Evaluation of HSDPA and LTE. From Testbed Measurements to System Level Performance

Description: This book explains how the performance of modern cellular wireless networks can be evaluated by measurements and simulations.

With the roll-out of LTE, high data throughput is promised to be available to cellular users. In case you have ever wondered how high this throughput really is, this book is the right read for you: At first, it presents results from experimental research and simulations of the physical layer of HSDPA, WiMAX, and LTE. Next, it explains in detail how measurements on such systems need to be performed in order to achieve reproducible and repeatable results. The book further addresses how wireless links can be evaluated by means of standard-compliant link-level simulation. The major challenge in this context is their complexity when investigating complete wireless cellular networks. Consequently, it is shown how system-level simulators with a higher abstraction level can be designed such that their results still match link-level simulations. Exemplarily, the book finally presents optimizations of wireless systems over several cells.

This book:
- Explains how the performance of modern cellular wireless networks can be evaluated by measurements and simulations
- Discusses the concept of testbeds, highlighting the challenges and expectations when building them
- Explains measurement techniques, including the evaluation of the measurement quality by statistical inference techniques
- Presents throughput results for HSDPA, WiMAX, and LTE
- Demonstrates simulators at both, link-level and system-level
- Provides system-level and link-level simulators (for WiMAX and LTE) on an accompanying website (company website)

This book is an insightful guide for researchers and engineers working in the field of mobile radio communication as well as network planning. Advanced students studying related courses will also find the book interesting.

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