Part I  Overview of 5G Networks

An Overview of 5G Requirements ................................................. 3
Dajie Jiang and Guangyi Liu

Spectrum Analysis and Regulations for 5G ......................................... 27
Tan Wang, Gen Li, Biao Huang, Qingyu Miao, Jian Fang,
Pengpeng Li, Haifeng Tan, Wei Li, Jiaxin Ding, Jingchun Li,
and Ying Wang

Spectrum Sharing for 5G ............................................................. 51
Gen Li, Tan Wang, Qingyu Miao, Ying Wang, and Biao Huang

Part II  Transmission and Design Techniques for 5G
Networks

Massive MIMO Communications .................................................. 77
Trinh Van Chien and Emil Björnson

Millimeter-Wave Mobile Communications .................................... 117
Yi Wang and Zhenyu Shi

Non-Orthogonal Multiple Access (NOMA) for Future Radio Access ...... 135
Razieh Razavi, Mehrdad Dianati, and Muhammad Ali Imran

New Multicarrier Modulations for 5G .............................................. 165
Davide Mattera, Mario Tanda, and Maurice Bellanger

Fundamentals of Faster-than-Nyquist Signaling .............................. 203
Angelos D. Liveris and Costas N. Georghiades
Generalized Frequency Division Multiplexing: A Flexible Multi-Carrier Waveform for 5G ................................................ 223
Maximilian Matthé, Ivan Simões Gaspar, Luciano Leonel Mendes, Dan Zhang, Martin Danneberg, Nicola Michailow, and Gerhard Fettweis

Spectrally Efficient Frequency Division Multiplexing for 5G ............... 261
Izzat Darwazeh, Ryan C. Grammenos, and Tongyang Xu

Full-Duplex Wireless Communications for 5G ............................. 299
Mingxin Zhou, Yun Liao, and Lingyang Song

Device-to-Device Communications over 5G Systems: Standardization, Challenges and Open Issues ................................. 337
G. Araniti, A. Raschellà, A. Orsino, L. Militano, and M. Condoluci

M2M Communications in 5G ..................................................... 361
Jesus Alonso-Zarate and Mischa Dohler

Design Techniques of 5G Mobile Devices in the Dark Silicon Era .......... 381
Imed Ben Dhaou and Hannu Tenhunen

Part III Networking Techniques and Applications for 5G Networks

Ultra-Dense Network Architecture and Technologies for 5G ............... 403
Shanzhi Chen, Fei Qin, Bo Hu, Xi Li, and Jiamin Liu

5G RAN Architecture: C-RAN with NGFI .................................... 431
Chih-Lin I, Jinri Huang, Yannan Yuan, and Shijia Ma

User-Centric Wireless Network for 5G ........................................ 457
Yunlu Liu and Guangyi Liu

Energy Harvesting Based Green Heterogeneous Wireless Access for 5G ................................................................. 475
Hang Li, Chuan Huang, Fuad E. Alsaadi, Abdullah M. Dobaie, and Shuguang Cui

Resource Management in Sustainable Green HetNets with Renewable Energy Sources ..................................................... 503
Ran Zhang, Miao Wang, Lin X. Cai, Yu Cheng, Xuemin (Sherman) Shen, and Liang-Liang Xie

Resource Allocation for Cooperative D2D Communication Networks ..... 531
Shankhanaad Mallick, Roya Arab Loodaricheh, K.N.R. Surya Vara Prasad, and Vijay Bhargava

Fog Computing and Its Applications in 5G .................................... 571
Longxiang Gao, Tom H. Luan, Bo Liu, Wanlei Zhou, and Shui Yu
A Conceptual 5G Vehicular Networking Architecture ....................... 595
Konstantinos Katsaros and Mehrdad Dianati

Communications Protocol Design for 5G Vehicular Networks ............ 625
Francesco Chiti, Romano Fantacci, Dino Giuli, Federica Paganelli,
and Giovanni Rigazzi

Next-Generation High-Efficiency WLAN ................................... 651
Nan Cheng and Xuemin (Sherman) Shen

Shaping 5G for the Tactile Internet ............................................. 677
Adnan Aijaz, Meryem Simsek, Mischa Dohler,
and Gerhard Fettweis
5G Mobile Communications
Xiang, W.; Zheng, K.; Shen, X.S. (Eds.)
2017, XV, 691 p. 273 illus., 226 illus. in color.,
Hardcover
ISBN: 978-3-319-34206-1