1. Record Nr. UNINA9910140023903321

Titolo	Radio technologies and concepts for IMT-advanced / / edited by Martin Deottling, Werner Mohr, Afif Osseiran
Pubbl/distr/stampa	Chichester, England ; , : Wiley, , c2009 [Piscataqay, New Jersey] : , : IEEE Xplore, , [2009]
ISBN	1-282-31426-2 9786612314261 0-470-74807-9 0-470-74808-7
Descrizione fisica	1 online resource (625 p.)
Altri autori (Persone)	DeottlingMartin MohrWerner <1955-> OsseiranAfif
Disciplina	621.38456 775
Soggetti	Radio - Transmitter-receivers - Standards Cell phones - Standards Radio - Receivers and reception - Technological innovations Global system for mobile communications - Equipment and supplies - Standards
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
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Sommario/riassunto

Radio Technologies and Concepts for IMT-Advanced presents the findings of the Wireless World Initiative New Radio (WINNER) project in Framework Program 6 of the European Commission. It provides an insight into the key concepts and technologies for the IMT-Advanced

radio interface, based on the collaborative research of manufacturers, network operators, research centres and universities within WINNER. The book covers the fundamental radio characteristics of a typical 4G wireless communication system, focusing on the transceiver's chain from the physical layer to layers 2 and 3. Starting by defining realistic and futuristic usage scenarios, the authors then provide in-depth discussion of key technologies including modulation and coding, link level procedures, spatial-temporal processing, multiple access schemes and inter-cell interference mitigation, channel estimation and newly developed channel models. Finally, a cost assessment and optimisation methodology is developed for different deployment concepts in order to assess a wireless system in a condition close to reality. The book provides an important system-level approach to the latest radio technologies in the field, and evaluates IMT-Advanced research in relation to international standardisation. . Presents the findings of research on IMT-Advanced radio interface from the WINNER project . Covers the latest concepts for relaying, spatial processing, multiple access, radio resource control, flexible spectrum use, and ITU-R spectrum demand calculation. Examines the most recent Multiple-Input, Multiple-Output (MMO) techniques, and Distributed Antenna Systems (Coordinated Multipoint Transmissions) . Describes a 4G system concept and all major building blocks. Provides 4G propagation models and system-level evaluation methodologies.