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> WCDMA for UMTS: Radio Access for Third Generation Mobile Communications User Manual

**Wiley 0471720518**

## User Manual: WCDMA for UMTS: Radio Access for Third Generation Mobile Communications

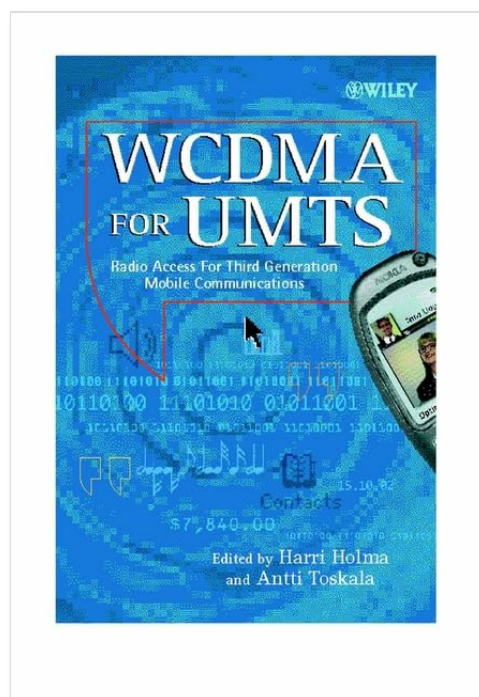
A comprehensive guide to understanding and utilizing this essential telecommunications resource.

### 1. INTRODUCTION AND OVERVIEW

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This manual serves as a guide to the book "WCDMA for UMTS: Radio Access for Third Generation Mobile Communications," providing insights into its structure, content, and how to best leverage it as a technical resource. The book offers a complete picture of the Wideband CDMA (Code Division Multiple Access) air interface, a fundamental component of 3rd generation cellular systems, specifically UMTS (Universal Mobile Telecommunications Systems).

WCDMA is engineered for advanced multimedia communications, including high-quality images and video, and facilitates access to services requiring high data rates. This publication aims to clarify the key aspects of the 3GPP/WCDMA standard and offers practical guidelines for its effective application in the field of mobile communications.



This image displays the front cover of the book, featuring the title 'WCDMA for UMTS' prominently. Below the main title, it reads 'Radio

## 2. TARGET AUDIENCE

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This book is primarily intended for:

- **Research and Development Engineers:** Those involved in designing and developing WCDMA-based systems.
- **Practicing Engineers:** Professionals working with cellular networks and telecommunications infrastructure.
- **Cellular Operators:** Individuals responsible for deploying and managing mobile communication services.
- **Equipment Manufacturers:** Companies producing hardware and software for 3G mobile systems.
- **Frequency Technical Managers:** Experts dealing with spectrum allocation and management.
- **Students:** Those pursuing telecommunications courses at university level, seeking a practical understanding of WCDMA and UMTS.

It is particularly valuable for readers who plan to implement WCDMA in hardware designs or service offerings.

## 3. KEY CONTENT AREAS

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The book systematically covers several critical aspects of WCDMA and UMTS:

- **3GPP/WCDMA Standard:** Explanations of key parts of the standard and guidelines for efficient use.
- **Network Dimensioning:** Principles and methods for planning WCDMA network capacity and coverage.
- **Radio Resource Management (RRM):** Introduction to algorithms used in WCDMA networks.
- **Performance Analysis:** Examination of WCDMA coverage and capacity up to 2 Mbps, supported by simulation results.
- **TDD Mode:** Introduction to the Time Division Duplex mode.
- **FDD and TDD Co-existence:** Discussion on the co-existence of Frequency Division Duplex (FDD) and TDD, highlighting their main differences.

The content is highly technical, providing sufficient depth for practicing communications engineers to develop devices and understand network implications.

## 4. UTILIZING THIS RESOURCE EFFECTIVELY

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### 4.1. Reading and Comprehension

To maximize your learning from this book:

- **Systematic Approach:** Read chapters sequentially to build foundational knowledge before moving to more complex topics.
- **Focus on Engineering Problems:** The book's backbone is a series of engineering problems. Pay close attention to these and the accompanying calculations.
- **Review Formulas:** Understand the formulas provided, especially for network planning, and how to interpret their output for practical deployment scenarios.
- **Diagrams and Illustrations:** Utilize the many diagrams and illustrations to visualize complex concepts and system architectures.

### 4.2. Reference and Application

This book serves as an excellent reference for ongoing projects and research:

- **Standard Deciphering:** Use it to decipher the standards documents of the Third Generation Partnership Project (3GPP).
- **Deployment Planning:** Refer to sections on network dimensioning and coverage planning when designing or expanding WCDMA services.
- **Troubleshooting Conceptual Issues:** If you encounter difficulties understanding specific WCDMA or UMTS concepts, revisit the relevant sections for clarification. The book aims to bring light into the 3GPP documents.
- **Staying Current:** While the field evolves, the foundational principles explained here remain crucial for understanding subsequent developments in mobile communications.

## 5. SPECIFICATIONS

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### Book Details

Attribute	Detail
<b>Title</b>	WCDMA for UMTS: Radio Access for Third Generation Mobile Communications
<b>Authors/Editors</b>	Harri Holma (Editor), Antti Toskala (Editor)
<b>Publisher</b>	Wiley
<b>Publication Date</b>	June 7, 2000
<b>Edition</b>	1st
<b>Language</b>	English
<b>Print Length</b>	344 pages
<b>ISBN-10</b>	0471720518
<b>ISBN-13</b>	978-0397511297
<b>Item Weight</b>	1.52 pounds
<b>Dimensions</b>	6.85 x 0.92 x 10.02 inches

## 6. SUPPORT AND FURTHER READING

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For additional information or related resources, consider the following:

- **Publisher's Website:** Visit the [Wiley website](#) for updates, errata, or other publications by the authors.
- **3GPP Standards:** Consult the official [3GPP website](#) for the latest standards documents that form the basis of this book's content.
- **Newer Editions:** A newer edition of this book, "WCDMA for UMTS: Radio Access for Third Generation Mobile Communications, 3rd Ed." (ISBN: 0470870966), is available and may offer updated information.

## 7. WARRANTY AND RETURNS

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