LTE for 4G Mobile Broadband – Air Interface Technologies and Performance

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Do you need to get up-to-speed quickly on Long-Term Evolution (LTE)?

Understand the new technologies of the LTE standard and how they contribute to improvements in system performance with this practical and valuable guide, written by an expert on LTE who was intimately involved in the drafting of the standard. In addition to a strong grounding in the technical details, you'll also get fascinating insights into why particular technologies were chosen in the development process.

Core topics covered include:

- Network architecture and protocols;
- OFDMA downlink access;
- Low-PAPR SC-FDMA uplink access;
- Transmit diversity and MIMO spatial multiplexing;
- Channel structure and bandwidths;
- Cell search, reference signals and random access;
- Turbo coding with contention-free interleaver;
- Scheduling, link adaptation, hybrid ARQ and power control;
- Uplink and downlink physical control signaling;
- Inter-cell interference mitigation techniques;
- Single-frequency network (SFN) broadcast;
- MIMO spatial channel model;
- Evaluation methodology and system performance.

With extensive references, a useful discussion of technologies that were not included in the standard, and end-of-chapter summaries that draw out and emphasize all the key points, this book is an essential resource for practitioners in the mobile cellular communications industry and for graduate students studying advanced wireless communications.

Farooq Khan is Technology Director at the Samsung Telecom R&D Center, Dallas, Texas, where he manages the design, performance evaluation, and standardization of next-generation wireless communications systems. Previously, he was a Member of Technical Staff at Bell Laboratories, where he conducted research on the evolution of cdma2000 and UMTS systems towards high-speed packet access (HSPA). He also worked at Ericsson Research in Sweden, contributing to the design and performance evaluation of EDGE and WCDMA technologies. He has authored more than 30 research papers and holds over 50 US patents, all in the area of wireless communications.