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Nota di contenuto	Preface; Contents; 1. Introduction; 1.1 Aim of this book; 1.2 Evolution of wireless communications; 1.2.1 Pioneering era of wireless communications; 1.2.2 First generation (1G) cellular systems; 1.2.3 Second generation (2G) cellular systems; 1.2.4 Third generation (3G) cellular systems; 1.2.5 Wireless local and personal area networks; 1.2.6 Wireless metropolitan area networks; 1.2.7 Next generation wireless broadband systems; 1.3 Historical notes on multicarrier transmissions; 1.4 Outline of this book; 2. Fundamentals of OFDM/OFDMA Systems; 2.1 Mobile channel modeling 2.1.1 Parameters of wireless channels2.1.1.1 Path loss; 2.1.1.2 Excess delay; 2.1.1.3 Power delay profile; 2.1.1.4 Root-mean-squared (RMS) delay spread; 2.1.1.5 Coherence bandwidth; 2.1.1.6 Doppler spread; 2.1.1.7 Coherence time; 2.1.2 Categorization of fading channels; 2.1.2.1 Frequency-nonselective and slowly-fading channels; 2.1.2.2 Frequency-selective fading channels; 2.1.2.3 Time-selective fading channels; 2.1.2.4 Frequency- and time-selective fading channels; 2.2

Conventional methods for channel fading mitigation; 2.2.1 Time-selective fading; 2.2.2 Frequency-selective fading
2.3 OFDM systems2.3.1 System architecture; 2.3.2 Discrete-time model of an OFDM system; 2.4 Spectral efficiency; 2.5 Strengths and drawbacks of OFDM; 2.6 OFDM-based multiple-access schemes; 2.7 Channel coding and interleaving; 3. Time and Frequency Synchronization; 3.1 Sensitivity to timing and frequency errors; 3.1.1 Effect of timing offset; 3.1.2 Effect of frequency offset; 3.2 Synchronization for downlink transmissions; 3.2.1 Timing acquisition; 3.2.2 Fine timing tracking; 3.2.3 Frequency acquisition; 3.2.4 Frequency tracking; 3.3 Synchronization for uplink transmissions
3.3.1 Uplink signal model with synchronization errors3.3.2 Timing and frequency estimation for systems with subband CAS; 3.3.3 Timing and frequency estimation for systems with interleaved CAS; 3.3.4 Frequency estimation for systems with generalized CAS; 3.4 Timing and frequency o®set compensation in uplink trans- missions; 3.4.1 Timing and frequency compensation with subband CAS; 3.4.2 Frequency compensation through interference cancellation; 3.4.3 Frequency compensation through linear multiuser detection; 3.4.4 Performance of frequency correction schemes
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4.3.2.1 Likelihood function for joint data detection and channel estimation

Sommario/riassunto

Multi-Carrier Techniques for Broadband Wireless Communications provides an accessible introduction to OFDM-based systems from a signal processing perspective. The first part presents a concise treatment of some fundamental concepts related to wireless communications and multicarrier systems, while the second offers a comprehensive survey of recent developments on a variety of critical design issues. These include synchronization techniques, channel estimation methods, adaptive resource allocation and practical schemes for reducing the peak-to-average power ratio of the transmitted waveform.