

**Part No. 1002298**

## Wi-Fi / BT Dual Band Stamped Metal Embedded Antenna

**2.4 / 5 GHz**

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



### Stamped Metal Wi-Fi / BT Embedded Antenna

2.4 GHz; 5 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

Ethertronics' Stamped Metal antennas deliver on the key needs of device designers for higher functionality and performance in smaller/thinner designs. These innovative antennas provide compelling advantages for WLAN enabled devices, media players, routers, and other wireless devices.

#### Greater Flexibility

Ethertronics' first-in-class technology enables you to develop concept designs that are more advanced and that deliver superior performance in reception critical applications.

#### Electrical Specifications

Typical performance on 75 x 75 mm PCB

Frequency	2.400 – 2.485 GHz	5.150 – 5.825 GHz
Peak Gain	3.6 dBi	5.1 dBi
Average Efficiency	78%	70%
VSWR Match	2.0 :1 max	
Feed Point Impedance	50 ohms unbalanced	
Polarization	Linear	
Power Handling	0.5 Watt CW	

#### Mechanical Specifications & Ordering Part Number

Ordering Part #	1002298
Dimensions (mm)	16.1 x 17.95 x 10.55
Mounting Type	SMT (P&P)
Weight (grams)	0.85
Packaging	Tape & Reel, 150 pcs/Reel
Demo Board	1003666-02

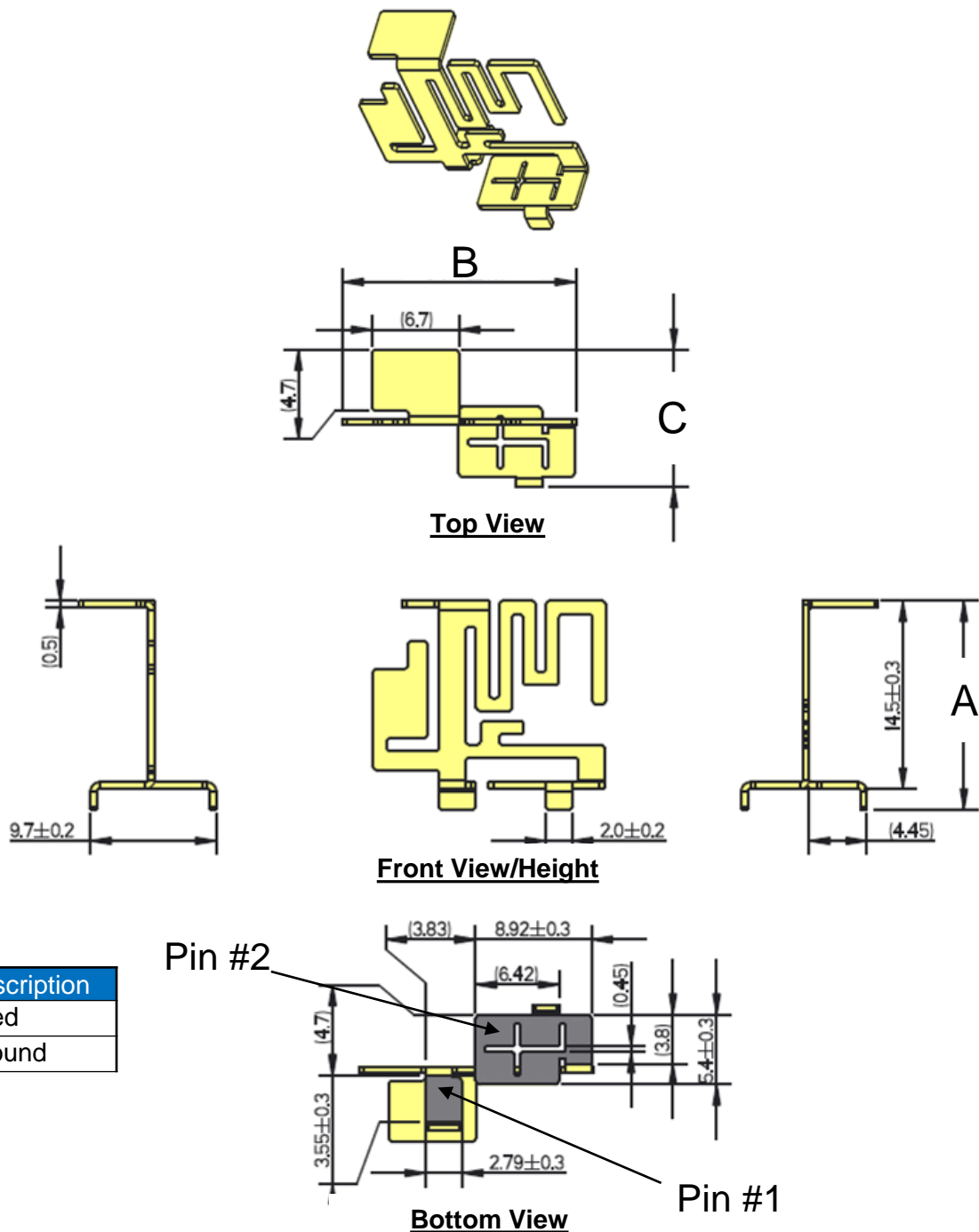


2.4 GHz / 5 GHz Stamped Metal Ethertronics' Embedded Antenna Specifications  
Ethertronics produces a wide variety of standard and custom antennas to meet user needs.

### Antenna Dimensions

Typical antenna dimensions (mm)

Part Number	A (mm)	B (mm)	C (mm)
1002298	$16.1 \pm 0.4$	$17.95 \pm 0.3$	$10.55 \pm 0.4$



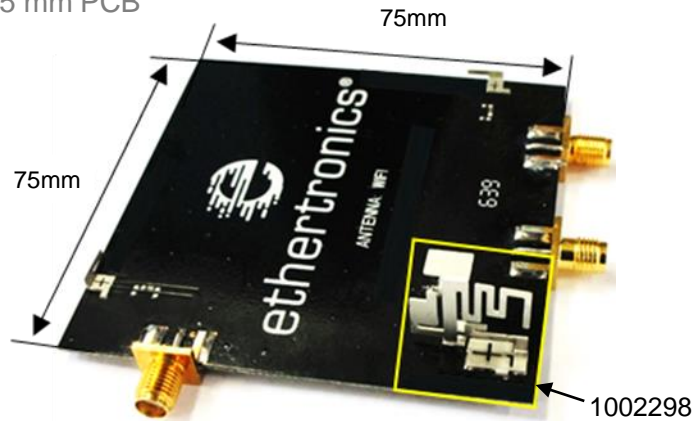
Pin#	Description
1	Feed
2	Ground



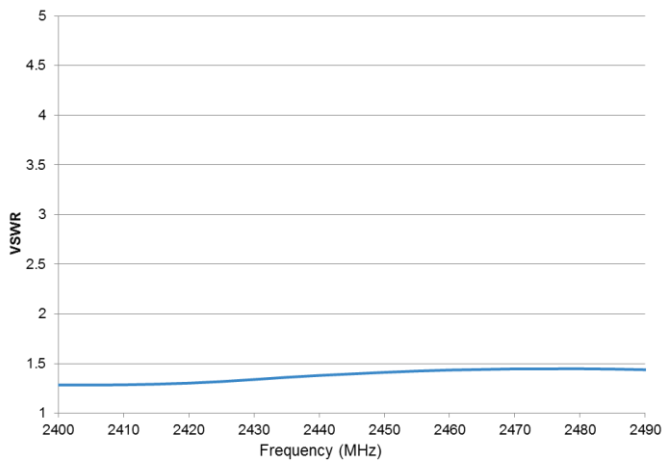
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## VSWR and Efficiency Plots

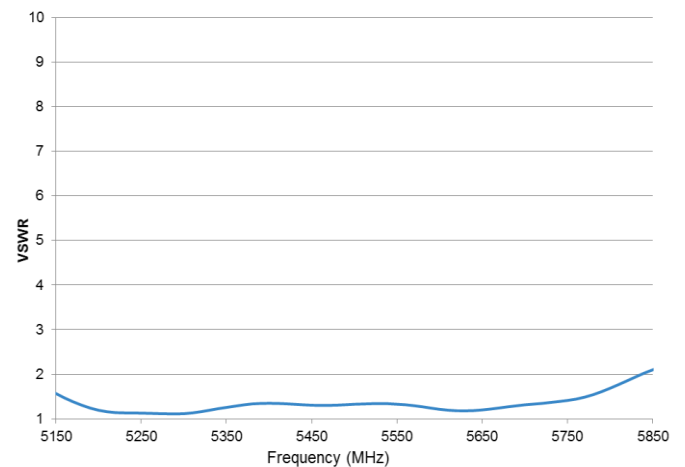
Typical performance on 75 x 75 mm PCB



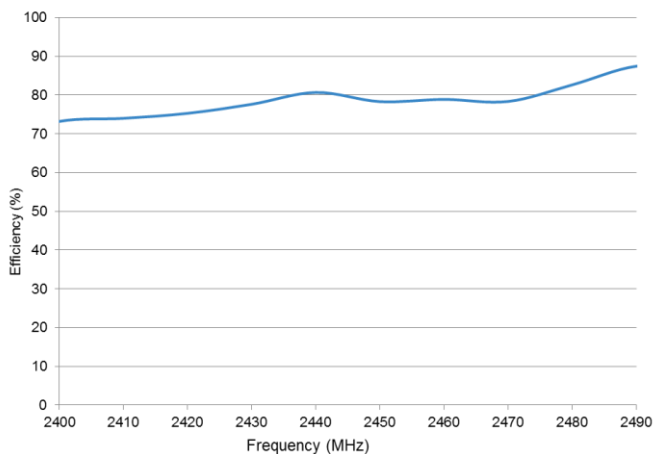
**2.4 GHz VSWR**



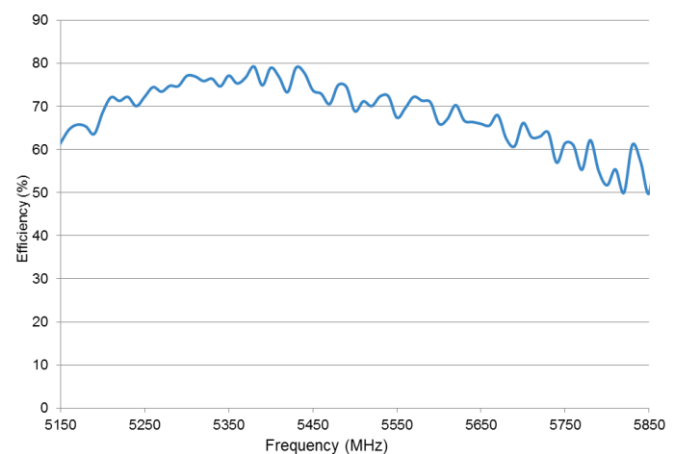
**5 GHz VSWR**



**2.4 GHz Efficiency**



**5 GHz Efficiency**



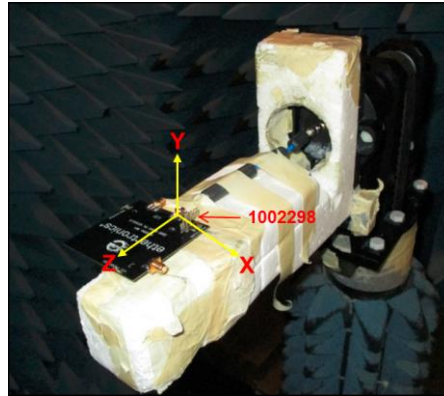


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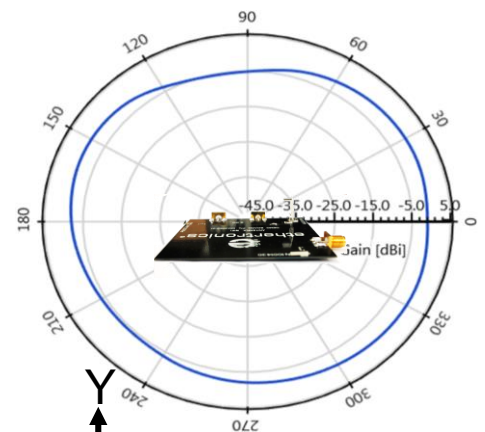
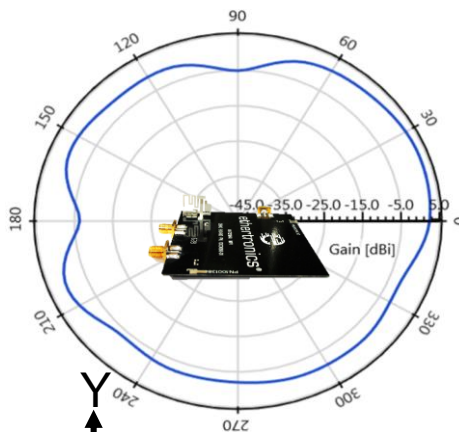
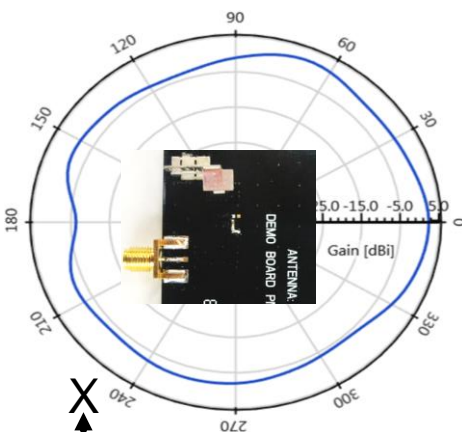
**Antenna Radiation Patterns**

Typical performance on 75 x 75 mm PCB

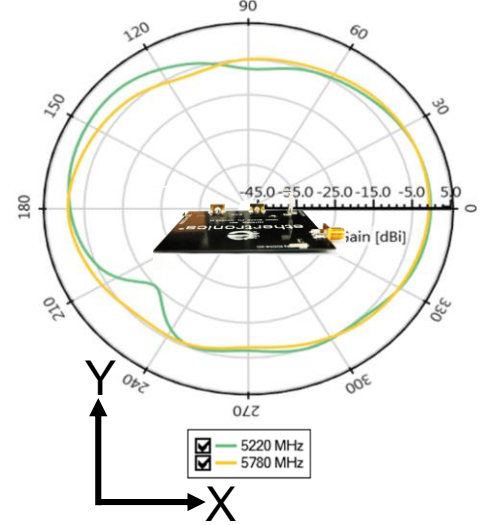
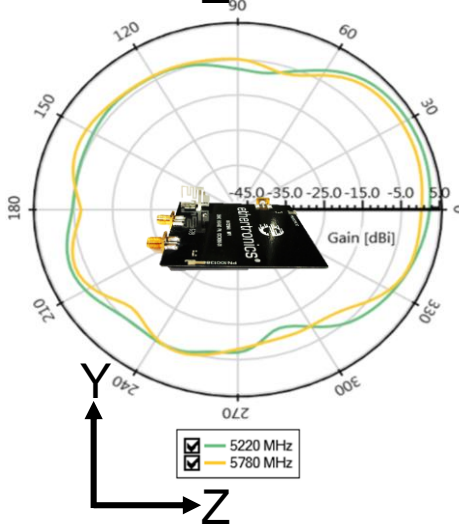
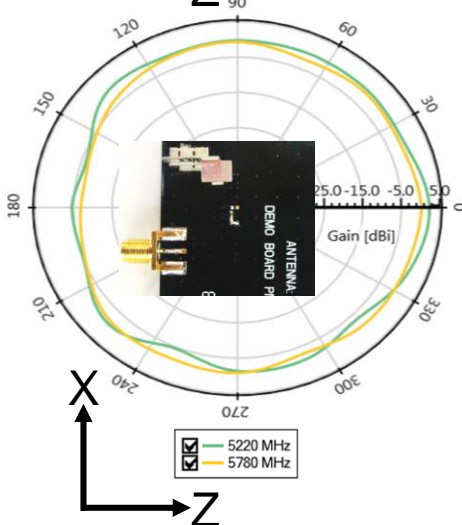
Measured @ 2.450, 5.220, 5.780 GHz



Measured at 2.45 GHz



Measured at 5.220 & 5.780 GHz

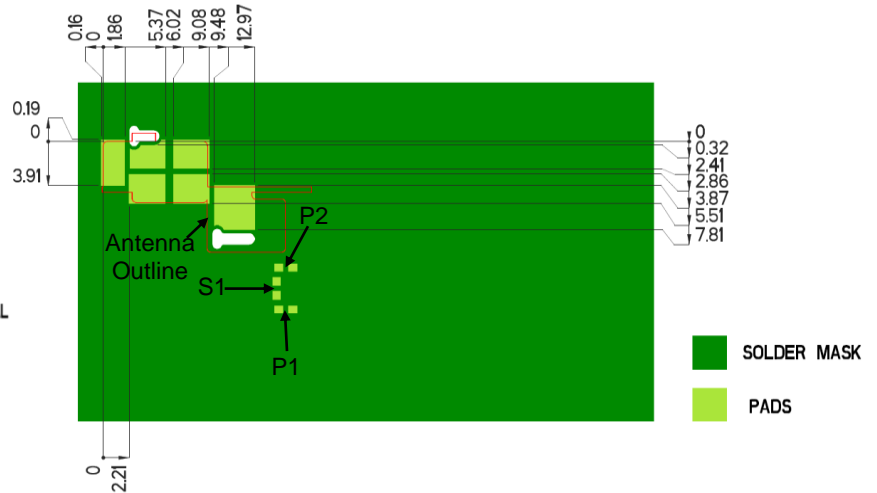
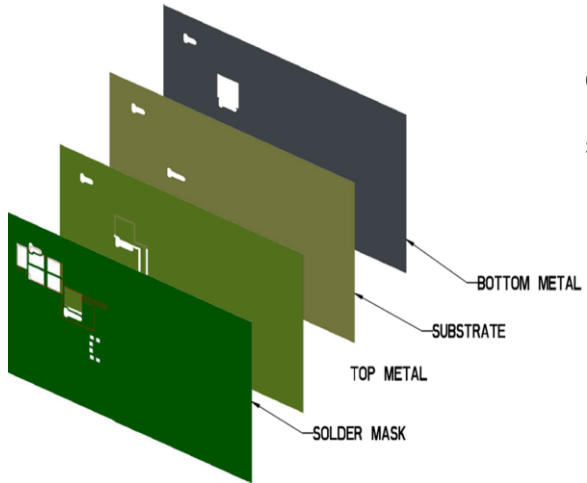




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### Antenna Layout

Typical layout dimensions (mm)



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

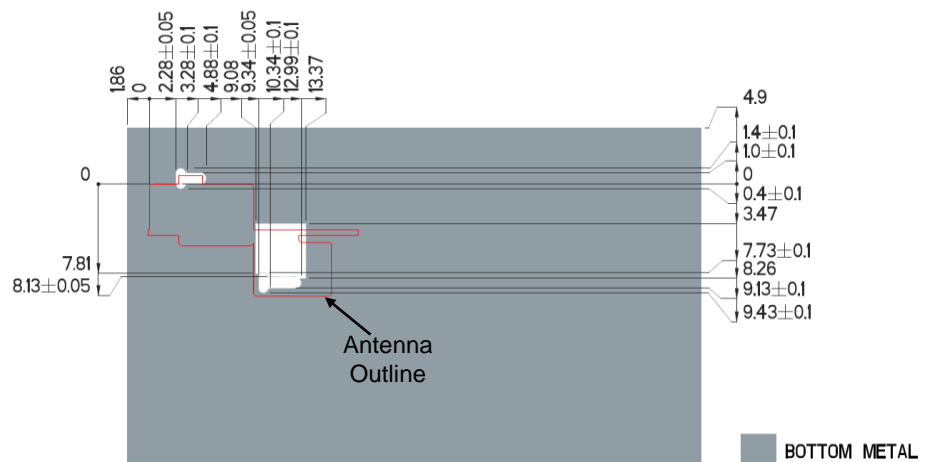
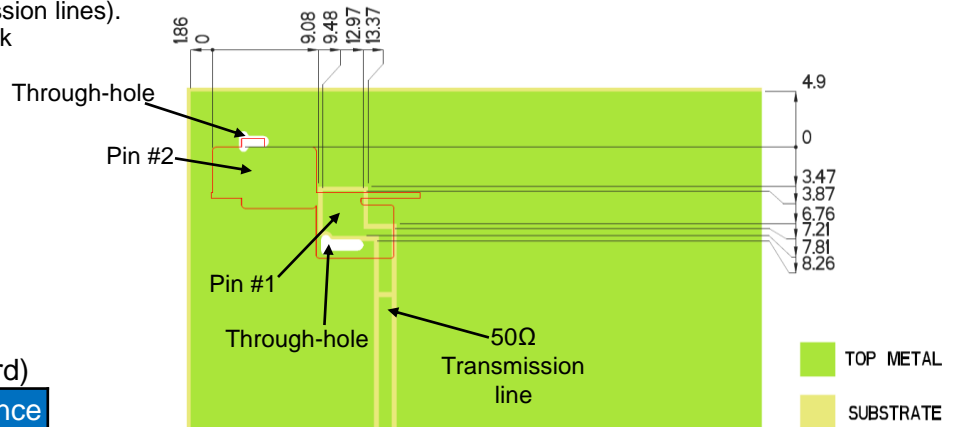
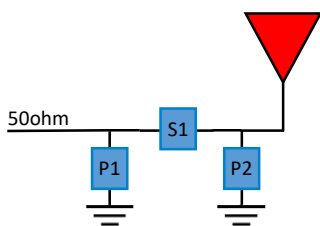
### Pin Descriptions

Pin#	Description
1	Feed
2	Ground

### Matching Pi Network (Demo Board)

Component	Value	Tolerance
P1	DNI	N/A
S1	0.8nH	±0.1nH
P2	0.2pF	±0.05pF

\*Actual matching values depend on customer design



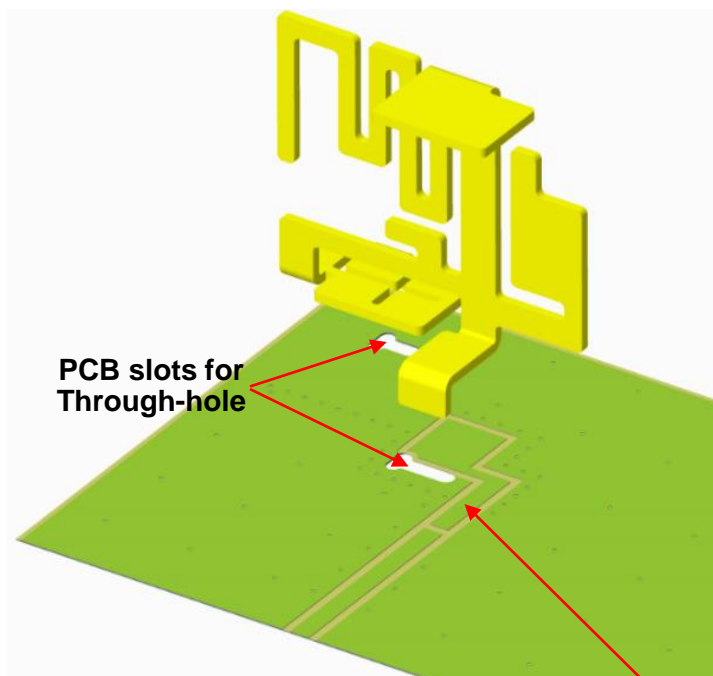


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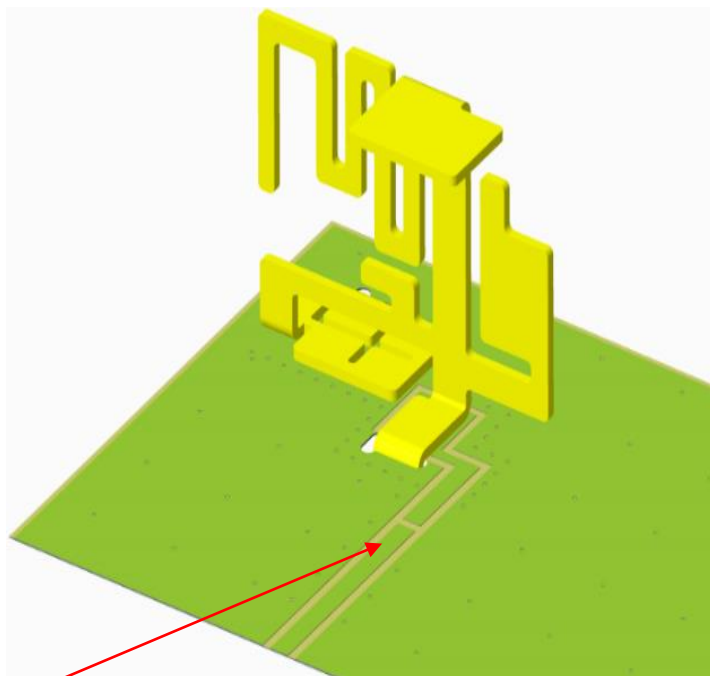
### Antenna Layout cont. (SMT Mounting, Through-hole for Stabilization)

Typical layout dimensions (mm)

Exploded View



Assembled View



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

Bottom View





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### Antenna Demo Board

Typical layout dimensions (mm)

Part Number	A (mm)	B (mm)	C (mm)	D (mm)
1003666-02	75.0	75.0	4.9	1.86

