

Hspa Evolution To Release 12 Performance And Optimization

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CAMRYN KYLEE

Introduction to Wireless and Mobile Systems John Wiley & Sons
 This book is essential reading for those wishing to obtain a systems perspective and a broad view on the background, performance and application of the latest developments in HSPA in the context of the demands on today's mobile broadband devices and networks. It takes the reader behind the scenes of 3GPP and provides an easily accessible understanding of the basic principles, the latest steps in the standard's evolution, and the motivations behind the development of standardized features. It covers important topics such as smartphone related features, multi-carrier and multi-antenna operation, interface architecture, heterogeneous networks and HSPA system performance. Offering full coverage of recent developments in HSPA up to Release 13, this book will provide a comprehensive description of one of the dominating standards for mobile broadband. With this book, you will: Get a guided and consistent

tour through the evolutionary stages of HSPA Gain an understanding of the 3GPP standardization process, the driving forces behind it, and the need for evolution Learn about the fundamental technology components of a modern wireless communication system, such as basic link level architecture, cellular system behavior, traffic management and scheduling and system management Learn in detail the features of the latest HSPA development up to Release 13 Gain a deep insight into the means by which HSPA performance can be simulated and characterized, the factors that drive the performance of networks and user experience, and the performance expectations for the technology Obtain insight into the telecommunications market and its evolution Learn about current trends and the future direction of HSPA A full insight into the 3GPP and regulatory standardisation processes and the factors that drive evolution of the specification A walk through of the fundamental technology principles that lie behind HSPA A structured overview of the WCDMA/HSPA feature set, offering insider coverage starting from the core release 5/6 technologies and reviewing each of the

added features up to and including the most recent developments in the area An overview of the frequency bands available for HSPA An insight into the radio performance requirements, their background and implications for mobiles and networks A tutorial on simulation principles for HSPA A description of the performance of HSPA features within the context of a tutorial on the factors that drive performance

The National Broadband Plan Academic Press

HSPA+ Evolution to Release 12 John Wiley & Sons

LTE Small Cell Optimization Universidad Miguel Hernández

Written from an operator's viewpoint, HSPA Performance and Evolution explores the lessons learned and techniques developed for optimally deploying HSPA (High Speed Packet Access). The essential distinctions between rolling out HSPA compared to earlier UMTS and GSM technologies are explained covering the many issues that must be specifically handled. Areas in standards which have been left open for interpretation, causing significant differences between vendor implementations, are identified and solutions explored. This book is invaluable in enabling wireless operators to extract maximum performance offered by 3GPP's HSPA radio technology, consisting of both downlink (HSDPA) and uplink (HSUPA) elements. It focuses on real-world performance, sharing practical implementation methods and tradeoffs for deploying, optimizing and maintaining networks using the HSPA air interface. Examines algorithms, equipment and performance perspectives to identify and explain HSPA Measures performance and sets network parameters for optimal tradeoffs Presents results from practical and real-world network performances Explores the evolution of HSPA technology into HSPA+ and eventually next generation LTE technologies

HSPA Performance and Evolution Academic Press

Combining information on the most important and related technologies in the mobile communications field, this two book package gives the engineer a concise, complete and authoritative introduction to LTE and SAE and The Evolved Packet Core.

Written by experts who played a leading role in the development of the standards, this package gives insight into the 'how' and 'why', enabling the professional engineer to implement the technologies that are central to the mobile broadband revolution.

Includes details of the standards and technologies with 160 new pages: LTE radio interface architecture, LTE physical layer and LTE access procedures Contains three brand new chapters on LTE: Transmission Procedures, Flexible Bandwidth and LTE Evolution, plus expanded details on the physical layer (total LTE content is 270 pages) Examines the latest developments in the evolution of LTE into IMT-Advanced, the next stage of 3G

Evolution Gives clear explanations of the role of OFDM and MIMO technologies in HSPA and LTE Outlines the System Architecture Evolution (SAE) supporting LTE and HSPA evolution Up-to-date coverage of SAE including the latest standards development

Easily accessible overview of the architecture and concepts defined by SAE Thorough description of the Evolved Packet Core for LTE, fixed and other wireless accesses Comprehensive explanation of SAE key concepts, security and Quality-of-Service

Covers potential service and operator scenarios including interworking with existing 3GPP and 3GPP2 systems Detailed walkthrough of network entities, protocols and procedures

Written by established experts in the SAE standardization process, all of whom have extensive experience and understanding of its goals, history and vision

The Telecommunications Handbook Academic Press

Highly regarded as the book on the air interface of 3G cellular systems WCDMA for UMTS has again been fully revised and updated. The third edition now covers the key features of 3GPP Release 6 ensuring it remains the leading principal resource in

this constantly progressing area. By providing a deep understanding of the WCDMA air interface, the practical approach of this third edition will continue to appeal to operators, network and terminal manufacturers, service providers, university students and frequency regulators. Explains the key parts of the 3GPP/WCDMA standard Presents network dimensioning, coverage and capacity of WCDMA Introduces TDD and discusses its differences from FDD Key third edition updates include: Covers the main 3GPP Release 6 updates Further enhances High Speed Downlink Packet Access (HSDPA) chapter with a number of new simulation results Explains High Speed Uplink Packet Access (HSUPA) study item Introduces the new services including their performance analysis : Push-to-Talk over Cellular (PoC), streaming, See What I See (SWIS) and multiplayer games Presents a number of new WCDMA field measurement results: capacity, end-to-end performance and handovers Includes completely updated antenna beamforming and multiuser detection sections featuring new simulation results Introduces TD-SCDMA and compares it to Release TDD

HSPA Evolution John Wiley & Sons

This very up-to-date and practical book, written by engineers working closely in 3GPP, gives insight into the newest technologies and standards adopted by 3GPP, with detailed explanations of the specific solutions chosen and their implementation in HSPA and LTE. The key technologies presented include multi-carrier transmission, advanced single-carrier transmission, advanced receivers, OFDM, MIMO and adaptive antenna solutions, advanced radio resource management and protocols, and different radio network architectures. Their role and use in the context of mobile broadband access in general is explained. Both a high-level overview and more detailed step-by-step explanations of HSPA and LTE implementation are given. An overview of other related systems such as TD SCDMA, CDMA2000, and WIMAX is also provided. This is a 'must-have' resource for engineers and other professionals working with cellular or wireless broadband technologies who need to know how to utilize the new technology to stay ahead of the competition. The authors of the book all work at Ericsson Research and are deeply involved in 3G development and standardisation since the early days of 3G research. They are leading experts in the field and are today still actively contributing to the standardisation of both HSPA and LTE within 3GPP. * Gives the first explanation of the radio access technologies and key international standards for moving to the next stage of 3G evolution: fully operational mobile broadband * Describes the new technologies selected by the 3GPP to realise High Speed Packet Access (HSPA) and Long Term Evolution (LTE) for mobile broadband * Gives both higher-level overviews and detailed explanations of HSPA and LTE as specified by 3GPP

LTE - The UMTS Long Term Evolution Springer

Comprehensive Handbook Demystifies 5G for Technical and Business Professionals in Mobile Telecommunication Fields Much is being said regarding the possibilities and capabilities of the emerging 5G technology, as the evolution towards 5G promises to transform entire industries and many aspects of our society. 5G for the Connected World offers a comprehensive technical overview that telecommunication professionals need to understand and take advantage of these developments. The book offers a wide-ranging coverage of the technical aspects of 5G (with special consideration of the 3GPP Release 15 content), how it enables new services and how it differs from LTE. This includes information on potential use cases, aspects of radio and core networks, spectrum considerations and the services primarily driving 5G development and deployment. The text also looks at 5G in relation to the Internet of Things, machine to machine

communication and technical enablers such as LTE-M, NB-IoT and EC-GSM. Additional chapters discuss new business models for telecommunication service providers and vertical industries as a result of introducing 5G and strategies for staying ahead of the curve. Other topics include: Key features of the new 5G radio such as descriptions of new waveforms, massive MIMO and beamforming technologies as well as spectrum considerations for 5G radio regarding all possible bands Drivers, motivations and overview of the new 5G system – especially RAN architecture and technology enablers (e.g. service-based architecture, compute-storage split and network exposure) for native cloud deployments Mobile edge computing, Non-3GPP access, Fixed-Mobile Convergence Detailed overview of mobility management, session management and Quality of Service frameworks 5G security vision and architecture Ultra-low latency and high reliability use cases and enablers, challenges and requirements (e.g. remote control, industrial automation, public safety and V2X communication) An outline of the requirements and challenges imposed by massive numbers of devices connected to cellular networks While some familiarity with the basics of 3GPP networks is helpful, 5G for the Connected World is intended for a variety of readers. It will prove a useful guide for telecommunication professionals, standardization experts, network operators, application developers and business analysts (or students working in these fields) as well as infrastructure and device vendors looking to develop and integrate 5G into their products, and to deploy 5G radio and core networks.

LTE-Advanced Cengage Learning

This book is intended to be used as both a text book and as an aide memoire handbook by forensic radio survey engineers, particularly those working for official police agencies. The book provides a simple but detailed overview of the operation of cellular networks (GSM, UMTS and LTE, US CDMAOne/CDMA2000, amongst others). In addition, the author also provides an overview of the technical theories that underpin cellular radio systems – basic radio theory and a simple explanation of the mathematical concepts that underlie measurements scales such as dB and dBm. The main part of the book, however, focuses on radio surveys, the various types of survey, the techniques employed for each survey and the considerations and potential problems that can be encountered when surveying different types of network. The final section deals with processing and interpreting the results of radio surveys and examines the information that can be gained from them.

5G for the Connected World John Wiley & Sons

A comprehensive reference book codifying the various standards releases for High Speed Packet Access (HSPA) wireless technology HSPA evolution has maintained its prominence through Releases 7-11 but the evolution is coming to an end with Release 12, with the focus moving to LTE. However, HSPA network and terminal sales will continue for many years: HSPA is expected to remain as the number one radio access technology from the sales point of view far beyond 2015. This timely book examines the complete HSPA evolution, and will be the ultimate long term reference for HSPA evolution. Headed by the successful editing team of Holma, Toskala and Tapia, industry experts look at HSPA evolution including complete Release 11 and the main additions in Release 12. They describe 3GPP definitions, field measurement, expected performance, practical optimization guidelines and the implications to the devices and to the networks. The book also covers MIMO antenna solutions and multicarrier evolution to provide higher data rates. Dedicated chapters include Continuous Packet Connectivity and High Speed Common Channels which provide major improvement to the smartphone capacity, end user performance and power consumption. The book assumes basic

understanding of mobile communications yet the material is presented in an understandable way which can be enjoyed without any pre-information about MIMO or other technology solutions. A comprehensive reference book codifying the various standards releases for High Speed Packet Access (HSPA) wireless technology Leading editor and contributor team focusing their expertise on 3GPP features and performance, including Self Organizing Networks, LTE Interworking, Smartphone Optimization and Voice Evolution Dedicated chapter covering VoIP over HSPA, recognizing that telephony will continue to bring most of the revenues to mobile operators in the near future Includes tables, figures and plots illustrating the concepts or simulation results, to aid readers' understanding of the topic An essential resource for R&D engineers by network, terminal and chip set vendors, network engineers with operators, application developers, regulators.

Wireless Communications Systems Design John Wiley & Sons

An intuitive and insightful overview of the technical and business aspects of the telecoms industry In *The Technology and Business of Mobile Telecommunications: An Introduction*, a team of expert telecommunications researchers and consultants delivers a rigorous exploration of the technical and business aspects of mobile telecommunications. The book offers a complete overview of an industry that has seen rapid technical and economic changes while retaining the ability to provide end users with communications coverage and capacity. The authors demonstrate the technical foundations of the mobile industry and show how a communications network is deployed. They detail many of the main innovations introduced over the last few years and some of the most salient challenges facing the industry today. The business models of major mobile operators are examined as well, from the purchasing spectrum to network deployment and customer attraction and retention. The role of the regulator is also thoroughly discussed, with explorations of its role in encouraging the maintenance of a competitive market in which the needs of consumers are met. Readers will also enjoy: Thorough introductions to the social and economic impacts of mobile communications, as well as a brief history of mobile and cellular communications Comprehensive explorations of the mobile telecoms ecosystem, from spectrum regulation to standardization, research, end users, operators, vendors, and standard bodies Practical discussions of the business models and challenges of mobile operators, including mobile virtual network operators and the implementation of international roaming In-depth examinations of telecommunications standards, including 5G Perfect for anyone studying mobile telecommunications technology at the undergraduate and graduate levels, *The Technology and Business of Mobile Telecommunications: An Introduction* is also an indispensable resource for practitioners within the telecommunications industry in a technical or business-oriented role.

3G Evolution CRC Press

Written by experts actively involved in the 3GPP standards and product development, *LTE for UMTS, Second Edition* gives a complete and up-to-date overview of Long Term Evolution (LTE) in a systematic and clear manner. Building upon on the success of the first edition, *LTE for UMTS, Second Edition* has been revised to now contain improved coverage of the Release 8 LTE details, including field performance results, transport network, self optimized networks and also covering the enhancements done in 3GPP Release 9. This new edition also provides an outlook to Release 10, including the overview of Release 10 LTE-Advanced technology components which enable reaching data rates beyond 1 Gbps. Key updates for the second edition of LTE for UMTS are focused on the new topics from Release 9 & 10, and include: LTE-

Advanced; Self optimized networks (SON); Transport network dimensioning; Measurement results.

Mobile Broadband Communications for Public Safety John Wiley & Sons

With the increased functionality demand for mobile speed and access in our everyday lives, broadband wireless networks have emerged as the solution in providing high data rate communications systems to meet these growing needs.

Broadband Wireless Access Networks for 4G: Theory, Application, and Experimentation presents the latest trends and research on mobile ad hoc networks, vehicular ad hoc networks, and routing algorithms which occur within various mobile networks. This publication smartly combines knowledge and experience from enthusiastic scholars and expert researchers in the area of wideband and broadband wireless networks. Students, professors, researchers, and other professionals in the field will benefit from this book's practical applications and relevant studies.

LTE for UMTS John Wiley & Sons

From the editors of the highly successful WCDMA for UMTS, this new book gives a complete and up-to-date overview of Long Term Evolution (LTE) in a systematic and clear manner. It starts with an in-depth explanation of the background and standardization process before moving on to examine the system architecture evolution (SAE). The basics of air interface modulation choices are introduced and key subjects such as 3GPP LTE physical layer and protocol solutions are described. Mobility aspects and radio resource management together with radio and end-to-end performance are assessed. The voice solution and voice capacity in LTE are also illustrated. Finally, the main differences between LTE TDD and FDD modes are examined and HSPA evolution in 3GPP Releases 7 and 8 is described. LTE for UMTS is one of the first books to provide a comprehensive guide to the standards and technologies of LTE. Key features of the book include: Covers all the key aspects of LTE in a systematic manner Presents full description of 3GPP Release 8 LTE Examines the expected performance of LTE Written by experts actively involved in the 3GPP standards and product development.

Multimedia and Network Information Systems Academic Press

From the editors of the highly successful LTE for UMTS: Evolution to LTE-Advanced, this new book examines the main technical enhancements brought by LTE-Advanced, thoroughly covering 3GPP Release 10 specifications and the main items in Release 11. Using illustrations, graphs and real-life scenarios, the authors systematically lead readers through this cutting-edge topic to provide an outlook on existing technologies as well as possible future developments. The book is structured to follow the main technical areas that will be enhanced by the LTE-Advanced specifications. The main topics covered include: Carrier Aggregation; Multiantenna MIMO Transmission, Heterogeneous Networks; Coordinated Multipoint Transmission (CoMP); Relay nodes; 3GPP milestones and IMT-Advanced process in ITU-R; and LTE-Advanced Performance Evaluation. Key features: Leading author and editor team bring their expertise to the next generation of LTE technology Includes tables, figures and plots illustrating the concepts or simulation results, to aid understanding of the topic, and enabling readers to be ahead of the technological advances

4G: LTE/LTE-Advanced for Mobile Broadband John Wiley & Sons

This one-of-a-kind book gives you an exclusive look into how the "Industrial Internet of Things" (IIoT) convergence with the 5G end-to-end network is driving the 4th industrial revolution and bringing about game-changing developments in multiple industries. The book shows you how 5G-driven IIoT networks can

deliver optimal performance for all industrial applications using key LTE and 5G NR features, and helps you understand how IIoT with 5G can be used to automate factories and make them more cost efficient. Detailed chapters take you through the current knowledge available on this breakthrough technology and give you access to expert discussions on: key use cases and corresponding target requirements; IIoT standards and alliances; end-to-end architecture for IIoT; IIoT enablers for 5G new radio; performance of select IIoT use cases; and machine learning enabled IIoT networks. The book pulls together in one resource key cases and knowledge you need to fully understand how 5G enabled IIoT is transforming global industries. You will be conversant with the end-to-end technology enablers for IIoT, learn how 5G new radio features enhance the system performance of IIoT networks, and gain a deeper understanding of the role of machine learning in the IIoT revolution. With its international scope and focus on 5G IIoT networks and performance, this is an important read for global technology leaders in telecom and manufacturing industries, analysts and technical writers for various industry magazines and newspapers, telecom researchers, and anyone needing to understand the current state of the art in this rapidly developing technology.

HSPA+ Evolution to Release 12 John Wiley & Sons

While 3G has been an outstanding success, the ever-growing demand for higher data rates and higher quality mobile communication services continues to fuel conflict between the rapidly growing number of users and limited bandwidth resources. In the future, a 100-fold increase in mobile data traffic is expected. That will necessitate further improvements to 3GPP LTE (Long-Term Evolution) and create limitless opportunities for engineers who understand the technology and how to apply it to deliver enhanced services. **Long Term Evolution: 3GPP LTE Radio and Cellular Technology** outlines the best way to position yourself now for future success. With coverage ranging from basic concepts to current research, this comprehensive reference contains technical information about all aspects of 3GPP LTE. It details low chip rate, high-speed downlink/uplink packet access (HSxPA)/TDSCDMA EV 1x, LTE TDD, and 3G TDD. It introduces new technologies and covers methodologies to study the performance of frequency allocation schemes. The authors also discuss the proposed architecture of Mobile IPRR and distributed dynamic architecture in wireless communication, covering performance evaluation of the TD-SCDMA LTE System. With each passing day, more and more users are demanding mobile broadband data access everywhere, to facilitate synchronization of e-mails, Internet access, specific applications, and file downloads to mobile devices such as cell phones, smart phones, PDAs, and notebooks. LTE, successor to the 3G mobile radio network, is essential to creating radio coverage in the rollout phase and high capacity all over the radio cell in the long term. The 3GPP LTE will become increasingly crucial to supporting the high demand of data traffic rates generated by future mobile user terminals. Authored by international experts in the field, this practical book is an extremely valuable guide that addresses emerging current and future technologies associated with LTE and its future direction.

LTE Standards John Wiley & Sons

A practical guide to LTE design, test and measurement, this new edition has been updated to include the latest developments. This book presents the latest details on LTE from a practical and technical perspective. Written by Agilent's measurement experts, it offers a valuable insight into LTE technology and its design and test challenges. Chapters cover the upper layer signaling and system architecture evolution (SAE). Basic concepts such as MIMO and SC-FDMA, the new uplink modulation scheme, are

introduced and explained, and the authors look into the challenges of verifying the designs of the receivers, transmitters and protocols of LTE systems. The latest information on RF and signaling conformance testing is delivered by authors participating in the LTE 3GPP standards committees. This second edition has been considerably revised to reflect the most recent developments of the technologies and standards. Particularly important updates include an increased focus on LTE-Advanced as well as the latest testing specifications. Fully updated to include the latest information on LTE 3GPP standards Chapters on conformance testing have been majorly revised and there is an increased focus on LTE-Advanced Includes new sections on testing challenges as well as over the air MIMO testing, protocol testing and the most up-to-date test capabilities of instruments Written from both a technical and practical point of view by leading experts in the field

Fundamentals of 5G Mobile Networks John Wiley & Sons

em style="mso-bidi-font-style: normal;"Wireless Communications Systems Design provides the basic knowledge and methodology for wireless communications design. The book mainly focuses on a broadband wireless communication system based on OFDM/OFDMA system because it is widely used in the modern wireless communication system. It is divided into three parts: wireless communication theory (part I), wireless communication block design (part II), and wireless communication block integration (part III). Written by an expert with various experience in system design (standards, research and development)

WCDMA for UMTS John Wiley & Sons

THE TELECOMMUNICATIONS HANDBOOK THE

TELECOMMUNICATIONS HANDBOOK ENGINEERING GUIDELINES FOR FIXED, MOBILE AND SATELLITE SYSTEMS Taking a practical approach, The Telecommunications Handbook examines the principles and details of all the major and modern telecommunications systems currently available to industry and to end-users. It gives essential information about usage, architectures, functioning, planning, construction, measurements and optimization. The structure of the book is modular, giving both overall descriptions of the architectures and functionality of typical use cases, as well as deeper and practical guidelines for telecom professionals. The focus of the book is on current and future networks, and the most up-to-date functionalities of each network are described in sufficient detail for deployment purposes. The contents include an introduction to each

technology, its evolution path, feasibility and utilization, solution and network architecture, and technical functioning of the systems (signaling, coding, different modes for channel delivery and security of core and radio system). The planning of the core and radio networks (system-specific field test measurement guidelines, hands-on network planning advices and suggestions for parameter adjustments) and future systems are also described. With contributions from specialists in both industry and academia, the book bridges the gap between communications in the academic context and the practical knowledge and skills needed to work in the telecommunications industry.

From GSM to LTE-Advanced John Wiley & Sons

The upcoming 5G specifications from 3GPP, to be available in 2018, will include LTE-Advanced Pro as well as a new 5G radio-access technology. This practical and very successful book, written by engineers working closely with 3GPP, gives insight into the newest technologies and standards adopted by 3GPP, with detailed explanations of the specific solutions chosen and their implementation in LTE, LTE-Advanced, and LTE-Advanced Pro, as well as providing a detailed description of the path to 5G and the associated underlying technologies. This edition has been thoroughly revised and updated to reflect the large extensions to LTE as introduced in 3GPP Releases 12 and 13 and the role of LTE in the upcoming 5G era. New to this edition includes updated content on: 4G and 5G Radio Access Spectrum for 4G and 5G Machine-Type Communication Device-to-Device Communication License-assisted Access Full-dimension MIMO Small-cell enhancements, eIMTA, FDD+TDD aggregation, dual connectivity Requirements on and general structure of 5G wireless access, addressing the existing and new usage scenarios for 5G Technical solutions for the new 5G radio-access technology The authors of this book all work at Ericsson Research and have been deeply involved in 3G and 4G development and standardization. They are leading experts in the field and are today actively contributing to the standardization of 4G and 5G within 3GPP. The leading book on 3GPP specifications for LTE, LTE-Advanced, and LTE-Advanced Pro covering up to and including Release 13, written by Ericsson engineers who are heavily involved in the development of 3GPP specifications Ten new chapters and coverage of all major features introduced with Release 12 and 13 Two completely new chapters on 5G wireless access including a detailed description of the key technology components under development by 3GPP

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