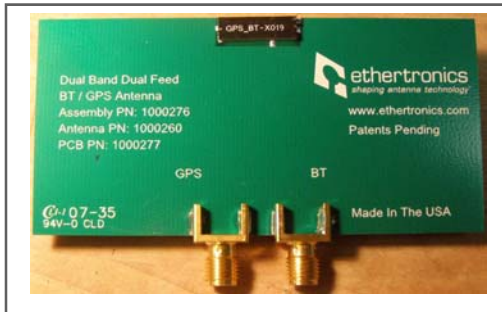


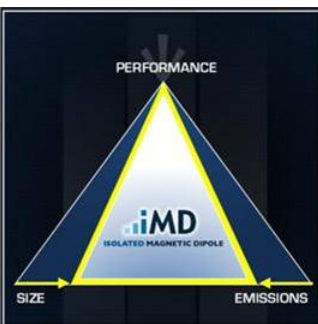
Savvi™ GPS/WiFi Embedded Antenna 1.575 GHz & 2.4 GHz



Ethertronics' Savvi series of Isolated Magnetic Dipole™ (IMD) ceramic embedded GPS/WiFi antennas delivers on the key needs of today's unified media product designers: **higher performance, consistent results and exceptional isolation** characteristics that offer better connectivity with minimal interference. Savvi IMD antennas can be used in a variety of devices:

- Notebook Computers
- Access Points
- Industrial Handhelds
- Mobile Phones

TECHNOLOGY ADVANTAGES

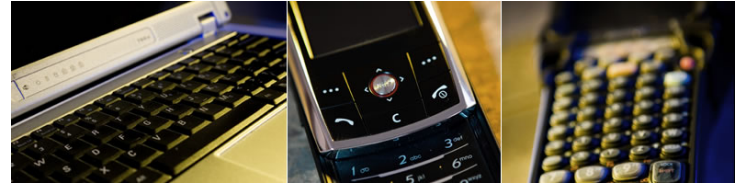


Stays in Tune

The form factor of IMD antenna technology provides superior RF field containment, resulting in less interaction with surrounding components. Ethertronics IMD antennas resist de-tuning.

Reliable Performance to Maximize End-User Satisfaction

In meeting the challenge to make mobile devices smaller, thinner and more versatile, product designers sometimes forget the importance of good antenna performance. GPS/WiFi antennas utilizing Ethertronics' patented IMD technology provide consistent, dependable results by resisting artifacts from the surrounding environment. As a result, your mobile devices can now deliver reliable performance in a wide variety of real-world conditions—and provide your customers with long-lasting satisfaction.



KEY BENEFITS

DESIGN ADVANTAGES

Quicker Time-to-Market

- By optimizing antenna size, performance and emissions, customer and regulatory specifications are more easily met.

Greater Flexibility

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

RoHS Compliant

- Ethertronics' antennas are fully compliant with the European RoHS Directive 2002/95/EC.

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 & Signal Strength

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

Faster Acquisition Times and Data Rates

- Improved performance provides faster data rates for downloading e-mail or surfing the internet and watching mobile video. Improved performance also means faster signal acquisition times so users can utilize GPS applications more quickly and reliably.

SERVICE AND SUPPORT

Extensive RF Experience

- Our design teams are composed of RF PhDs, project managers and a complete engineering team to support every project — from initial prototyping to TIS and TRP performance testing.

Global Operations & Design Support

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

PRODUCT: GPS & WiFi/WiMax Dual Band Antenna

Ethertronics' GPS & WiFi/WiMax Internal (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 & WiFi/WiMax application.

Electrical Specifications

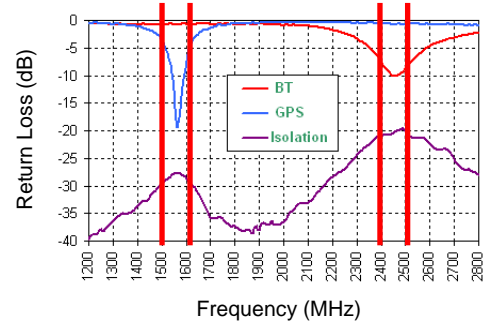
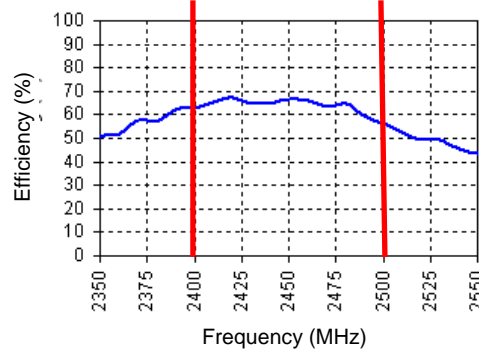
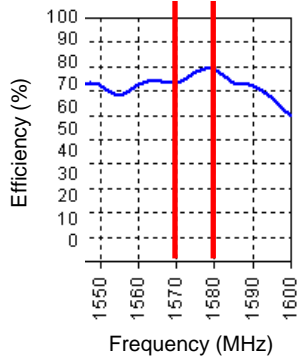
Typical Characteristics
 (inside an enclosure)

GPS/BT Antenna	1.575 GHz	2.4 GHz
Average Gain	-2.5 dBi	-2.4 dBi
Average Efficiency	75%	65%
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

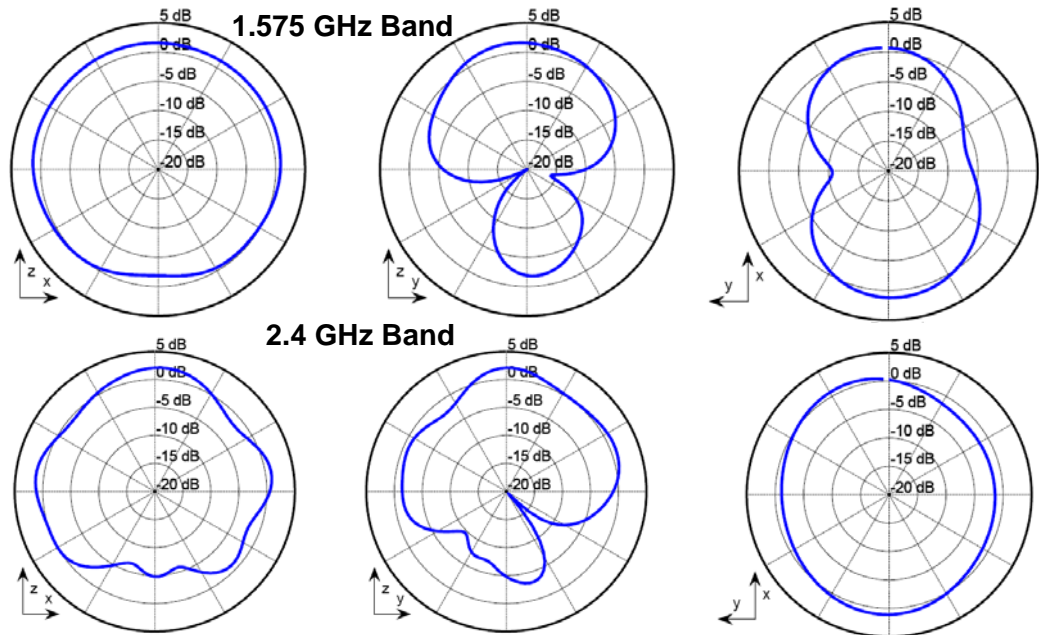
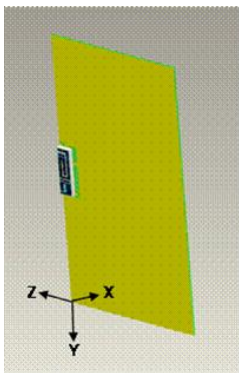
Size	14.0x4.0x1.3mm
Mounting	Surface mount
Weight	.2 grams
Packaging	Tape & Reel

Typical Efficiency, Isolation & Return Loss



Antenna Radiation Patterns

Typical Performance
 Ethertronics' Test Board
 PCB: 40x80mm

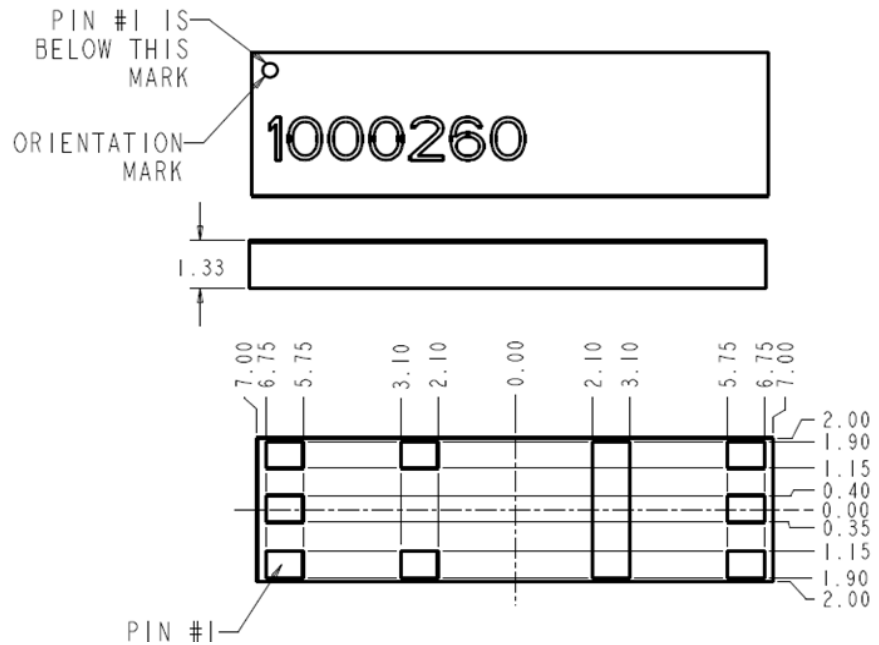


PRODUCT: GPS & WiFi/WiMax Dual Band Antenna

In order to optimize a product design incorporating the GPS/Bluetooth dual band, dual feed antenna, the PCB design should use the recommended land pattern design shown in the Figures below. The land patterns are composed of a 50 ohm line connected to each antenna feed point (2 feeds, 3 grounds).

The feed line can either be connected to a 50 ohm transmission line or a 50 ohm coaxial cable. Clearance of 1 to 2mm around the antenna is recommended in order to maximize the antenna's performance.

Antenna Pad Layout



PCB Layout

