

# Ultra-Wide Band (UWB)



Technology, Applications and Solutions

July 2009



# Overview

Ultra-wideband (UWB) communications is fundamentally different from all other communication techniques because it employs extremely narrow RF pulses to communicate between transmitters and receivers. Utilizing short-duration pulses as the building blocks for communications directly generates a very wide bandwidth and offers several advantages, such as large throughput, covertness, robustness to jamming, and coexistence with current radio services.

Ultra-wideband (UWB) technology offers a promising solution to the RF spectrum drought by allowing new services to coexist with current radio systems with minimal or no interference. This coexistence brings the advantage of avoiding the expensive spectrum licensing fees that providers of all other radio services must pay.

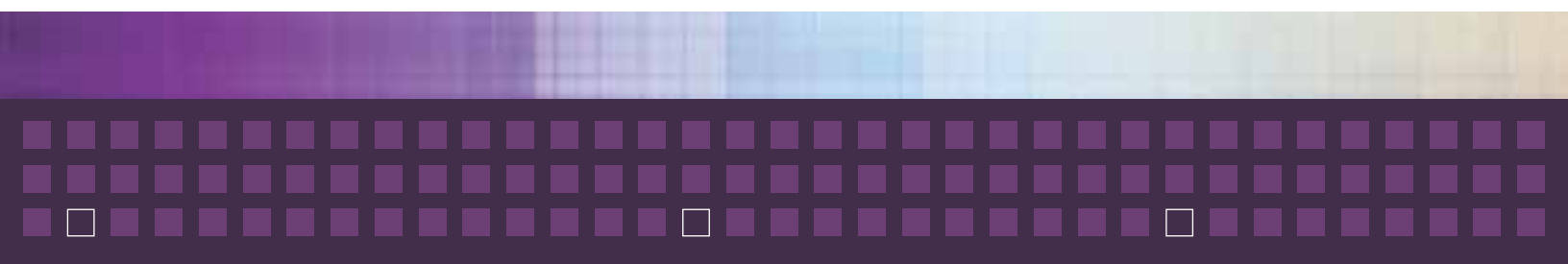
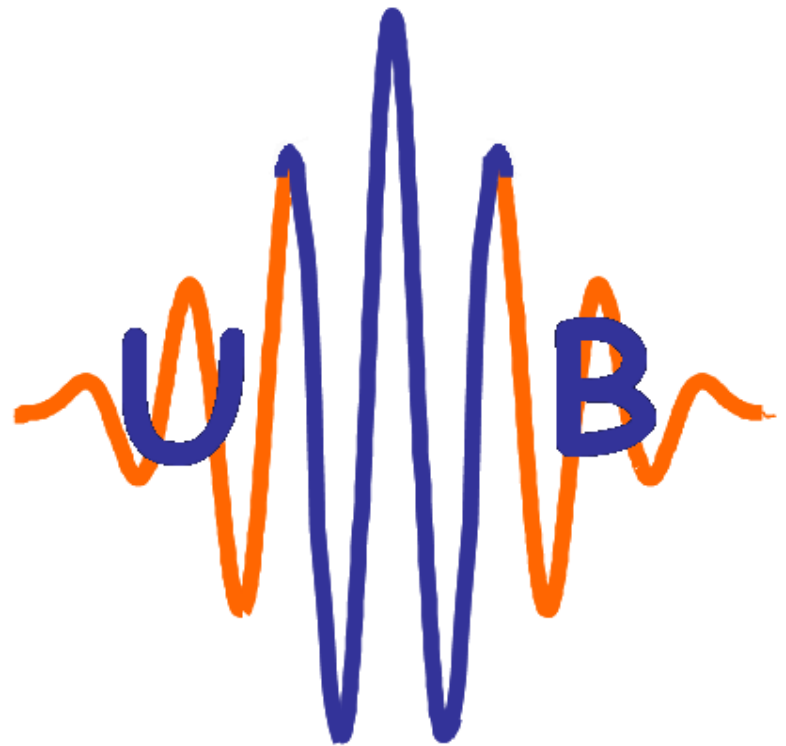
Ultra-wideband (UWB): Technology, Applications, and Solutions 2009 evaluates various aspects of UWB starting with UWB technology basics and also focusing on the advanced concepts of UWB including design issues and bottlenecks. The report also evaluates products and some key players of the UWB arena, current developments, and product potential including: cable TV, asset management, radar and imaging, surveillance systems, and medical applications.

The report also analyzes the future possibilities of UWB and potential pitfalls taking into account some important case studies and recent deployments all around the world. A future roadmap is also presented in this report with special emphasis based on the developing and developed countries.

The future of the technology is also presented in the research and thus can be very useful to evaluate the technology and understand the key findings and shortcomings of the technology giving special focus and comparisons with PAN.

In the first part of the report there are some important investigations related to cost estimations and also the business aspects of UWB.

This will give the user a clear understanding regarding the current status of UWB with a focus on the technology management issues for deployment and the shortcomings the current technology is unable to address.





# Key Technical and Business Questions Answered

## Technical

- What are the UWB standards?
- What is the architecture of a UWB system?
- What is the issue with data rates and UWB?
- What are the modulation techniques for UWB?
- What are the available license bands for UWB?
- What are the interference Issues related to UWB?
- What are the UWB technology advantages and disadvantages?
- What are the issues related to UWB and saturation of WLAN/Bluetooth?
- What are the alternative technologies to UWB and its benefits and drawbacks?
- What are the implementation issues of UWB systems (antenna, power and modulation)?
- What are the applications of UWB, with special focus on asset management, radar, surveillance system, medical applications?

## Business

- What are the Business aspects of UWB?
- What are the commercial & market trends of UWB?
- What is the cost analysis of UWB products?
- What are the products available and the major companies in the domain?
- What are the future applications of UWB in military, government and commercial applications?
- What are the practical applications of UWB (asset management, radar, surveillance system, medical applications)?

## Applications Covered in Report:

- Cable TV
- Asset Management
- Radar and Imaging
- Security Applications
- Medical Applications
- Location and Tracking
- Vehicular Radar Systems
- High-Penetrating Radar Systems
- Low Data Rate and Low Power UWB
- Communications and Sensors using UWB Technology

## Companies Covered in Report:

- Aether Wire & Location
- Blue7 Communications
- Cellonics
- Freescale Semiconductor (Motorola)
- Furaxa
- General Atomics
- Intel
- Multispectral Solutions
- Pulse~LINK
- Pulsicom Technologies
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- Wisair
- Zircon





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## Report Title

Ultra-wideband (UWB): Technology, Applications, and Solutions 2009

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