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2.3.3 Dimensioning in the WCDMA Radio Network; 2.4 Radio Wave Propagation; 2.4.1 Okumura-Hata Model; 2.4.2 Walfish-Ikegami Model; 2.4.3 Ray Tracing Model; 2.4.4 Model Tuning; 2.5 Coverage Planning; 2.5.1 Coverage Planning in GSM Networks; 2.5.2 Coverage Planning in EGPRS; 2.5.3 Coverage Planning in WCDMA Networks; 2.6 Capacity Planning; 2.6.1 Capacity Planning in GSM Networks; 2.6.2 EGPRS Capacity Planning; 2.6.3 Capacity Planning in WCDMA Networks; 2.7 Frequency Planning; 2.7.1 Power Control; 2.7.2 Discontinuous Transmission; 2.7.3 Frequency Hopping; 2.7.4 Interference Analysis; 2.8 Parameter Planning; 2.8.1 Parameter Planning in the GSM Network; 2.8.2 Parameter Planning in the EGPRS Network; 2.8.3 Parameter Planning in the WCDMA Network; 2.9 Radio Network Optimisation; 2.9.1 GSM Radio Network Optimisation Process; 2.9.2 Optimisation in the EGPRS Network; 2.9.3 Optimisation in the WCDMA Network; 3 Transmission Network Planning and Optimisation; 3.1 Access Transmission Network Planning Process; 3.1.1 Master Planning; 3.1.2 Detail Planning; 3.2 Fundamentals of Transmission; 3.2.1 Modulations; 3.2.2 Multiple Access Schemes; 3.3 Digital Hierarchies - PDH and SDH; 3.3.1 Plesiochronous Digital Hierarchy (PDH); 3.3.2 Synchronous Digital Hierarchy (SDH); 3.3.3 Asynchronous Transfer Mode (ATM); 3.4 Microwave Link Planning; 3.4.1 Microwave Link; 3.4.2 Microwave Tower; 3.4.3 Microwave Link Design; 3.4.4 LOS Check; 3.4.5 Link Budget Calculation; 3.4.6 Repeaters; 3.5 Microwave Propagation; 3.5.1 Slow Fading; 3.5.2 Fast Fading; 3.5.3 Overcoming Fading; 3.6 Interface Planning; 3.6.1 Abis Planning; 3.6.2 Dynamic Abis; 3.6.3 Interface Planning in the UMTS Access Transmission Network; 3.7 Topology Planning; 3.8 Frequency Planning and Interference; 3.8.1 Loop Protection

Sommario/riassunto

A highly practical guide rooted in theory to include the necessary background for taking the reader through the planning, implementation and management stages for each type of cellular network. Present day cellular networks are a mixture of the technologies like GSM, EGPRS and WCDMA. They even contain features of the technologies that will lead us to the fourth generation networks. Designing and optimising these complex networks requires much deeper understanding. Advanced Cellular Network Planning and Optimisation presents radio, transmission and core network planning and optimisation.