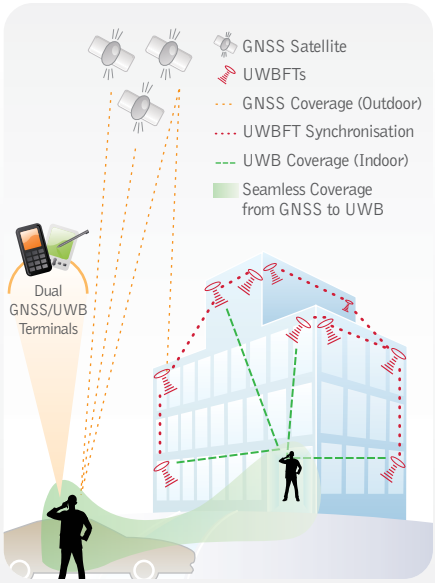
PALANTIR™

High-Accuracy Positioning in High-Multipath Environments

ARES SYSTEMS GROUP

BOP Antenna: A new, small broadband planar microwave antenna



Contact

For product inquiries regarding Palantir or to schedule a system demonstration, please contact Mr. Eric Mazzacone, ARES Systems Group, tel. (703) 637-0616 x 712 or EMazzacone@ARES-SG.com.

THALES

Overview

Ultra-wide band (UWB) technology provides position information indoors, either in standalone applications or as a seamless adjunct to global positioning systems (GPS).

GPS-based positioning suffers from both multipath degradation and signal attenuation both indoors and in urban canyons. Both problems result in significant erosion of accuracy, slow tracking rates and create loss of position certainty.

UWB-based systems overcome both problems:

- The very wide bandwidth signals used provide sufficient time resolution to allow multipath components to be separated
- The fact that the signals are generated locally means that only a short-range capability is required and a margin is available for penetration through building materials

Thales Research and Technology (TRT) and ARES Systems Group are offering a revolutionary Frequency Hopping (FH) UWB positioning system – dubbed Palantir™ – with significant advantages over nonconventional UWB positioning systems.

Description

Palantir extends the following advantages over traditional pulsed UWB systems:

- Increased range between UWB transmitters and receivers
- Improved adaptive interference rejection
- Greater control over the emitted spectrum
- Simplicity for a potential ASIC implementation – leading to reduced size, power consumption and unit cost

Palantir incorporates a novel omnidirectional microwave antenna specifically designed for UWB impulse applications. Antenna features include:

- Octave bandwidth
- Small physical geometry
- Very short ringing time
- Specially tailored flat frequency propagation response

In multiple third-party demonstrations, Palantir provided greater navigation accuracy than comparable pulsed systems, being typically **accurate to 20cm or better throughout high multipath environments**.

Palantir can be employed as an integrated UWB positioning and communications capability – enabling the precise location of personnel to be measured and displayed in a control center and simultaneously improving communications reliability in environments where conventional systems are ineffective.