

1. Record Nr.	UNINA9910143587603321
Autore	Ghavami M
Titolo	Ultra wideband signals and systems in communication engineering [[electronic resource] /] / M. Ghavami, L. B. Michael, R. Kohno
Pubbl/distr/stampa	Chichester, England ; ; Hoboken, NJ, : John Wiley, c2007
ISBN	1-280-83875-2 9786610838752 0-470-06049-2 0-470-06050-6
Edizione	[2nd ed.]
Descrizione fisica	1 online resource (336 p.)
Altri autori (Persone)	MichaelL. B KohnoR
Disciplina	621.382 621.3821
Soggetti	Broadband communication systems Ultra-wideband devices Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Previous ed.: 2004.
Nota di bibliografia	Includes bibliographical references (p. [287]-296) and index.
Nota di contenuto	Ultra Wideband Signals and Systems in Communication Engineering; Contents; Preface; Acknowledgments; List of Figures; List of Tables; Introduction; 1.1 Ultra wideband overview; 1.2 A note on terminology; 1.3 Historical development of UWB; 1.4 UWB regulation overview; 1.4.1 Basic definitions and rules; 1.5 Key benefits of UWB; 1.6 UWB and Shannon's theory; 1.7 Challenges for UWB; 1.8 Summary; 1 Basic properties of UWB signals and systems; 1.1 Introduction; 1.2 Power spectral density; 1.3 Pulse shape; 1.4 Pulse trains; 1.5 Spectral masks; 1.6 Multipath; 1.7 Penetration characteristics 1.8 Spatial and spectral capacities 1.9 Speed of data transmission; 1.10 Cost; 1.11 Size; 1.12 Power consumption; 1.13 Summary; 2 Generation of UWB waveforms; 2.1 Introduction; 2.1.1 Damped sine waves; 2.2 Gaussian waveforms; 2.3 Designing waveforms for specific spectral masks; 2.3.1 Introduction; 2.3.2 Multiband modulation; 2.4 Practical constraints and effects of imperfections; 2.5 Summary; 3 Signal- processing techniques for UWB systems; 3.1 The effects of a lossy

medium on a UWB transmitted signal; 3.2 Time domain analysis; 3.2.1 Classification of signals; 3.2.2 Some useful functions 3.2.3 Some useful operations 3.2.4 Classification of systems; 3.2.5 Impulse response; 3.2.6 Distortionless transmission; 3.3 Frequency domain techniques; 3.3.1 Fourier transforms; 3.3.2 Frequency response approaches; 3.3.3 Transfer function; 3.3.4 Laplace transform; 3.3.5 z-transform; 3.3.6 The relationship between the Laplace transform, the Fourier transform, and the z-transform; 3.4 UWB signal-processing issues and algorithms; 3.5 Detection and amplification; 3.6 Summary; 4 UWB channel modeling; 4.1 A simplified UWB multipath channel model; 4.1.1 Number of resolvable multipath components 4.1.2 Multipath delay spread 4.1.3 Multipath intensity profile; 4.1.4 Multipath amplitude-fading distribution; 4.1.5 Multipath arrival times; 4.2 Path loss model; 4.2.1 Free space loss; 4.2.2 Refraction; 4.2.3 Reflection; 4.2.4 Diffraction; 4.2.5 Wave clutter; 4.2.6 Aperture-medium coupling loss; 4.2.7 Absorption; 4.2.8 Example of free space path loss model; 4.3 Two-ray UWB propagation model; 4.3.1 Two-ray path loss; 4.3.2 Two-ray path loss model; 4.3.3 Impact of path loss frequency selectivity on UWB transmission; 4.4 Frequency domain autoregressive model; 4.4.1 Poles of the AR model 4.5 IEEE proposals for UWB channel models 4.5.1 An analytical description of the IEEE UWB indoor channel model; 4.6 Summary; 5 UWB communications; 5.1 Introduction; 5.2 UWB modulation methods; 5.2.1 PPM; 5.2.2 BPM; 5.3 Other modulation methods; 5.3.1 OPM; 5.3.2 PAM; 5.3.3 OOK; 5.3.4 Summary of UWB modulation methods; 5.4 Pulse trains; 5.4.1 Gaussian pulse train; 5.4.2 PN channel coding; 5.4.3 Time-hopping PPM UWB system; 5.5 UWB transmitter; 5.6 UWB receiver; 5.6.1 Detection; 5.6.2 Pulse integration; 5.6.3 Tracking; 5.6.4 Rake receivers; 5.7 Multiple access techniques in UWB 5.7.1 Frequency division multiple access UWB

Sommario/riassunto

The thoroughly revised and updated second edition of Ultra Wideband Signals and Systems in Communication Engineering features new standards, developments and applications. It addresses not only recent developments in UWB communication systems, but also related IEEE standards such as IEEE 802.15 wireless personal area network (WPAN). Examples and problems are included in each chapter to aid understanding. Enhanced with new chapters and several sections including Standardization, advanced topics in UWB Communications and more applications, this book is essential reading for senior unde
