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UMTS; 2.1 Mathematical Background of Spread Spectrum CDMA Systems; 2.1.1 Multiple Access; 2.1.2 Spread Spectrum Modulation
2.1.3 Tolerance of Narrowband Interference2.2 Direct Sequence Spread Spectrum System; 2.2.1 Modulation Example; 2.2.2 Tolerance of Wideband Interference; 2.2.3 Operation in Multi-path Environment; 2.3 CDMA in Cellular Radio Networks; 2.3.1 Universal Frequency Reuse; 2.3.2 Soft Handover; 2.3.3 Power Control; 2.4 WCDMA Logical, Transport and Physical Channels; 2.4.1 High-level UMTS Architecture Model; 2.4.2 Radio Interface Protocol Architecture and Logical Channels; 2.4.3 Transport Channels; 2.4.4 Physical Channels and Mapping of Transport Channels (FDD)
2.4.5 High-speed Downlink Packet Access (HSDPA)2.4.6 Timing and Synchronisation in UTRAN (FDD); 2.4.7 Spreading, Scrambling and Channelisation Concepts; 2.5 WCDMA Radio Link Performance Indicators; 2.5.1 Definitions; 2.5.2 Classification according to Multi-path Channel Conditions and Services; 2.5.3 Link-level Simulation Principles; 2.5.4 Physical-layer Measurements Supporting the Measurement of Link-level Performance in a Live Network; References; 3 WCDMA Radio Network Planning; 3.1 Dimensioning; 3.1.1 WCDMA-specific Issues in Radio Link Budgets; 3.1.2 Receiver Sensitivity Estimation
3.1.3 Shadowing Margin and Soft Handover Gain Estimation3.1.4 Cell Range and Cell Coverage Area Estimation; 3.1.5 Capacity and Coverage Analysis in the Initial Planning Phase; 3.1.6 Dimensioning of WCDMA Networks with HSDPA; 3.1.7 RNC Dimensioning; 3.2 Detailed Planning; 3.2.1 General Requirements for a Radio Network Planning Tool; 3.2.2 Initialisation: Defining the Radio Network Layout; 3.2.3 Detailed Uplink and Downlink Iterations; 3.2.4 Adjacent Channel Interference Calculations; 3.2.5 Post-processing: Network Coverage Prediction and Common Channel Analysis
3.3 Verification of Dimensioning with Static Simulations3.3.1 Macro-cellular Network Layout; 3.3.2 Introduction to the Simulation Parameters; 3.4 Verification of Static Simulator with Dynamic Simulations; 3.4.1 Introduction to the Dynamic Simulator; 3.4.2 Comparison of the Results; 3.5 Optimisation of the Radio Network Plan; 3.5.1 Ideal Case; 3.5.2 Shinjuku Case; 3.6 Interference in WCDMA Multi-operator Environment; 3.6.1 Sources of Adjacent Channel Interference; 3.6.2 Minimum Coupling Loss; 3.6.3 Dead Zones; 3.6.4 ACI Simulation Cases; 3.6.5 Guidelines for Radio Network Planning to Avoid ACI
3.7 Cell Deployment Strategies

Sommario/riassunto

Radio Network Planning and Optimisation for UMTS, Second Edition, is a comprehensive and fully updated introduction to WCDMA radio access technology used in UMTS, featuring new content on key developments. Written by leading experts at Nokia, the first edition quickly established itself as a best-selling and highly respected book on how to dimension, plan and optimise UMTS networks. This valuable text examines current and future radio network management issues and their impact on network performance as well as the relevant capacity and coverage enhancement methods. In addition to cove