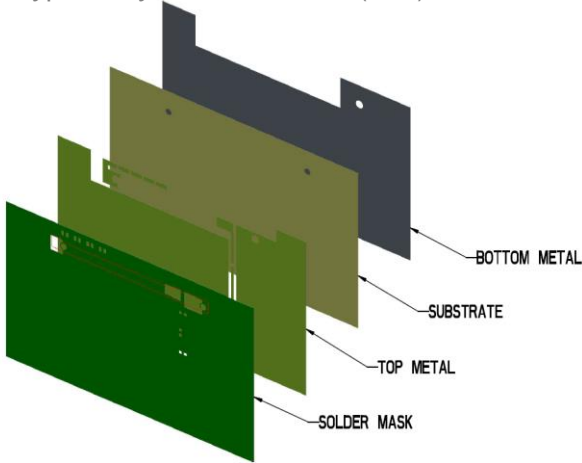




ISM / GPS / BT Stamp Metal Ethertronics' Antenna Specifications (GPS Single Band antenna)
Ethertronics produces a wide variety of standard and custom antennas to meet user needs.

Antenna Layout (GPS Layout ONLY)

Typical layout dimensions (mm)



* VIAS: Diam. 0.2mm, (no vias on transmission lines).
Via holes must be covered by solder mask

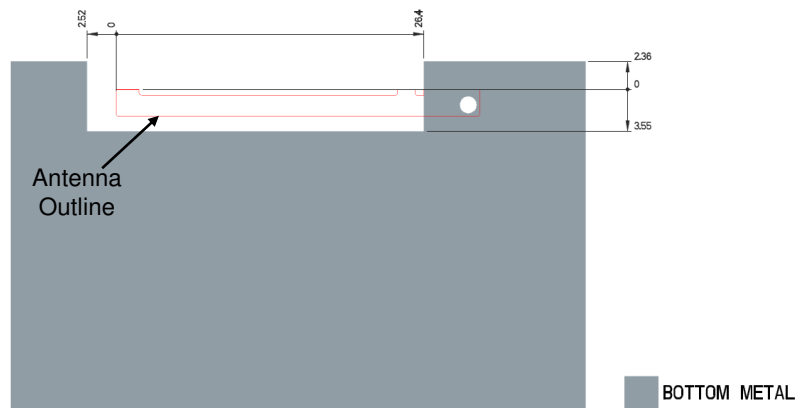
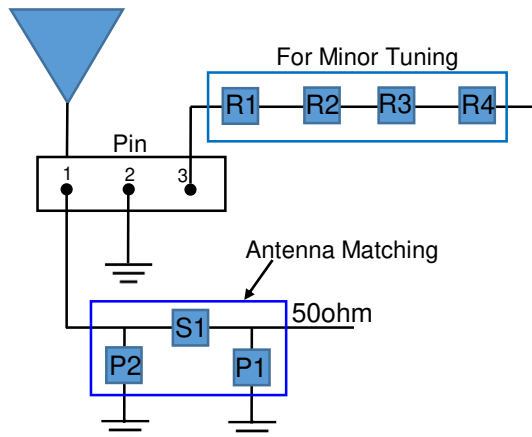
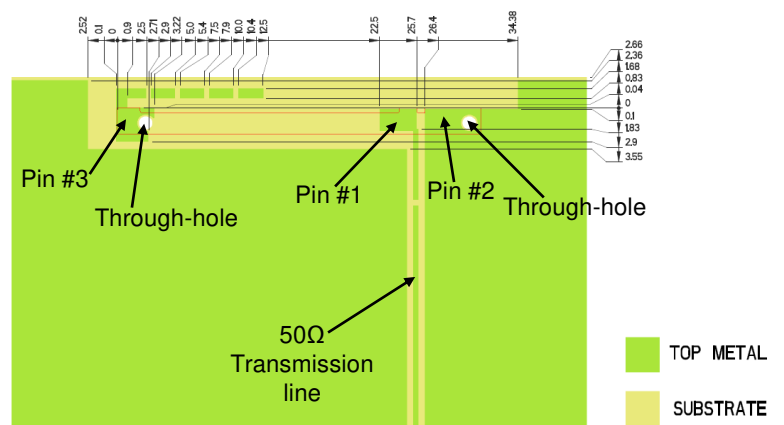
Pin Descriptions

| Pin# | Description |
|------|-------------|
| 1 | Feed |
| 2 | Ground |
| 3 | Dummy Pad |

Matching & Tuning Component Values

| Component | Value | Tolerance |
|-----------|-------|-----------|
| P1 | DNI | N/A |
| S1 | 0Ω | N/A |
| P2 | 3.0pF | ±0.05pF |
| R1 - R4 | DNI | N/A |

*Actual matching values depend on customer design

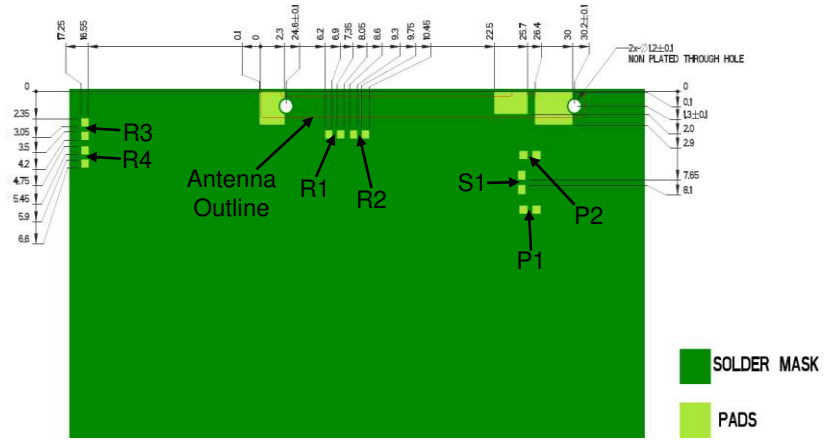
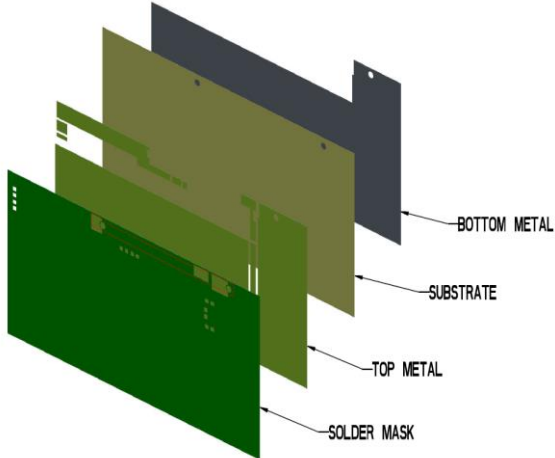




ISM / GPS / BT Stamp Metal Ethertronics' Antenna Specifications (ISM Single Band antenna)
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Antenna Layout (ISM Layout ONLY)

Typical layout dimensions (mm)



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Via holes must be covered by solder mask

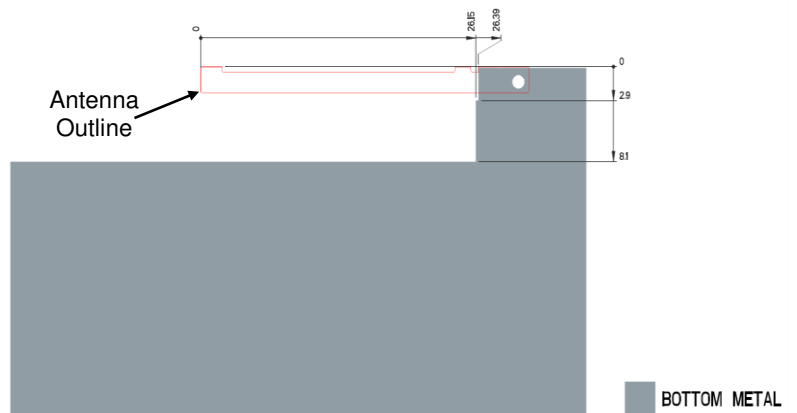
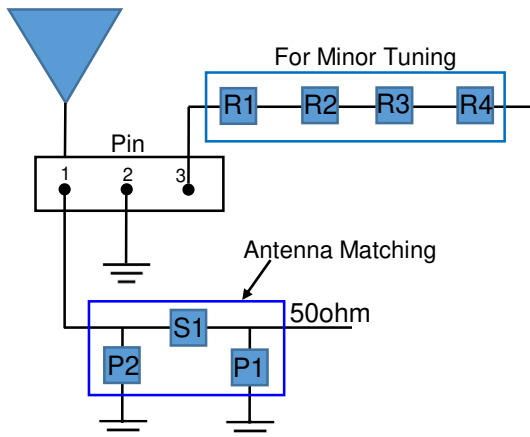
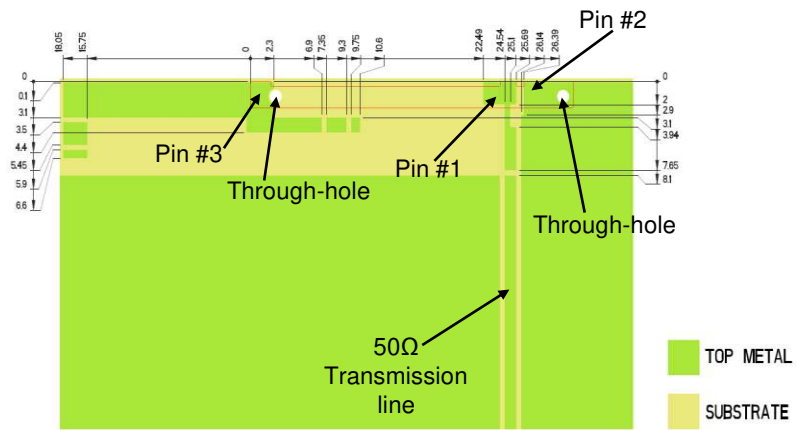
Pin Descriptions

| Pin# | Description |
|------|-------------|
| 1 | Feed |
| 2 | Ground |
| 3 | Dummy Pad |

Matching & Tuning Component Values

| Component | Value | Tolerance |
|-----------|-------|-----------|
| P1 | DNI | N/A |
| S1 | 5.6pF | ±0.05pF |
| P2 | 1.8pF | ±0.05pF |
| R1 - R4 | 0Ω | N/A |

*Actual matching values depend on customer design

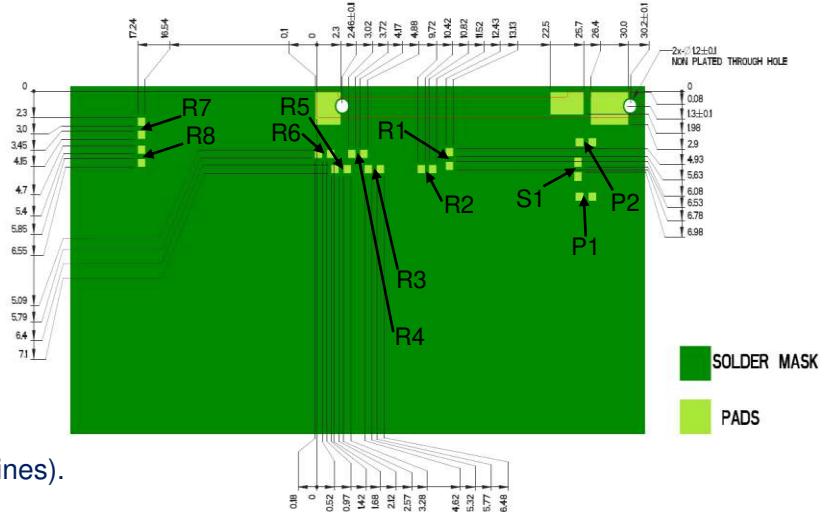
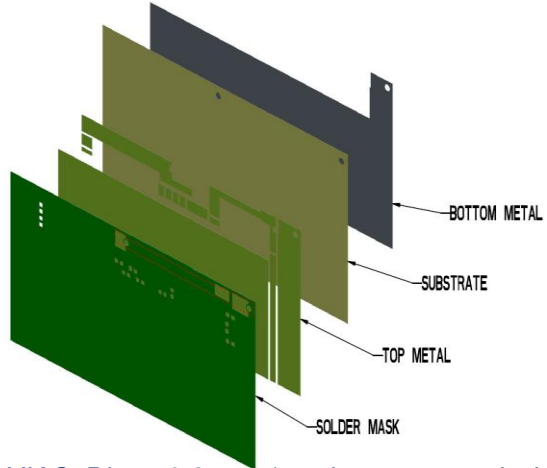




ISM / GPS / BT Stamp Metal Ethertronics' Antenna Specifications (ISM & BT Dual Band antenna)
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Antenna Layout (ISM & BT Layout ONLY)

Typical layout dimensions (mm)



* VIAS: Diam. 0.2mm, (no vias on transmission lines).
Via holes must be covered by solder mask

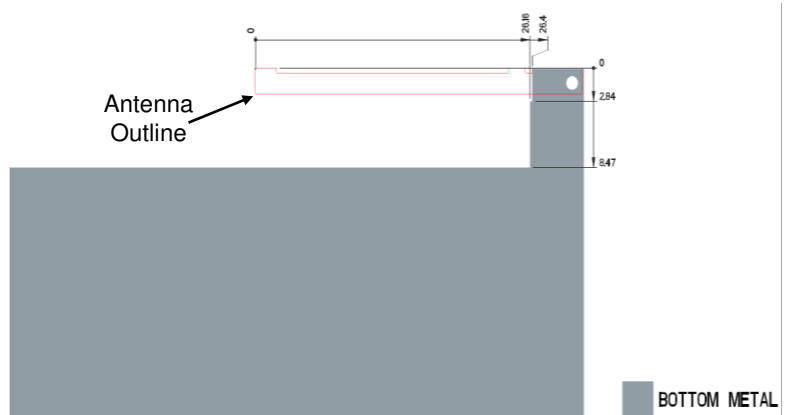
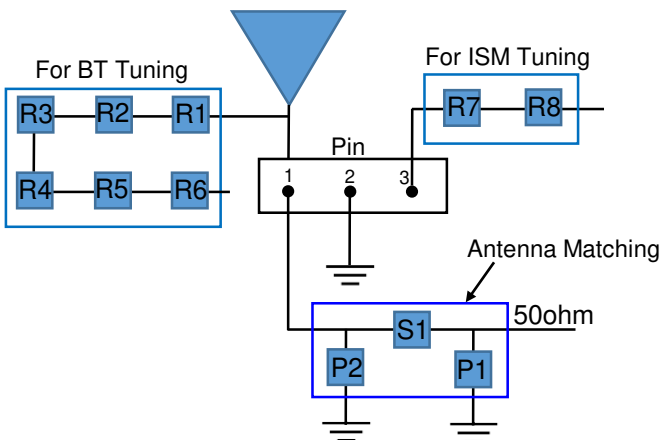
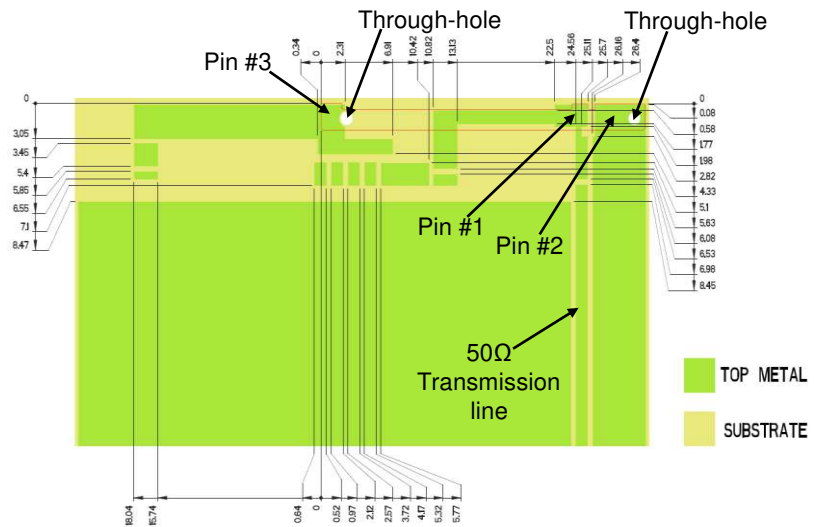
Pin Descriptions

| Pin# | Description |
|------|-------------|
| 1 | Feed |
| 2 | Ground |
| 3 | Dummy Pad |

Matching & Tuning Component Values

| Component | Value | Tolerance |
|-----------|-------|-----------|
| P1 | DNI | N/A |
| S1 | 5.0pF | ±0.05pF |
| P2 | DNI | N/A |
| R1 – R8 | DNI | N/A |

*Actual matching values depend on customer design



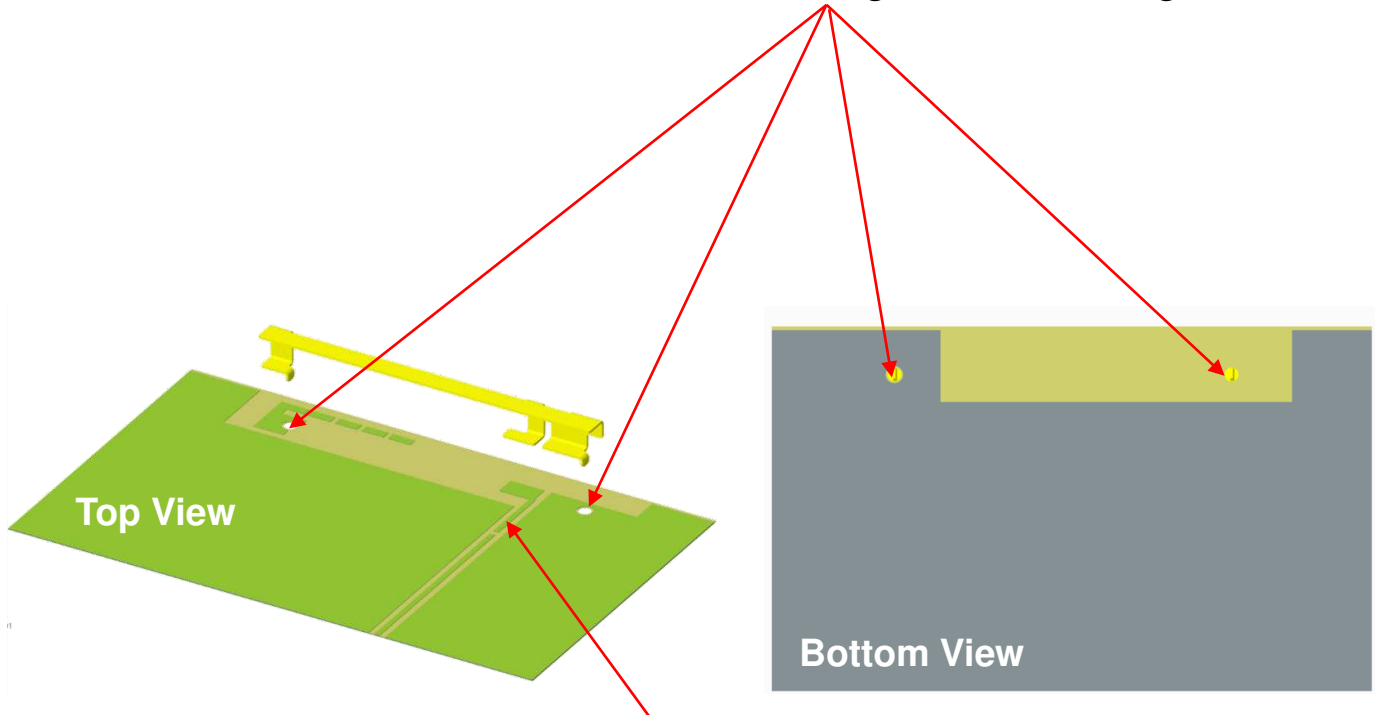


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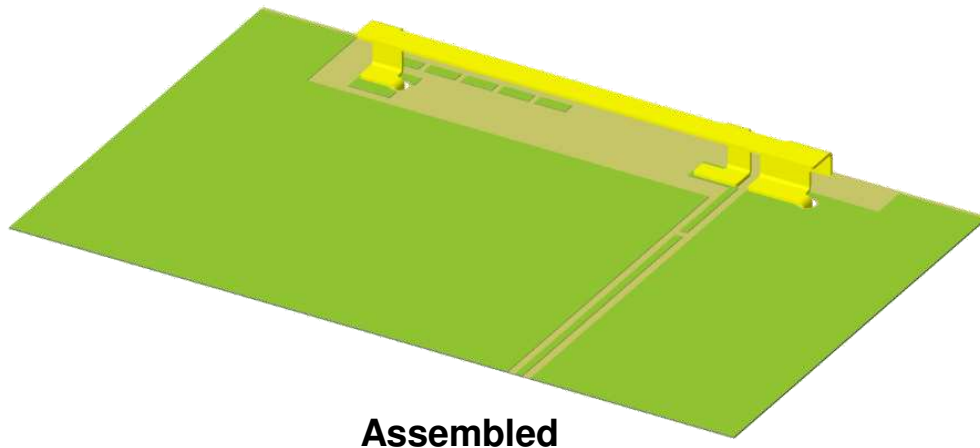
Antenna Layout cont. (through hole mounting)

Typical layout dimensions (mm)

PCB slots for through-hole mounting



A 50 ohm transmission line needs to be designed and connected at this location



Assembled