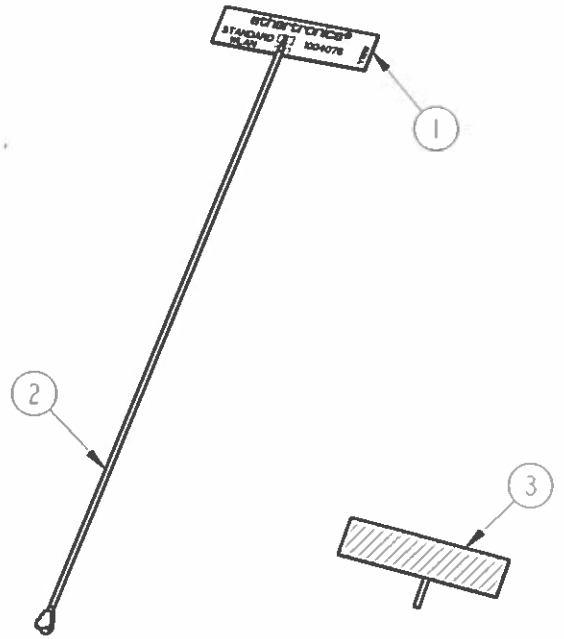
| REVISION | REVISION NOTE | CHANGED BY | APPROVED BY | DATE |
|---|---|---|---|---|
| A | FIRST RELEASE | MANUEL RODRIGUEZ | FRANCISCO SANCHEZ | 2017-03-07 |
| B | 3M VHB 2625T-01 | GH | | |
| C | ETHERRONICS P/N 1004075 | GH | ECN 339300 | 8/8/2017 |
| D | ADDED DATASHEET | GH | ECN 339446 | 8/30/17 |
| | | | | |

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. COMPONENTS: SEE BILL OF MATERIALS ON SHEET 1.
2. ASSEMBLY PROCEDURE:
   - 2.1: SOLDER THE CABLE TO PCB ANTENNA AS SHOWN ON SHEET 2. USE LEAD FREE SOLDER ONLY.( SOLDER MUST COVER ≥75% OF PAD)
   - 2.2: ADD ADHESIVE 3M VHB 2625T-01 WITH LINER ON BOTTOM SIDE OF PCB ANTENNA AS SHOWN ON SHEET 3.
3. COSMETIC REQUIREMENT: MARKING SHALL BE READABLE AND ASSEMBLY SHALL BE FREE OF APPEARANCE DEFECTS.
4. ASSEMBLY SHALL BE CLEAN AND FREE OF ALL FOREIGN MATTER.
5. PART MARKING: SEE SHEET 2
6. DIMENSIONAL TOLERANCES: SEE TOLERANCE BLOCK UNLESS OTHERWISE SPECIFIED IN DIMENSION.
7. 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.
8. 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
9. PACKAGING REQUIREMENT:PARTS TO BE INDIVIDUALLY PACKAGED AND PROTECTED FROM PHYSICAL DAMAGE, INCLUDE MOISTURE CONTROL DESICCANT IN SHIPPING BOX.
10. PACKAGE LABELING REQUIREMENT. REFER TO 1000325 LABEL SPECIFICATION.
11. NO CHANGE SHALL BE ALLOWED ON TOOLING OR MATERIAL SPECIFICATION WITHOUT PRIOR EXPLICIT WRITTEN APPROVAL BY ETHERTRONICS, INC. ENGINEERING, PURCHASING AND CONTRACTS DEPARTMENT.
12. ALL DIMENSIONS ARE IN MILLIMETER.
13. PART MUST BE COMPLIANT WITH THE REQUIREMENTS OF EU DIRECTIVE 2011/65/EU (RoHS). ADDITIONALLY THEY SHALL NOT CONTAIN INTENTIONALLY ADDED MATERIALS REQUIRING REMOVAL FROM SEPARATELY COLLECTED WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT PER EU DIRECTIVE 2012/19/EU (WEEE).
14. PERFORM 100% ELECTRICAL TEST INCLUDING VSWR.
15. —(X.XX)— INDICATES, INSPECTION DIMENSION FOR QC TO MEASURE.
16. PARTS MUST BE HALOGEN FREE (HF)
17. DIMENSIONS FOR STATISTICAL QUALITY CONTROL (SQC) AND CAPABILITY STUDY ARE INDICATED BY (ST).
18. CAPABILITY STUDY: Cpk ANALYSIS SHALL BE PERFORMED ON ALL (ST) DRAWING DIMENSIONS ON 35 RANDOMLY SELECTED PARTS FROM A MINIMUM 500 PRODUCTION PART RUN WITH OPTIMIZED PRODUCTION PROCESS. THE Cp/Cpk DATA AND MARKED PARTS SHALL BE FORWARDED TO ETHERTRONICS INC. QUALITY ENGINEERING.




*BOTTOM SIDE OF ANTENNA*

## BILL OF MATERIALS

| ITEM | PART NUMBER | REV | DESCRIPTION | QTY | REMARK |
|---|---|---|---|---|---|
| 1 | 1004076 | A | ANTENNA PCB, WLAN 140 J1039 | 1 | COLOR: BLACK |
| 2 | 1004077 | A | CABLE COAX, 1IPX 1.13B144 J1039 | 1 | COLOR: BLACK |
| 3 | 1004074 | A | ADHESIVE DS TAPE, 8X35 J1039 | 1 | MANUFACTURER:3M MANUFAC. No.:3M VHB 2625T-01 |

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS IN ACCORDANCE WITH ASME Y14.5M

TOLERANCE: SEE DIMENSIONS

UNITS: MM

THIRD ANGLE PROJECTION

VERSION: A.2

SCALE: 1.000

SIZE: A3

| | | |
|---|---|---|
| DRAWN BY | MANUEL RODRIGUEZ | DATE 2017-03-07 |
| PROGRAM MANAGER | CHEN HUANG | DATE 2017-03-07 |
| CHECKED BY | STEVE BRIDGENS | DATE 2017-03-07 |
| APPROVED BY | FRANCISCO SANCHEZ | DATE 2017-03-07 |

ETHERTRONICS — 5501 Oberlin Drive, Suite 100, CA-92121 San Diego, USA



DESCRIPTION: ANTENNA ASSY, WLAN 140 J1039

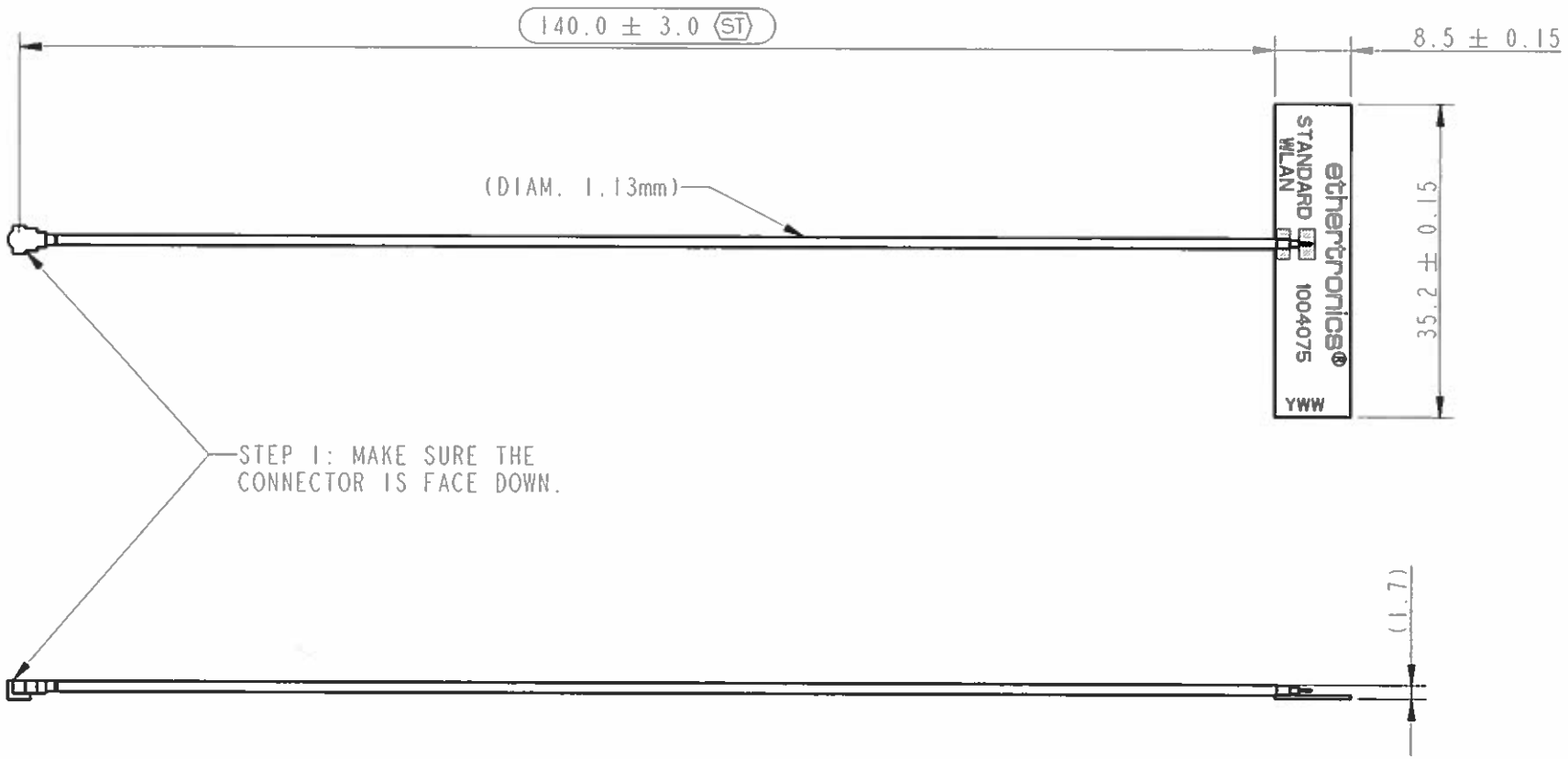
DWG #: 261248-000

NUMBER OF SHEETS: 1 of 2

REVISION: D

RELEASE LEVEL: Released

FOR OQC DRAWING ONLY




| | | | |
|---|---|---|---|
| ECN 339300 | 4AUG2017 | GH | |
| DWG # 261248-000 | | | REVISION A.2 |
| SIZE A3 | SCALE 2.000 | SHEET 2 of 2 | REVISION D |

3/24/2017

# Part No. 1004075
# Wi-Fi Dual Band PCB Embedded Antenna
**2.4 / 5 GHz**


**Wi-Fi Dual Band PCB Embedded Antenna**

2400-2485 MHz, 5150-5825 MHz

## 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

### Real-World Performance and Implementation
Ethertronics PCB antennas are designed to produce optimal performances and 3D radiation patterns, offering increased coverage range without compromising on footprint dimensions.

### Greater Flexibility
Ethertronics' first-in-class technology enables the advance concept designs that deliver superior performance in reception critical applications.

## Electrical Specifications
Tested in customer's device

| Frequency | 2400 – 2485 MHz | 5150 – 5825 MHz |
|---|---|---|
| Peak Gain | 3.3 dBi | 5.1 dBi |
| Average Efficiency | 53% | 53% |
| VSWR Match | 2:1 max | |
| Feed Point Impedance | 50 ohms unbalanced | |
| Polarization | Linear | |
| Power Handling | 0.5 Watt CW | |

## Mechanical Specifications

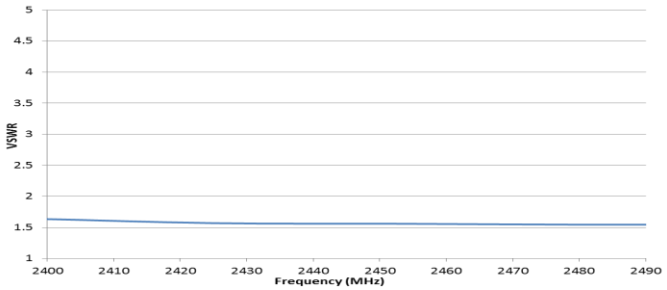
| | |
|---|---|
| Size | 35.2 x 8.5 x 1.7 mm |
| Mounting | Adhesive mount 3M VHB 225T-01 |
| Weight | 0.6 g |
| Cable and connectors | RF Ø 1.13 mm, 140 mm & u.fl compatible connector |

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

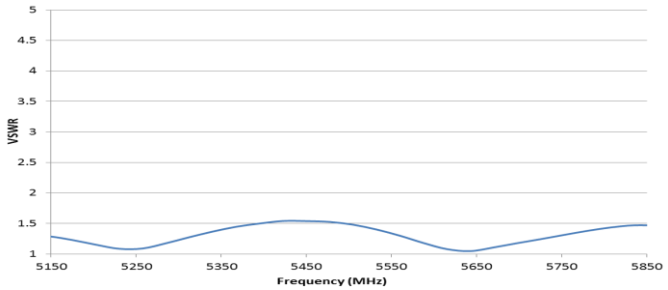
## Typical VSWR and Efficiency Plots

Tested in customer's device

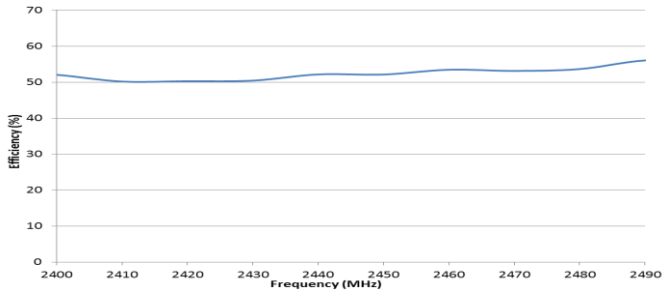
2.4 GHz band VSWR



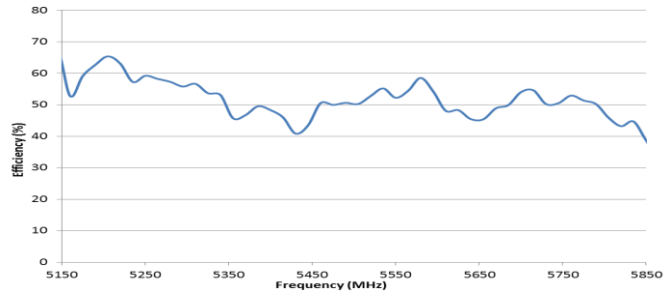

5 GHz band VSWR




2.4 GHz band Efficiency

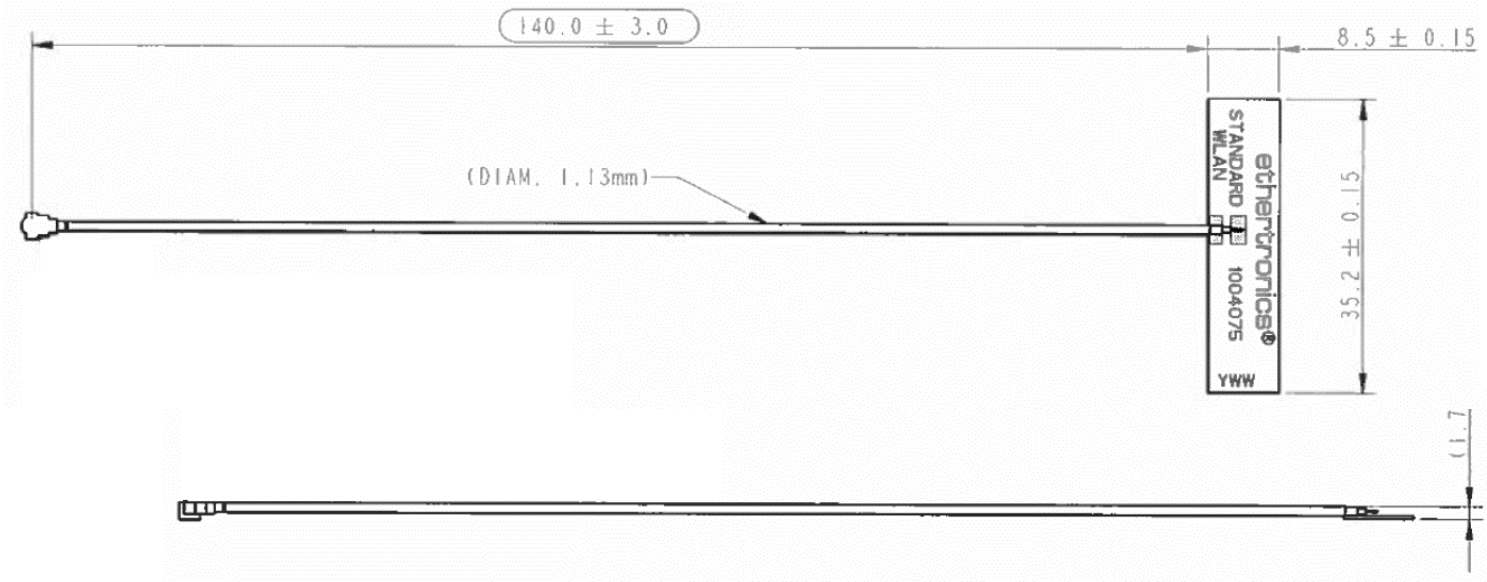



5 GHz band Efficiency




## Antenna Layout

For references only, in mm.




*All dimensions provided in this document are for informational purposes only.



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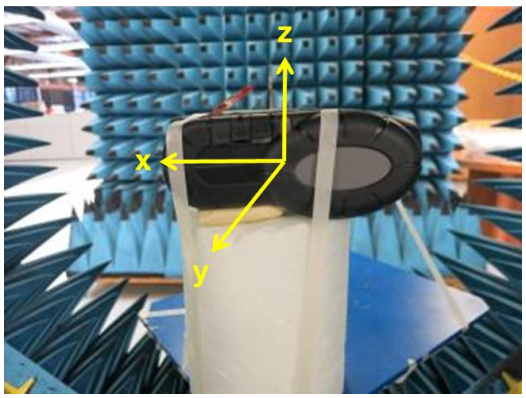
email: info@ethertronics.com
5501 Oberlin Drive, Suite 100 San Diego, CA 92121 - USA

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

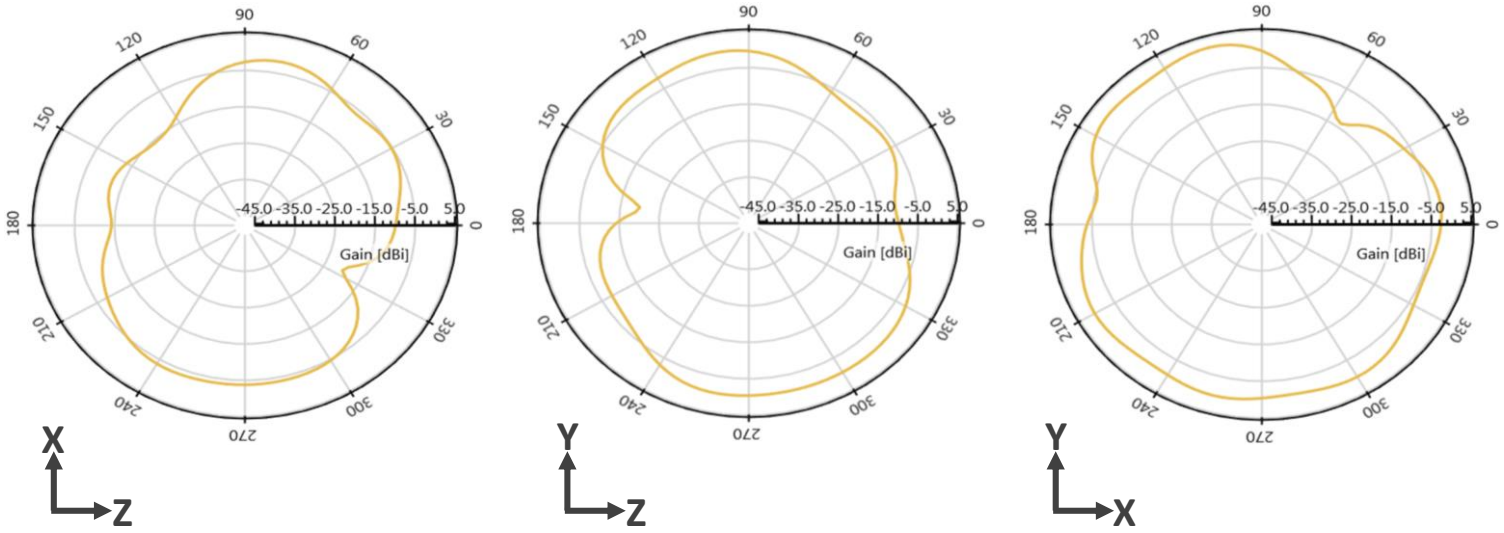
## Antenna Radiation Patterns

Tested in customer's device

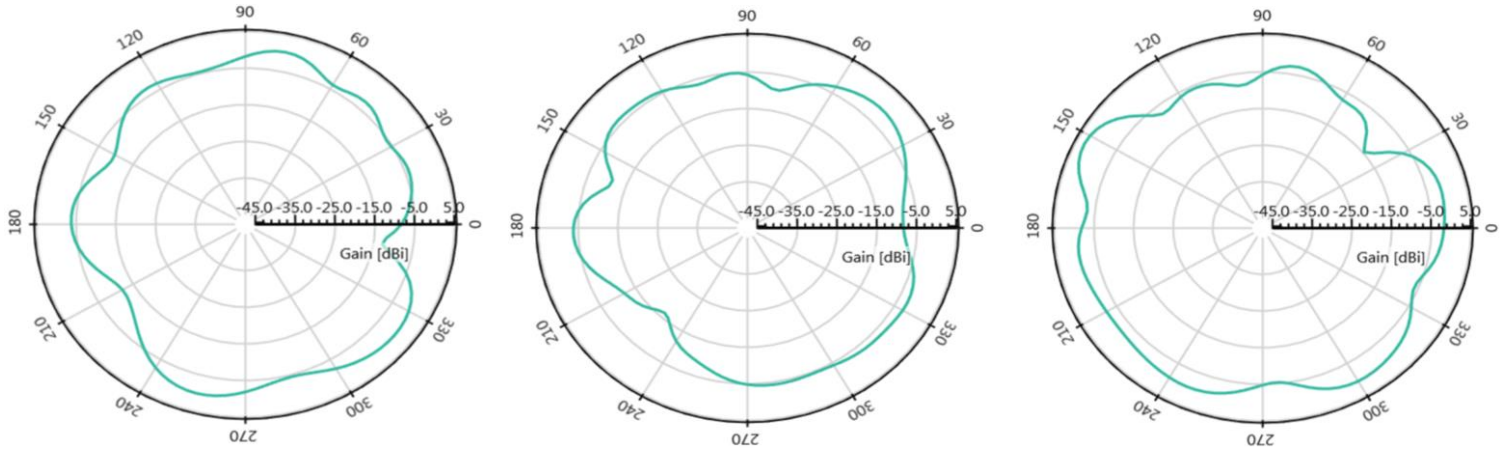



Phi = 0° Plane | Phi = 90° Plane | Theta = 90° Plane

Measured at 2.45 GHz




Measured at 5.4 GHz

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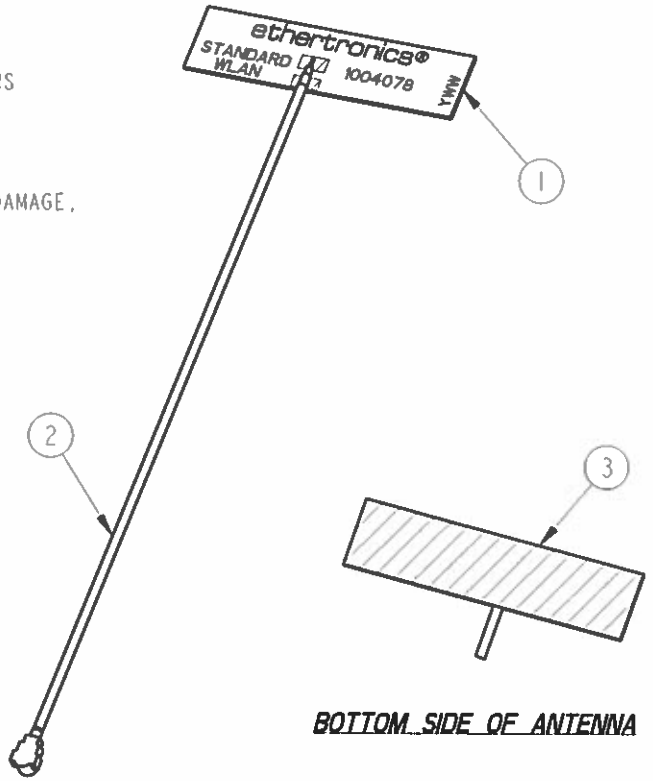
5501 Oberlin Drive, Suite 100 San Diego, CA 92121 - USA

| REVISION | REVISION NOTE | CHANGED BY | APPROVED BY | DATE |
|---|---|---|---|---|
| A | FIRST RELEASE | MANUEL RODRIGUEZ | FRANCISCO SANCHEZ | 2017-03-07 |
| B | 3M VHB 2625T-01 | GH | ECN 339300 | |
| C | ETHERTRONICS P/N 1004078 | GH | ECN 339300 | 8/8/2017 |
| D | ADDED DATASHEET | GH | ECN 339446 | 8/30/17 |
| | | | | |

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. COMPONENTS: SEE BILL OF MATERIALS ON SHEET 1.
2. ASSEMBLY PROCEDURE:
   - 2.1: SOLDER THE CABLE TO PCB ANTENNA AS SHOWN ON SHEET 2. USE LEAD FREE SOLDER ONLY.( SOLDER MUST COVER ≥75% OF PAD)
   - 2.2: ADD ADHESIVE 3M VHB 2625T-01 WITH LINER ON BOTTOM SIDE OF PCB ANTENNA AS SHOWN ON SHEET 3.
3. COSMETIC REQUIREMENT: MARKING SHALL BE READABLE AND ASSEMBLY SHALL BE FREE OF APPEARANCE DEFECTS.
4. ASSEMBLY SHALL BE CLEAN AND FREE OF ALL FOREIGN MATTER.
5. PART MARKING: SEE SHEET 2
6. DIMENSIONAL TOLERANCES: SEE TOLERANCE BLOCK UNLESS OTHERWISE SPECIFIED IN DIMENSION.
7. 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.
8. 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.
9. PACKAGING REQUIREMENT:PARTS TO BE INDIVIDUALLY PACKAGED AND PROTECTED FROM PHYSICAL DAMAGE, INCLUDE MOISTURE CONTROL DESICCANT IN SHIPPING BOX.
10. PACKAGE LABELING REQUIREMENT: REFER TO 1000325 LABEL SPECIFICATION.
11. NO CHANGE SHALL BE ALLOWED ON TOOLING OR MATERIAL SPECIFICATION WITHOUT PRIOR EXPLICIT WRITTEN APPROVAL BY ETHERTRONICS, INC. ENGINEERING, PURCHASING AND CONTRACTS DEPARTMENT.
12. ALL DIMENSIONS ARE IN MILLIMETER.
13. PART MUST BE COMPLIANT WITH THE REQUIREMENTS OF EU DIRECTIVE 2011/65/EU (RoHS). ADDITIONALLY THEY SHALL NOT CONTAIN INTENTIONALLY ADDED MATERIALS REQUIRING REMOVAL FROM SEPARATELY COLLECTED WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT PER EU DIRECTIVE 2012/19/EU (WEEE).
14. PERFORM 100% ELECTRICAL TEST INCLUDING VSWR.
15. -(X.XX)- INDICATES, INSPECTION DIMENSION FOR QC TO MEASURE.
16. PARTS MUST BE HALOGEN FREE (HF)
17. DIMENSIONS FOR STATISTICAL QUALITY CONTROL (SQC) AND CAPABILITY STUDY ARE INDICATED BY (ST).
18. CAPABILITY STUDY: Cpk ANALYSIS SHALL BE PERFORMED ON ALL (ST) DRAWING DIMENSIONS ON 35 RANDOMLY SELECTED PARTS FROM A MINIMUM 500 PRODUCTION PART RUN WITH OPTIMIZED PRODUCTION PROCESS. THE Cp/Cpk DATA AND MARKED PARTS SHALL BE FORWARDED TO ETHERTRONICS INC. QUALITY ENGINEERING.




BOTTOM SIDE OF ANTENNA

## BILL OF MATERIALS

| ITEM | PART NUMBER | REV | DESCRIPTION | QTY | REMARK |
|---|---|---|---|---|---|
| 1 | 1004079 | A | ANTENNA PCB, WLAN 94 J1039 | 1 | COLOR: BLACK |
| 2 | 1004080 | A | CABLE COAX, 1IPX 1.13W98 J1039 | 1 | COLOR: WHITE |
| 3 | 1004074 | A | ADHESIVE DS TAPE, 8X35 J1039 | 1 | MANUFACTURER:3M MANUFAC. No.:3M VHB 2625T-01 |

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS IN ACCORDANCE WITH ASME Y14.5M

TOLERANCE: SEE DIMENSIONS

UNITS: MM | THIRD ANGLE PROJECTION | VERSION: A.2 | SCALE: 1.750 | SIZE: A3

DRAWN BY: MANUEL RODRIGUEZ — DATE: 2017-03-07

PROGRAM MANAGER: CHEN HUANG — DATE: 2017-03-07

CHECKED BY: STEVE BRIDGENS — DATE: 2017-03-07

APPROVED BY: FRANCISCO SANCHEZ — DATE: 2017-03-07



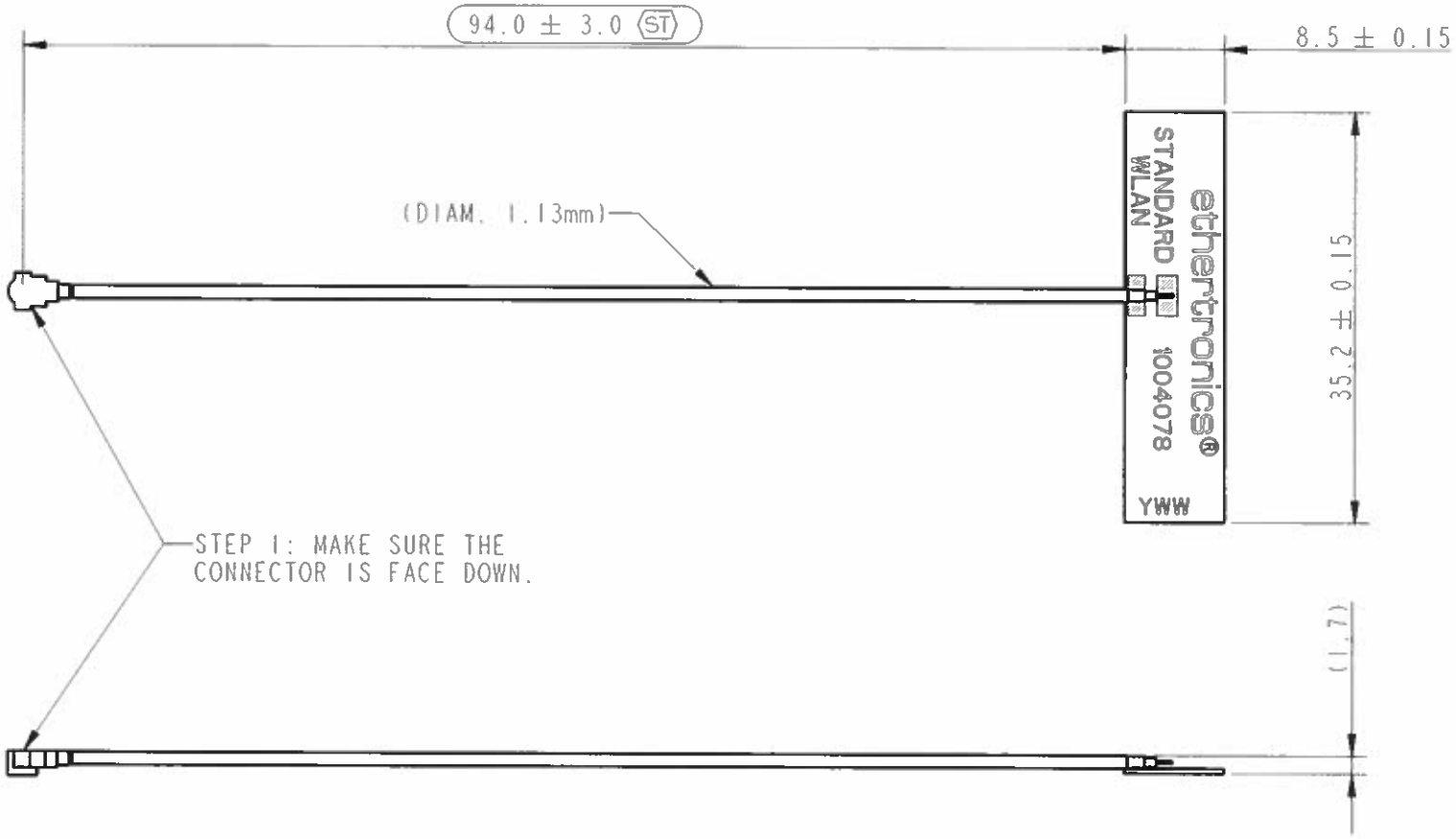
ETHERTRONICS
5501 Oberlin Drive, Suite 100, CA-92121 San Diego, USA

DESCRIPTION: ANTENNA ASSY, WLAN 94 J1039

DOC #: 261249-000

NUMBER OF SHEETS: 1 of 2 | REVISION: D | RELEASE LEVEL: Released

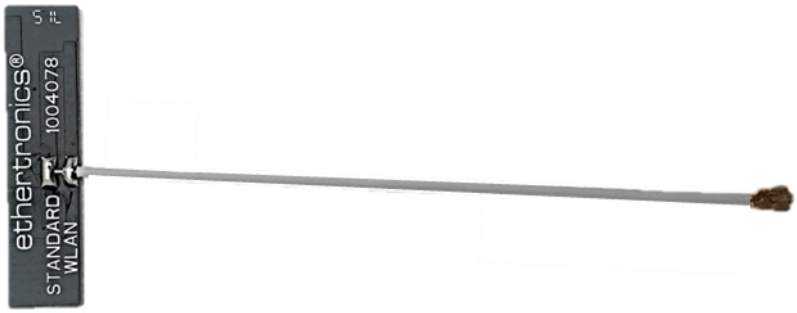
FOR OQC DRAWING ONLY




| | | | |
|---|---|---|---|
| ECN 339300 | 4AUG2017 | GH | |
| 261249-000 | | | A.2 |
| SIZE A3 | SCALE 2.500 | SHEET 2 of 2 | REVISION D |

3/24/2017

# Part No. 1004078
# Wi-Fi Dual Band PCB Embedded Antenna
**2.4 / 5 GHz**




**Wi-Fi Dual Band PCB Embedded Antenna**

2400-2485 MHz, 5150-5825 MHz

## 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

### Real-World Performance and Implementation
Ethertronics PCB antennas are designed to produce optimal performances and 3D radiation patterns, offering increased coverage range without compromising on footprint dimensions.

### Greater Flexibility
Ethertronics' first-in-class technology enables the advance concept designs that deliver superior performance in reception critical applications.

## Electrical Specifications
Tested in customer's device

| Frequency | 2400 – 2485 MHz | 5150 – 5825 MHz |
|---|---|---|
| Peak Gain | 3.4 dBi | 4.2 dBi |
| Average Efficiency | 55% | 53% |
| VSWR Match | 2:1 max | |
| Feed Point Impedance | 50 ohms unbalanced | |
| Polarization | Linear | |
| Power Handling | 0.5 Watt CW | |

## Mechanical Specifications

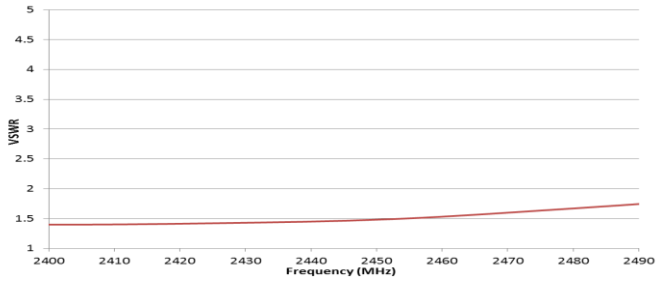
| | |
|---|---|
| Size | 35.2 x 8.5 x 1.7 mm |
| Mounting | Adhesive mount 3M VHB 225T-01 |
| Weight | 0.6 g |
| Cable and connectors | RF Ø 1.13 mm, 94 mm & u.fl compatible connector |

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

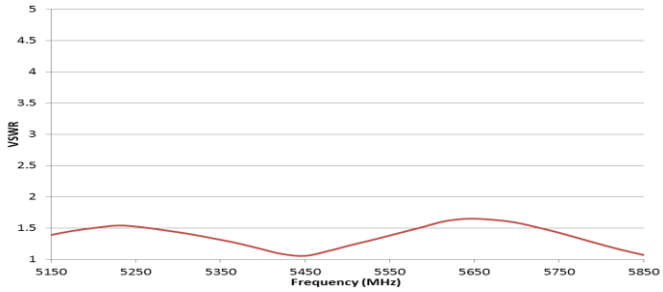
## Typical VSWR and Efficiency Plots

Tested in customer's device

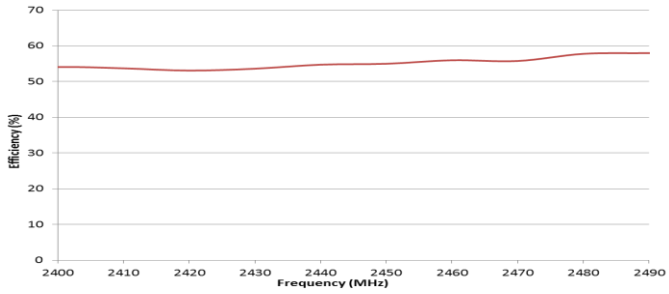
2.4 GHz band VSWR



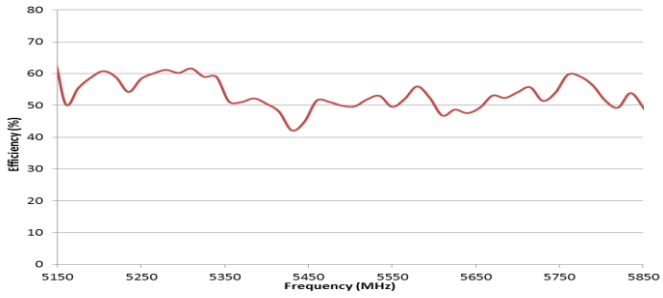

5 GHz band VSWR




2.4 GHz band Efficiency

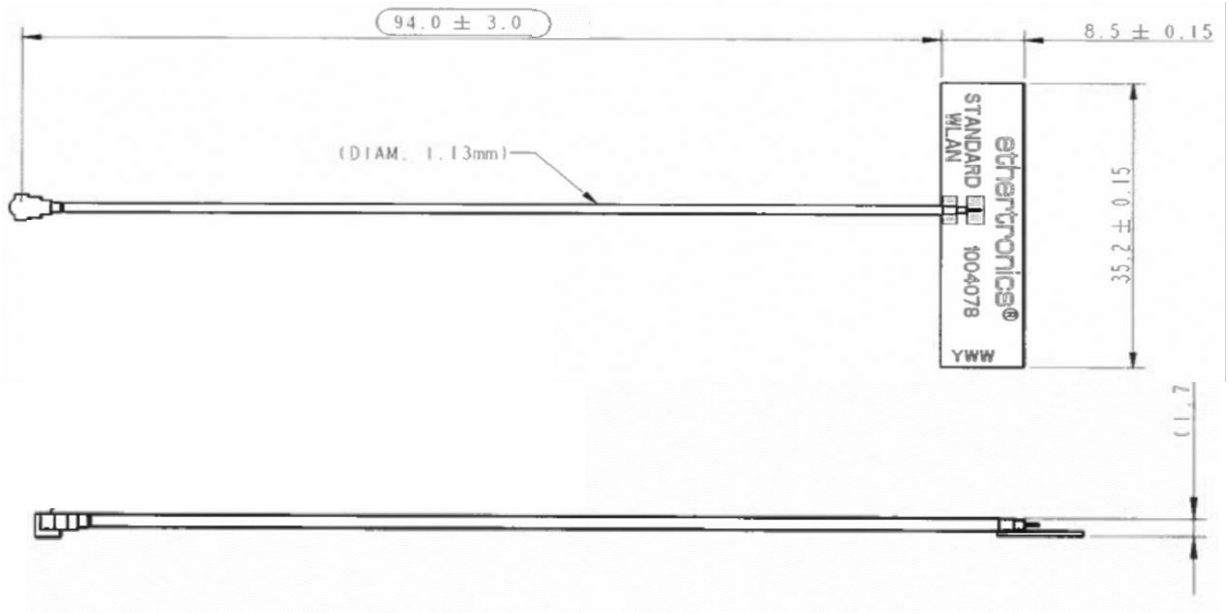



5 GHz band Efficiency




## Antenna Layout

For references only, in mm.

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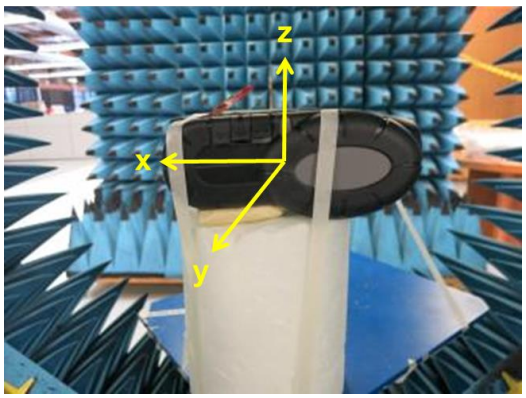
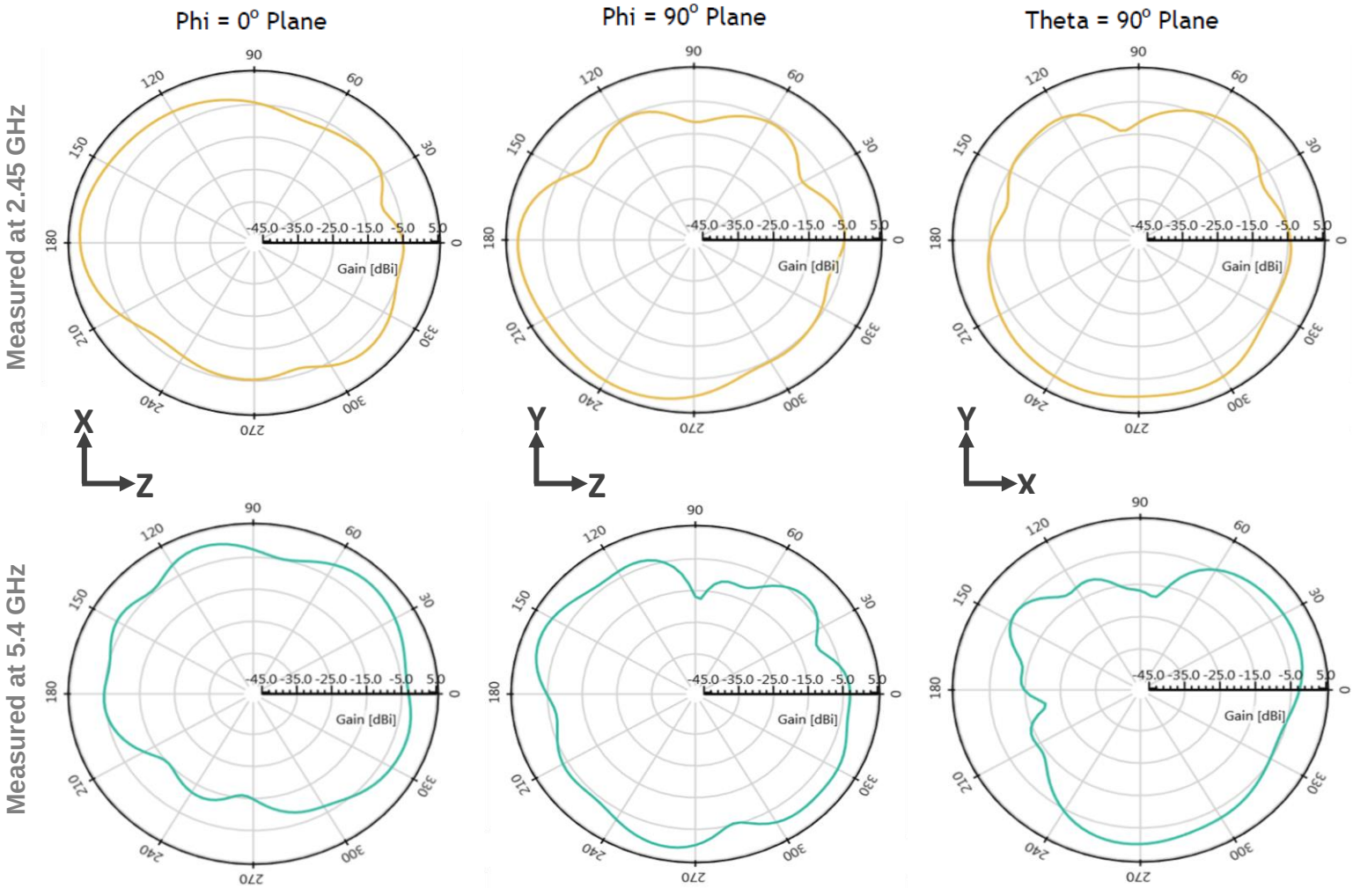
**2.4 / 5 GHz Ethertronics' Embedded Antenna Specifications**
**Ethertronics produces a wide variety of standard and custom antennas to meet user needs.**

## Antenna Radiation Patterns

Tested in customer's device

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email: info@ethertronics.com
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