



Ultrawide Band, Low-Profile 'Stacked' Antenna System

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WARF: P140308US01

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing an antenna system that is less conspicuous and has a much larger bandwidth compared to conventional monopole whip designs.

Overview

High frequency (HF), very high frequency (VHF) and ultrahigh frequency (UHF) bands have long been used for many different communication systems, particularly in military applications. Standard monopole 'whip' antennas tend to be the primary option for systems operating at these frequency bands.

But whip antennas suffer two main drawbacks: (1) conspicuousness (e.g., sticking out of military vehicles) and (2) narrow bandwidths. There is a clear need for lower profile HF/VHF/UHF antennas capable of covering extremely broad bandwidths.

The Invention

UW-Madison researchers have developed a compact, ultrawide band antenna system with monopole-like radiation characteristics and a bandwidth of 10:1. The system is designed with two antennas wherein one is a scaled-down version of the other. The two antennas can 'stack' or 'nest' to be less conspicuous. A feed network feeds the appropriate antenna based on the frequency of the input signal. This enables the design to work as a single, ultrawide band system.

Applications

- Replacement for monopole whip antennas
- Military communication and airborne and marine communication systems
- Signal intelligence, direction finding, electronic warfare, monitoring systems and first-responder radio systems
- Automobile communications such as car-car, car-road sensors, etc.

Key Benefits

- Eliminates security issues associated with large antennas on military vehicles
- Extremely low profile of the antenna allows it to be made completely concealed.
- Improves bandwidth
- Could cut manufacturing costs

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- [WARF reference number P100168US01 describes a compact, ultrawide band design that uses a differential mode antenna and operates in a more narrow frequency band.](#)

Tech Fields

- [Information Technology : Hardware](#)
- [Information Technology : Networking & telecommunications](#)

For current licensing status, please contact Michael Carey at mcarey@warf.org or 608-960-9867

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