

**Savvi™ Embedded Ceramic  
GPS & Bluetooth® Antenna**  
1.575 and 2.4—2.5 GHz

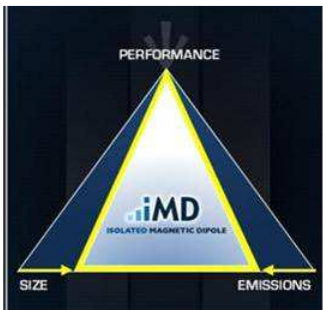


These highly innovative antennas provide competitive advantages for designers of cell phones, laptops and other mobile equipment by combining GPS & Bluetooth antennas in a single, highly compact form factor suitable for the thinnest/ smallest devices. Ethertronics Isolated Magnetic Dipole (IMD) technology utilizes superior RF isolation to deliver the utmost in high performance.

**TECHNOLOGY ADVANTAGES**

**Real-World Performance and Implementation**

Ceramic antennas may look alike on the outside, but the important difference is inside. Other antennas may contain simple PiFA or monopole designs that interact with their surroundings, complicating layout or changing performance with use position. Ethertronics' antennas utilize patented IMD technology to deliver a unique size and performance combination.



**Stays in Tune**

High RF isolation means IMD antennas resist detuning regardless of usage position. And one standardized part can typically be placed in a variety of locations.

**Smallest Effective Size**

IMD antennas require a smaller keep-out area for surrounding components, leading to a smaller effective size.

**High Performance**

IMD's high efficiency and simple design rules lower development risk and speed time-to-market without sacrificing performance. Plus, high RF selectivity eliminates the cost and space for band-pass circuitry.

More information is available on our Website at [www.ethertronics.com/resources/](http://www.ethertronics.com/resources/).



**KEY BENEFITS**

**DESIGN ADVANTAGES**

**Best in Class Performance—Smallest Occupied Volume**

- High efficiency
- Minimal ground clearance and component “keep out” areas. Very low component height.
- High selectivity eliminates the need for additional filters and frees board space.

**High Tolerance to Frequency Shifts**

- IMD's high RF isolation resists antenna de-tuning that can otherwise impair reception.
- Single part works for various PCB sizes and layouts.

**Quicker Time-to-Market**

- Fewer design changes
- Simpler implementation—no matching networks.

**RoHS Compliant**

- Ethertronics' antennas comply with the European RoHS Directive 2002/ 95/ EC.

**END USER ADVANTAGES**

**Superior Range**

- Greater antenna efficiency means longer range.

**Exceptional Coverage**

- Better GPS coverage delivers improved performance in buildings, cars or other areas where signal reflection occurs.
- Better Bluetooth coverage means more reliable wireless connections.

**Faster Acquisition Times**

- Users experience faster signal acquisition for GPS readings and Bluetooth connections.

**SERVICE AND SUPPORT**

**Extensive RF Experience**

- Our Savvi ceramic antennas are supported by extensive application notes, 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 encompass an integrated network of design centers that provide local customer support.

# PRODUCT: GPS & Bluetooth® Dual Band Antenna

## Ethertronics' GPS & Bluetooth Embedded Antenna Specifications.

Ethertronics produces a wide variety of standard and custom antennas to meet user needs.

Below are the typical specs for a combination GPS & Bluetooth application.

### Electrical Specifications

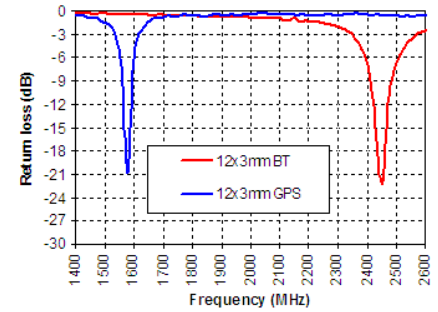
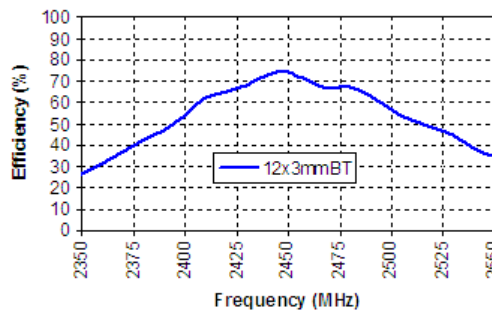
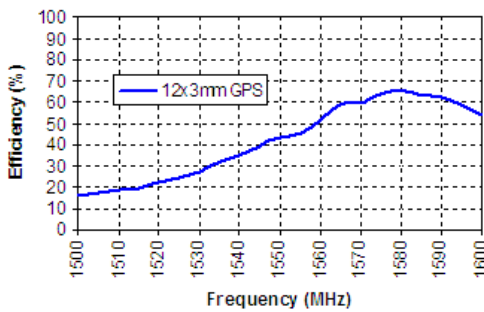
Typical Characteristics  
(inside an enclosure)

GPS/BT Antenna	1.575 GHz	2.4–2.5 GHz
Peak Gain	1.98 dBi	1.88 dBi
Average Efficiency	62%	67%
VSWR Match	2.0:1 max	2.6:1 max
Feed Point Impedance	50 ohms unbalanced	50 ohms unbalanced
Power Handling	.5 Watt cw	.5 Watt cw
Polarization	Linear	Linear
Isolation	<-25 dB	<-20dB

### Mechanical Specifications

Size	12.0x3.0x1.3mm
Mounting	Surface mount
Weight	.2 grams
Packaging	Tape & Reel M232110: Minimum Order Quantity of 99,000 pcs. Order multiples of 4,500 pcs. M232110-1K: Minimum Order Quantity of 1,000 pcs. Order multiples of 1,000 pcs.

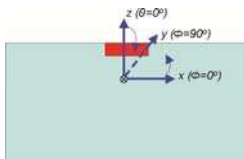
### Typical Efficiency, Isolation & Return Loss



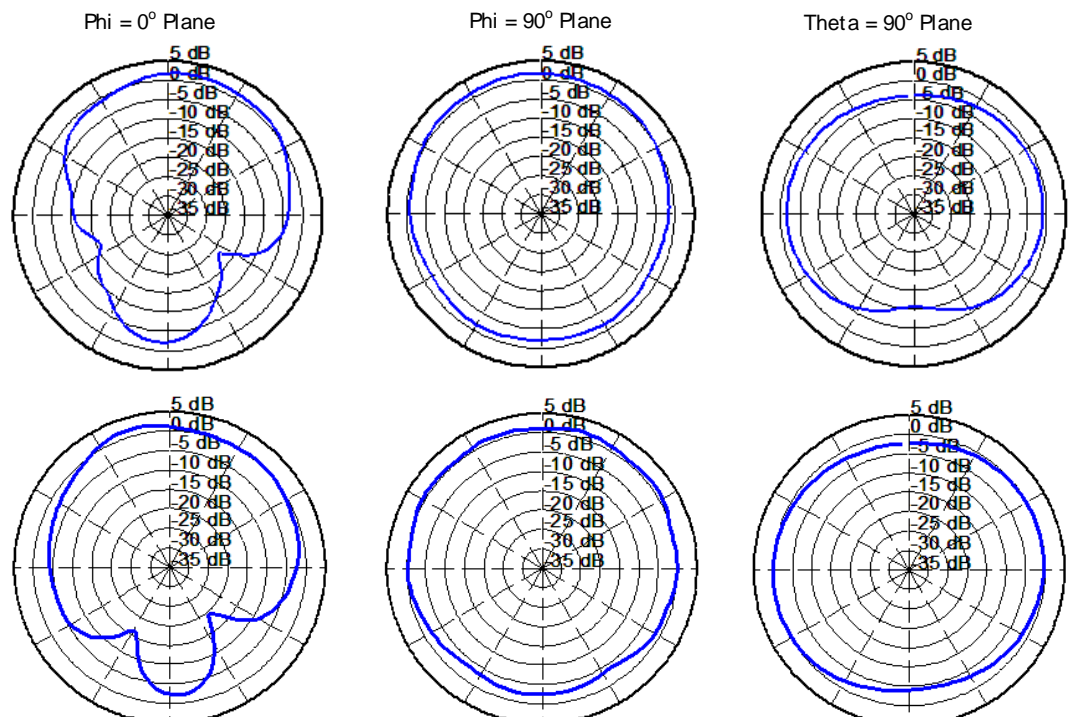
### Antenna Radiation Patterns

#### 1.575 GHz Band

Typical Performance  
Ethertronics' Test Board  
PCB: 40x80mm



#### 2.4 GHz Band



Please contact Ethertronics for product sampling information.