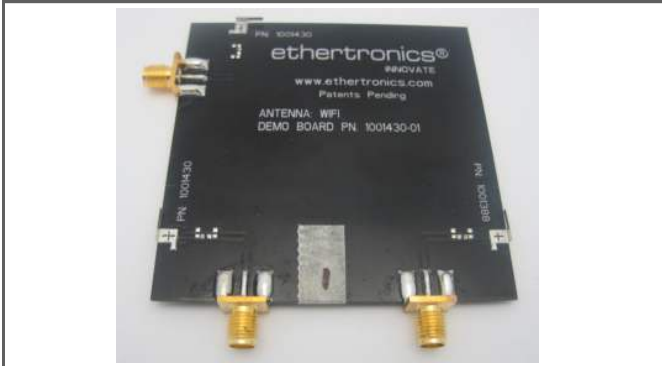


## Prestta™ Standard 802.11a 5GHz



Ethertronics' Prestta series of Isolated Magnetic Dipole™ (IMD) embedded antennas address the challenges facing today's product designers. IMD's high performance and isolation characteristics offer better connectivity and minimal interference. Prestta antennas can be used in a variety of applications in-cluding:

- Handsets
- Video Bridges
- Gateway, Access Points
- Tablets
- M2M
- Automatic Meter Reading
- Healthcare
- Point of Sale

### TECHNOLOGY ADVANTAGES



**Stays in Tune**  
IMD antenna technology provides superior RF field containment, resulting in less interaction with surrounding components. Ethertronics IMD antennas **resist de-tuning**; providing a robust radio link regardless of the usage position.

Prestta antennas use patented IMD technology in a stamped metal configuration to provide high performance. IMD antennas requires a smaller design keep-out area, carry lower program development risk which yields a quicker time-to-market, without sacrificing RF performance.



### KEY BENEFITS

#### DESIGN ADVANTAGES

##### Reduced Costs and Time-to-Market

- Standard antenna eliminates design fees and cycle time associated with a custom solution; getting products to market faster.

##### Greater Flexibility with Unique Form Factors

- Ethertronics' IMD technology helps you deliver more advanced ergonomic designs without adverse impact on product performance.
- SMD mountable design enables faster and lower cost manufacturing.

##### RoHS Compliant

- Ethertronics' antennas are fully compliant with the European RoHS Directive 2011/65/EU.

#### END USER ADVANTAGES

##### Unique Form Factors Support Advanced Industrial Designs

- Smaller, more efficient IMD embedded antennas break through restrictive design rules and provide new freedom in component placement.

##### Superior Range

- Better antenna function means longer range and greater sensitivity to critically precise signals—delivering greater customer satisfaction while building brand loyalty.

#### SERVICE AND SUPPORT

##### Extensive RF Experience

- Our Prestta antennas are supported by documentation, and when needed, by the expertise of RF engineers who have integrated hundreds of antenna designs into wireless devices.

##### Global Operations & Design Support

- Ethertronics' global operations supports an integrated network of design centers that can take projects from concept to production.

# PRELIMINARY PRODUCT BRIEF: 802.11a Antenna

## Ethertronics' 802.11a Internal (Embedded) Antenna Specifications. Below are the typical specs for a 802.11a MiMo 2x2 application.

### Electrical Specifications

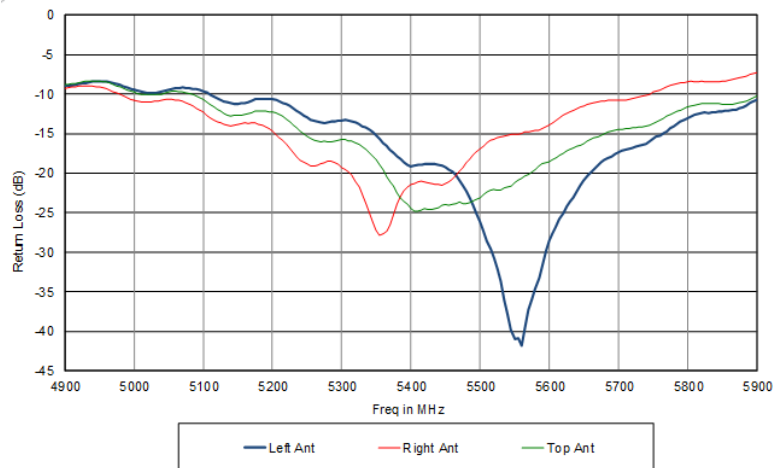
Typical Characteristics  
Measurements taken on a  
3"x3" ground plane.

	<b>Top Antenna</b> P/N 1001430 4900-5900 MHz	<b>Left Antenna</b> P/N 1001430 4900-5900 MHz	<b>Right Antenna</b> P/N 1001388 4900-5900 MHz
Peak Gain	< 7dBi	< 6 dBi	< 5dBi
Average Efficiency	70%	65 %	60 %
Return Loss in dB	-8dB max	-8dB max	-8dB max
Feed Point Impedance	50 ohms unbalanced	50 ohms unbalanced	50 ohms unbalanced
Power Handling	2 Watt CW	2 Watt CW	2 Watt CW
Polarization	Linear	Linear	Linear

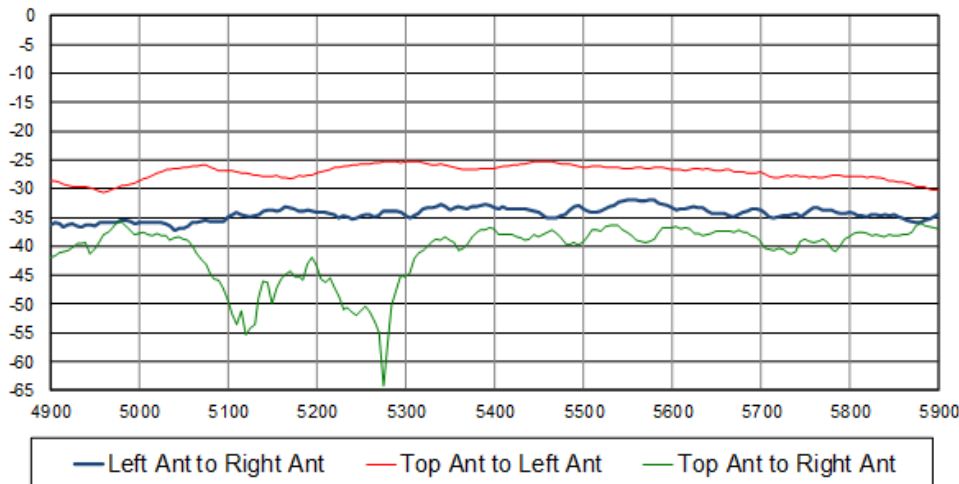
### Mechanical Specifications

Maximum Dimensions	9.80mm x 4.2 mm x 2.2 mm
Mechanical Mounting	Antenna Assembly is Surface Mounted onto main PCB.
RF Mounting	RF and Ground feed pads are Surface Mounted onto main PCB. Ground Clearance is required under antenna (15x2.9mm <sup>2</sup> )

### Typical Board Setup and Return Loss in dB

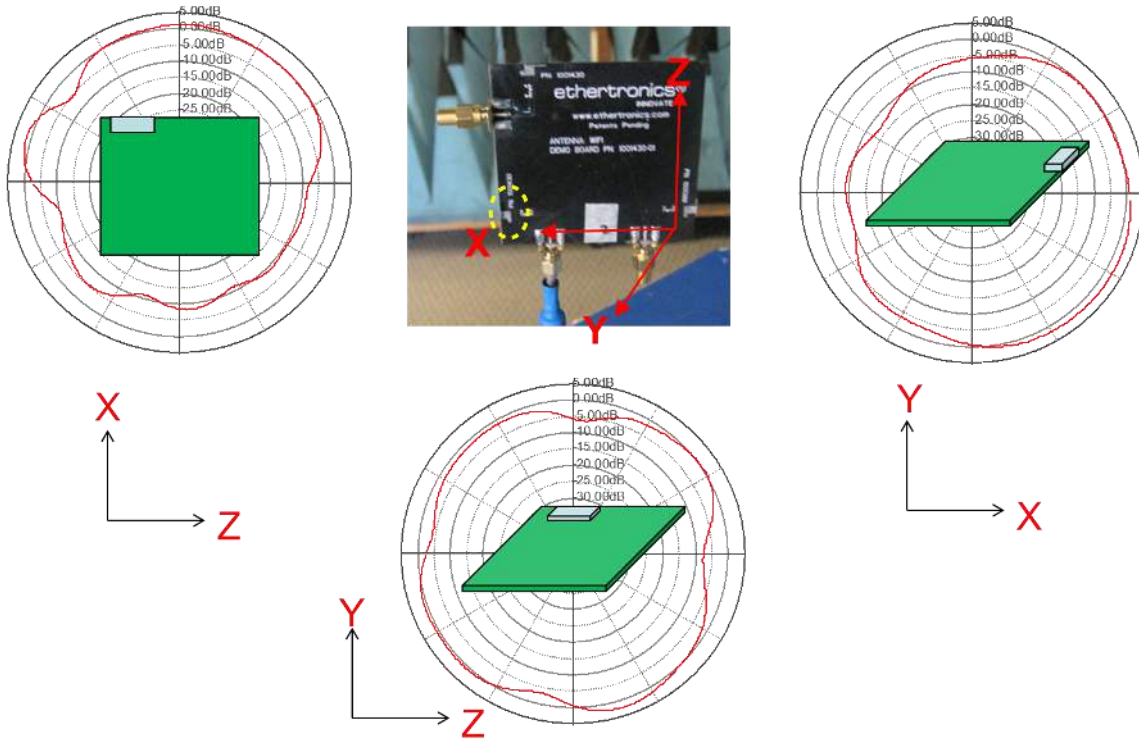


### Typical Isolation in dB between each antenna

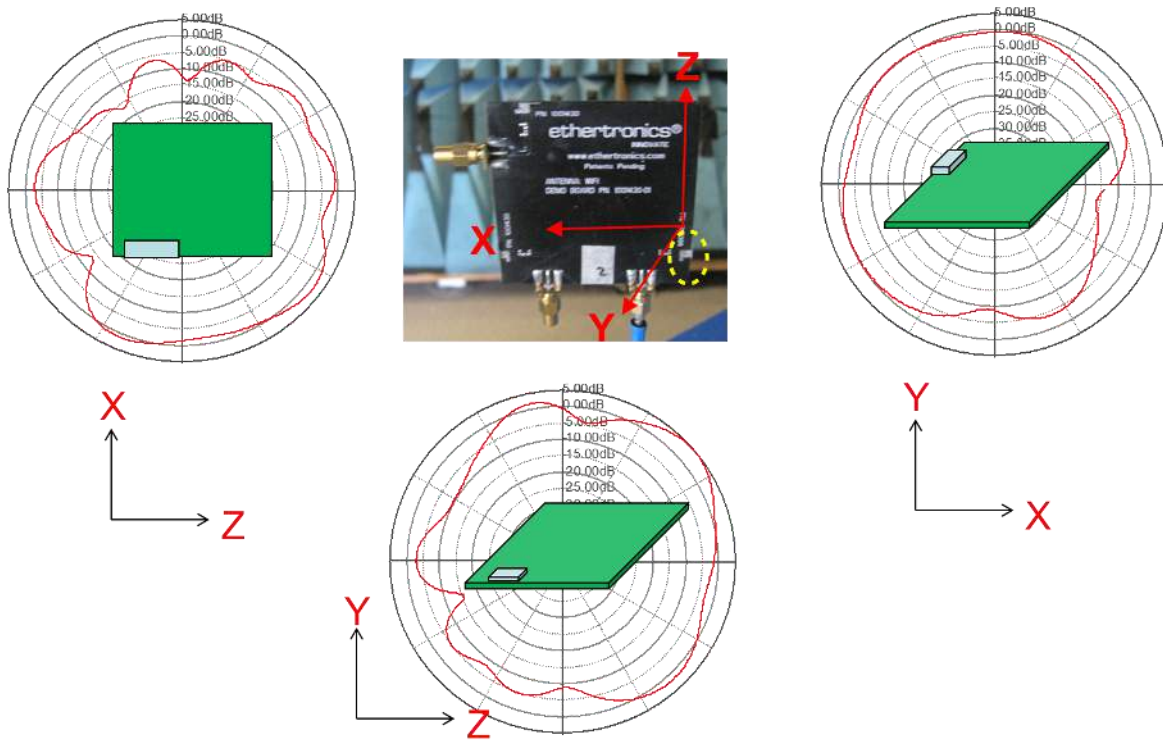


Isolation between each of the three antennas is below -25dB.

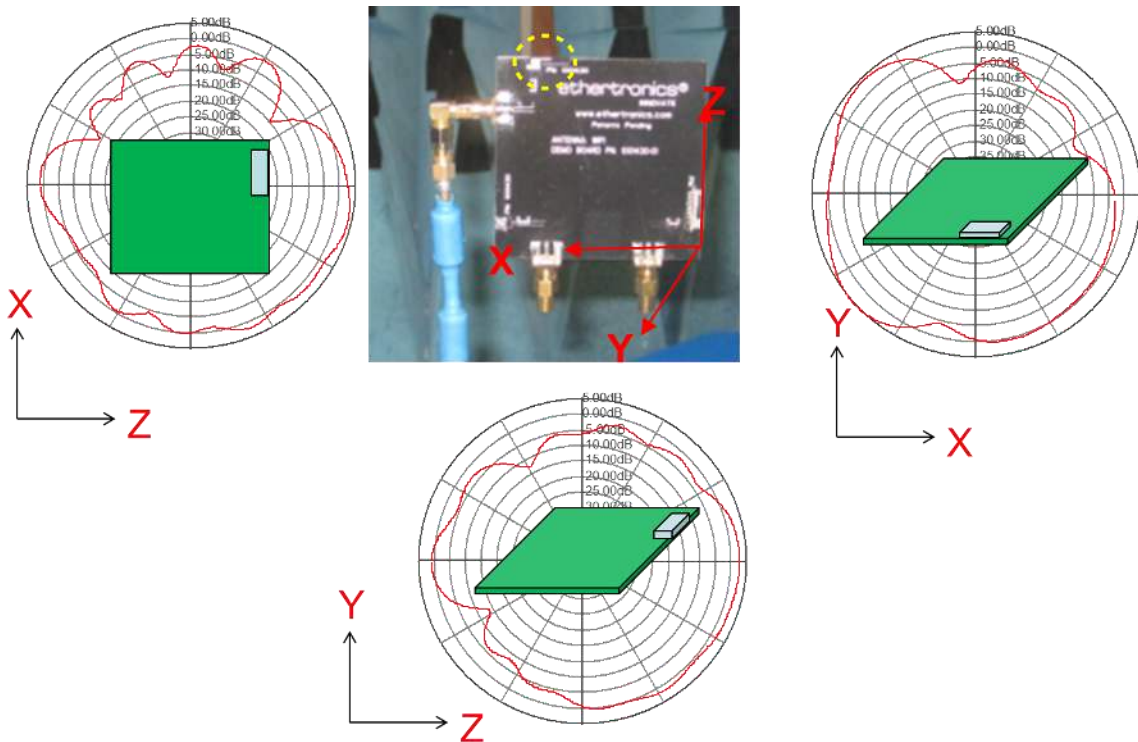
**LEFT** Antenna Radiation Patterns @ 5250MHz, Demo board PCB size is 3" x 3"



**RIGHT** Antenna Radiation Patterns @ 5250MHz, Demo board PCB size is 3" x 3"



TOP Antenna Radiation Patterns @ 5250MHz, Demo board PCB size is 3" x 3"



Antenna Set Configuration

REV	DATE	BY	CHKD	APP'D	DATE
A					
B					
C					
D					
E					
F					

NOTES: (UNLESS OTHERWISE SPECIFIED)

- COMPONENTS: SEE BILL OF MATERIALS ON SHEET 1.
- ASSEMBLY PROCEDURE:
  - SMT THE ANTENNAS AND COMPONENTS TO THE BOARD AS SHOWN ON SHEET 2. USE LEAD FREE SOLDER ONLY.
  - SOLDER THE CONNECTORS TO TOP AND BOTTOM OF PCB AS SHOWN ON SHEET 2. USE LEAD FREE SOLDER ONLY.
  - PLACEMENT OF PARTS ACCORDING TO THE LATEST IPC-610 STANDARDS. ALL SOLDERING REQUIRED THE USE OF LEAD FREE (Pb FREE) SOLDER.
- COSMETIC REQUIREMENT: MARKING SHALL BE READABLE AND PART SHALL BE FREE OF APPEARANCE DEFECTS.
- ASSEMBLY SHALL BE CLEAN AND FREE OF ALL FOREIGN MATTER.
- PART MARKING: AS INDICATED ON COMPONENTS.
- DIMENSIONAL TOLERANCES: SEE TOLERANCE BLOCK.
- FIRST ARTICLE: FIRST ARTICLE MEASUREMENT SHALL BE PERFORMED FOR ALL DRAWING DIMENSIONS ON 5 RANDOMLY SELECTED PARTS. THE FIRST ARTICLE DATA ALONG WITH THE NUMBERED FIRST ARTICLE SAMPLES SHALL BE FORWARDED TO ETHERTRONICS, INC. QUALITY ENGINEERING.
- PART SHALL MEET ALL CHARACTERISTICS OF THE 3D DATA BASE AND THE 3D DATA BASE SHALL TAKE PRECEDENCE UNLESS OTHERWISE SPECIFICALLY STATED IN THIS DRAWING.
- PACKAGING REQUIREMENT: CUSTOM TRAYS SHALL BE CLEAN AND FREE OF ALL FOREIGN MATTER, SHALL BE REVIEWED BY ETHERTRONICS, INC.
- PACKAGE LABELING REQUIREMENT: REFER TO 1000325 LABEL SPECIFICATION.
- NO CHANGE SHALL BE ALLOWED ON TOOLING OR MATERIAL SPECIFICATION WITHOUT PRIOR EXPLICIT WRITTEN APPROVAL BY ETHERTRONICS, INC. ENGINEERING, PURCHASING AND CONTRACTS DEPARTMENT.
- ALL DIMENSIONS ARE IN MILLIMETER.
- PART MUST BE COMPLIANT WITH THE REQUIREMENTS OF EU DIRECTIVE 2002/95/EC (RoHS). ADDITIONALLY THEY SHALL NOT CONTAIN INTENTIONALLY ADDED MATERIALS REQUIRING REMOVAL FROM SEPARATELY COLLECTED WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT PER EU DIRECTIVE 2002/96/EC (WEEE).

ITEM	PART NO	REV	DESCRIPTION	QTY	REMARKS
1	1001388	A	ANTENNA, WLANA L J0720	1	N / A
2	1001430	A	ANTENNA, WLANA R J0720	2	N / A
3	1001492	B	PCB, J0720	1	COLOR: BLACK
4	1000334	A	CONNECTOR SMA, JACK 16GRZ 0.9	3	142-0701-081 JOHNSON EMERSON, OR EQUIVALENT (FOR 0.8mm BOARD)
5	1000666	A	RES, 0 OHM 1005	3	R87521ET7PL ROA, OR EQUIVALENT

1001430

1001430

1001388

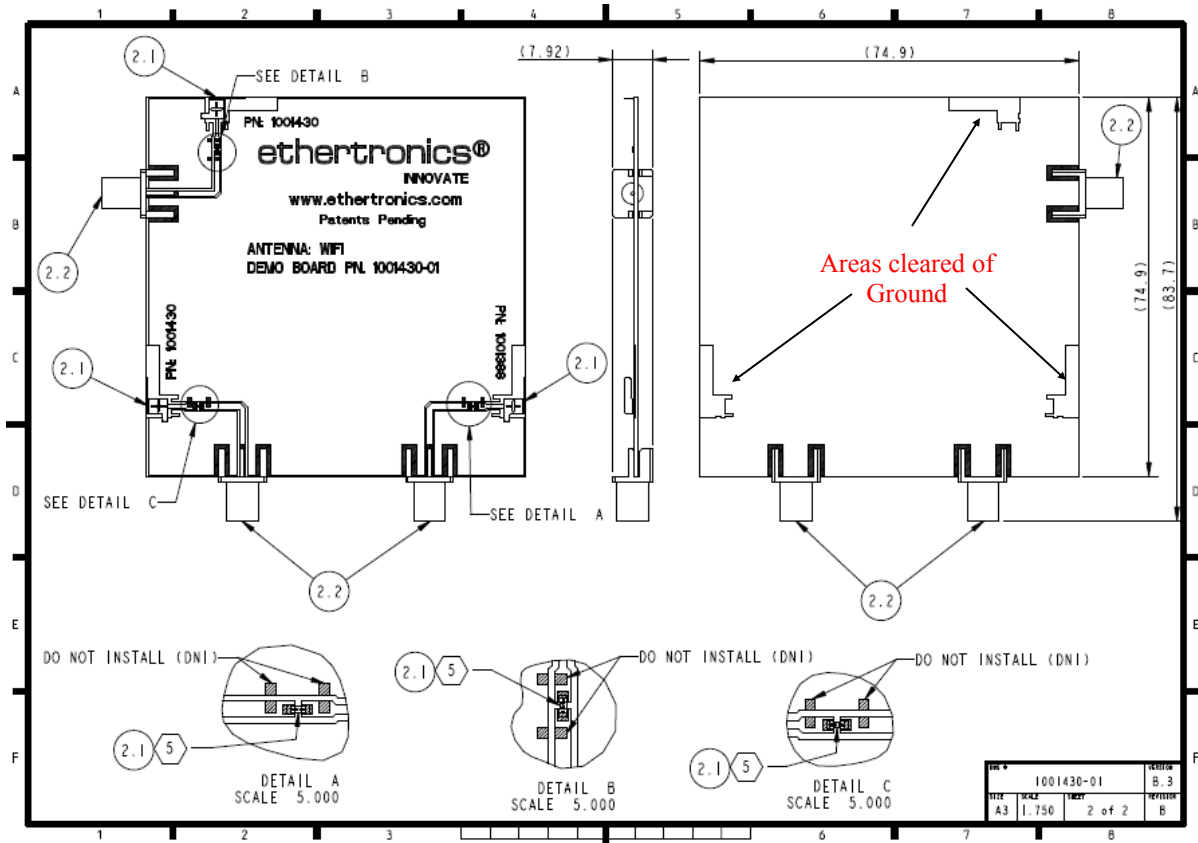
**ETHERTRONICS**

3805 SCHRANTZ ROAD  
SAN DIEGO, CA 92124788

TEL: (619) 550-3820 FAX: (619) 550-3821

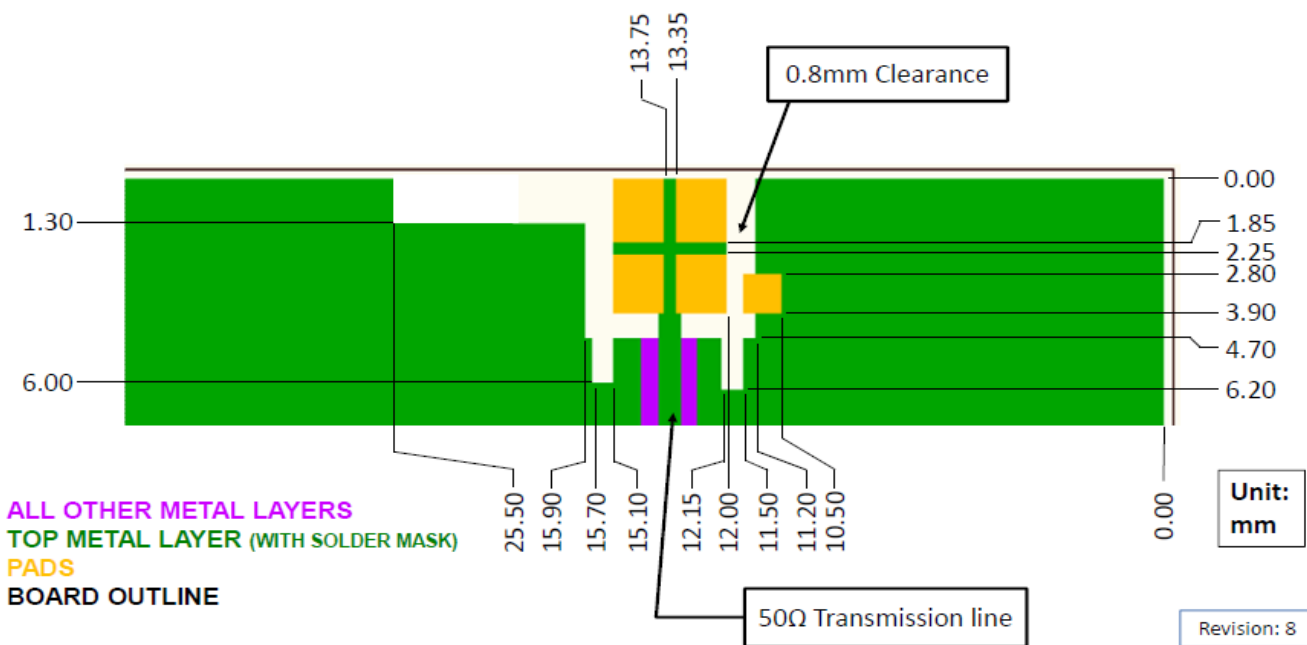
WWW.ETHERTRONICS.COM

## Dimensions on the Demo Board and Clearance areas



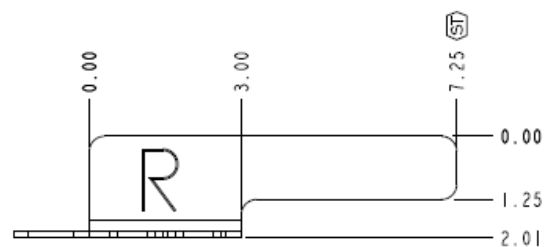
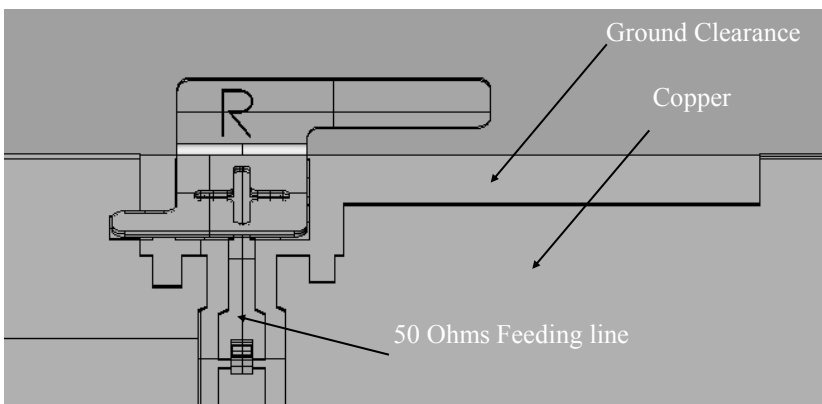
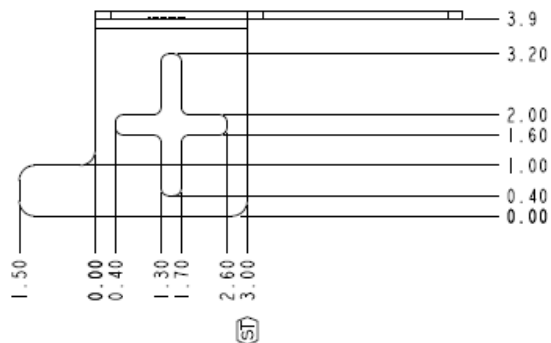
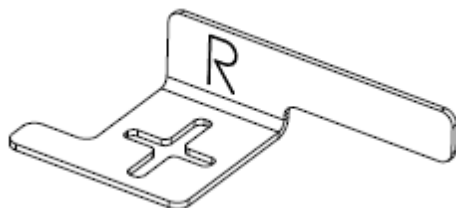
## PCB Layout Dimensions

PCB Layout for PN 1001388 (Mirror image apply for PN 1001430)

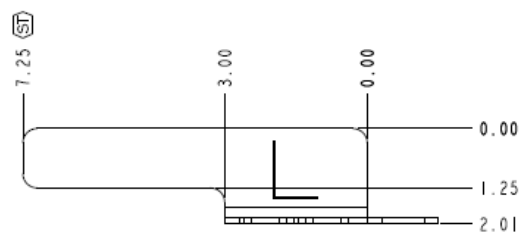
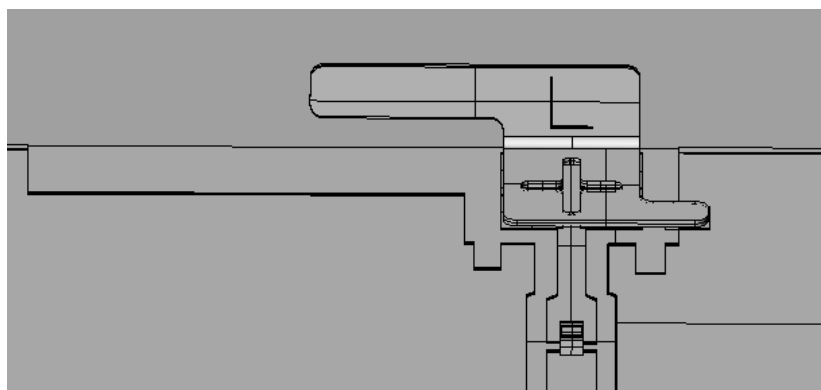
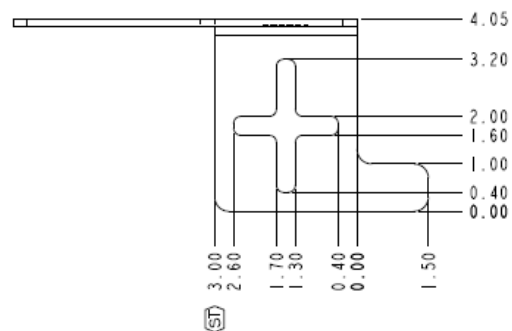
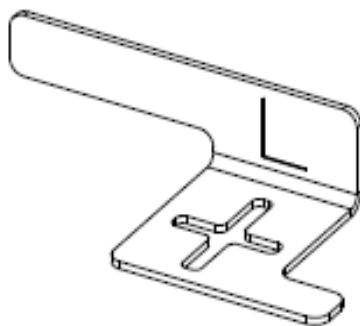


## Antenna Dimensions

### 1001430



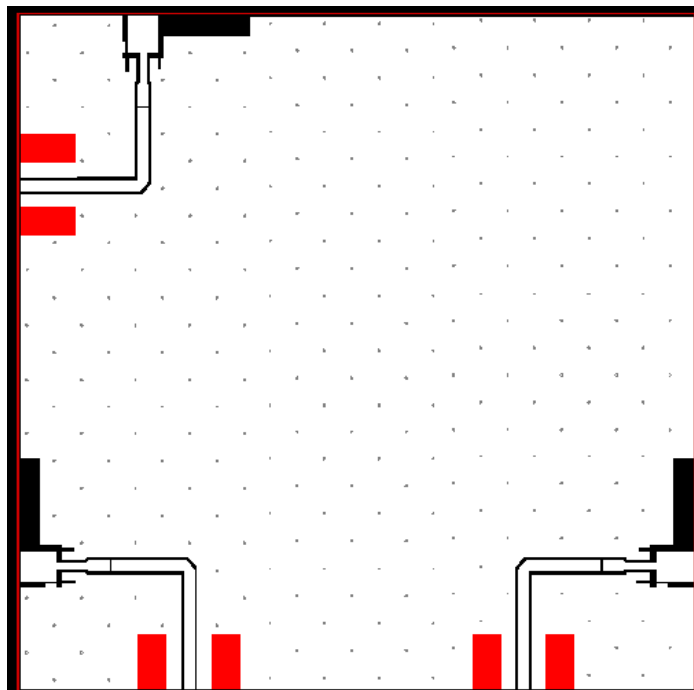
### 1001388



**PRODUCT: 802.11a Antenna**

To optimize designs using Ethertronics' Prestta™ Application antenna, the PCB should use the recommended land pattern shown in the Figures below. The land patterns are composed of a 50 ohm line connected to each antenna feed point (1 feed, 1 ground). The feed line can either be connected to a 50 ohm transmission line or a 50 ohm coaxial cable. Ground clearance around and under the antenna, as shown in the PCB layout below, is recommended in order

**TOP Metallic Layer Layout**



**BOTTOM Metallic Layer Layout**

