



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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## 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 combine these two high performance antennas.

### 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

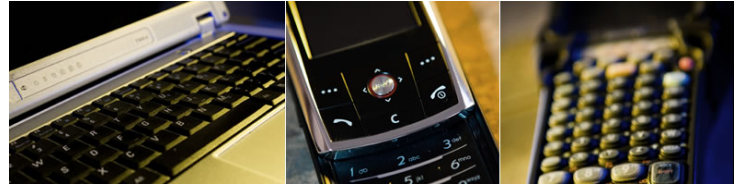
IMD antennas require a

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

- Over 80% peak efficiency for GPS and 60% Bluetooth.
- 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

- Antennas comply with appropriate RoHS Directives.

#### END USER ADVANTAGES

##### Superior Range

- Greater antenna efficiency means longer range.

##### Exceptional Coverage

- Better GPS coverage means 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)

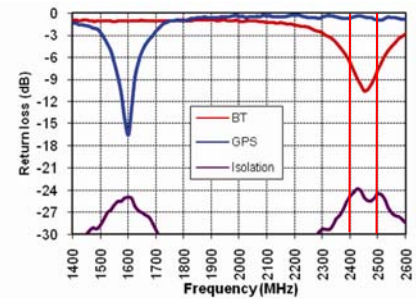
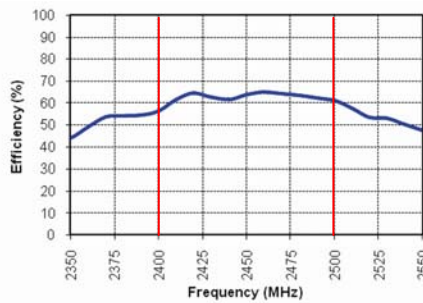
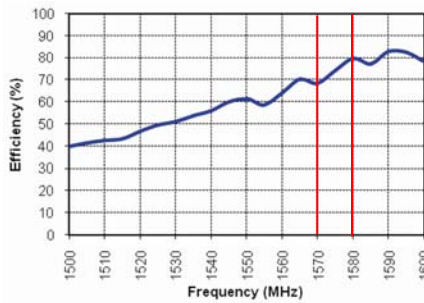
| GPS/BT Antenna       | 1.575 GHz          | 2.4 -2.5 GHz       |
|----------------------|--------------------|--------------------|
| Average Gain         | -2.6 dBi           | -2.4 dBi           |
| Average Efficiency   | 70%                | 60%                |
| VSWR Match           | 2.0:1 max          | 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      | 14x4x1.3mm    |
| Mounting  | Surface mount |
| Weight    | .2 grams      |
| Packaging | Tape & Reel   |

### Typical Efficiency, Isolation & Return Loss

The GPS response (below) will shift toward the carrier frequency when placed in circuit.



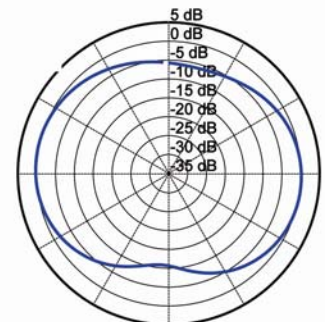
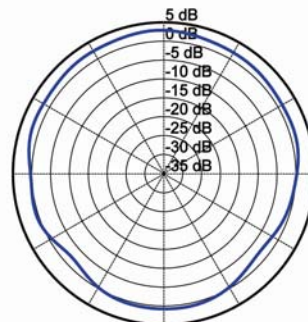
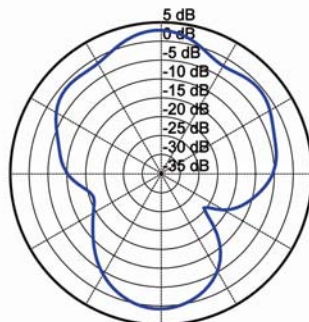
### Antenna Radiation Patterns

Phi = 0° Plane

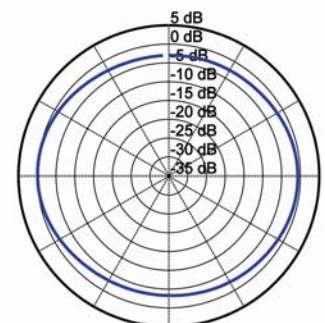
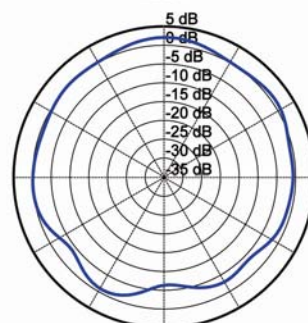
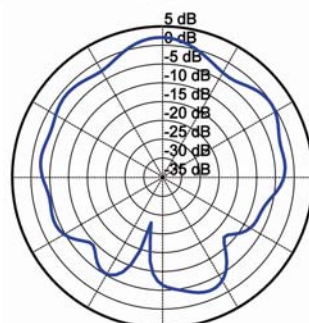
Phi = 90° Plane

Theta = 90° Plane

#### 1.575 GHz Band



#### 2.4 GHz Band



Typical Performance  
Ethertronics' Test Board  
PCB: 40x80mm

