

References

- [1] ITU-R, Detailed specifications of the radio interfaces of international mobile telecommunications-2000 (IMT-2000), Recommendation ITU-R M.1457–11, February 2013.
- [2] ITU-R, Framework and overall objectives of the future development of IMT-2000 and systems beyond IMT-2000, Recommendation ITU-R M.1645, June 2003.
- [3] ITU-R, ITU paves way for next-generation 4G mobile technologies; ITU-R IMT-advanced 4G standards to usher new era of mobile broadband communications, ITU Press Release, 21 October 2010.
- [4] ITU-R WP5D, Recommendation ITU-R M.2012. Detailed specifications of the terrestrial radio interfaces of International Mobile Telecommunications Advanced (IMT-Advanced), January 2012.
- [5] M. Olsson, S. Sultana, S. Rommer, L. Frid, C. Mulligan, SAE and the Evolved Packet Core—Driving the Mobile Broadband Revolution, Academic Press, 2009.
- [6] 3GPP, 3rd generation partnership project; Technical specification group radio access network; Requirements for Evolved UTRA (E-UTRA) and Evolved UTRAN (E-UTRAN) (Release 7), 3GPP TR 25.913.
- [7] C.E. Shannon, A mathematical theory of communication, Bell System Tech. J 27 (July and October 1948) 379–423, 623–656.
- [8] J. Tellado and J.M. Cioffi, PAR reduction in multi-carrier transmission systems, ANSI T1E1.4/97–367.
- [9] W. Zirwas, Single frequency network concepts for cellular OFDM radio systems, International OFDM Workshop, Hamburg, Germany, September 2000.
- [10] Motorola, Comparison of PAR and Cubic Metric for Power De-rating, Tdoc R1-040642, 3GPP TSG-RAN WG1, May 2004.
- [11] S.T. Chung, A.J. Goldsmith, Degrees of freedom in adaptive modulation: A unified view, IEEE T, Commun. 49 (9) (September 2001) 1561–1571.
- [12] A.J. Goldsmith, P. Varaiya, Capacity of fading channels with channel side information, IEEE T. Inform. Theory 43 (November 1997) 1986–1992.
- [13] R. Knopp, P.A. Humblet, Information capacity and power control in single-cell multi-user communications, Proceedings of the IEEE International Conference on Communications, Seattle, WA, USA, Vol. 1, 1995, 331–335.
- [14] D. Tse, Optimal power allocation over parallel Gaussian broadcast channels, Proceedings of the International Symposium on Information Theory, Ulm, Germany, June 1997, p. 7.
- [15] M.L. Honig and U. Madhow, Hybrid intra-cell TDMA/inter-cell CDMA with inter-cell interference suppression for wireless networks, Proceedings of the IEEE Vehicular Technology Conference, Secaucus, NJ, USA, 1993, pp. 309–312.
- [16] S. Ramakrishna, J.M. Holtzman, A scheme for throughput maximization in a dual-class CDMA system, IEEE J. Sel. Area Comm. 16 (6) (1998) 830–844.
- [17] C. Schlegel, Trellis and Turbo Coding, Wiley—IEEE Press, Chichester, UK, March 2004.
- [18] J.M. Wozencraft, M. Horstein, Digitalised Communication Over Two-way Channels, Fourth London Symposium on Information Theory, London, UK, September 1960.
- [19] D. Chase, Code combining - a maximum-likelihood decoding approach for combining and arbitrary number of noisy packets, IEEE T. Commun. 33 (May 1985) 385–393.
- [20] M.B. Pursley, S.D. Sandberg, Incremental-redundancy transmission for meteor-burst communications, IEEE T. Commun. 39 (May 1991) 689–702.
- [21] S.B. Wicker, M. Bartz, Type-I hybrid ARQ protocols using punctured MDS codes, IEEE T. Commun. 42 (April 1994) 1431–1440.
- [22] J.-F. Cheng, Coding performance of hybrid ARQ schemes, IEEE T. Commun. 54 (June 2006) 1017–1029.

- [23] P. Frenger, S. Parkvall, and E. Dahlman, Performance comparison of HARQ with chase combining and incremental redundancy for HSDPA, *Proceedings of the IEEE Vehicular Technology Conference*, Atlantic City, NJ, USA, October 2001, pp. 1829–1833.
- [24] 3GPP, 3rd generation partnership project; Technical specification group radio access network; Physical Channels and Modulation (Release 8), 3GPP TS 36.211.
- [25] 3GPP, 3rd generation partnership project; Technical specification group radio access network; Multiplexing and Channel Coding (Release 8), 3GPP TS 36.212.
- [26] 3GPP, 3rd generation partnership project; Technical specification group radio access network; Physical Layer Procedures (Release 8), 3GPP TS 36.213.
- [27] 3GPP, 3rd generation partnership project; Technical specification group radio access network; Physical Layer - Measurements (Release 8), 3GPP TS 36.214.
- [28] ITU-R, Requirements related to technical performance for IMT-Advanced radio interface(s), Report ITU-R M.2134, 2008.
- [29] 3GPP, 3rd generation partnership project; Technical specification group radio access network; Requirements for further advancements for Evolved Universal Terrestrial Radio Access (E-UTRA) (LTE Advanced) (Release 9), 3GPP TR 36.913.
- [30] 3GPP, 3rd generation partnership project; Technical specification group radio access network; Evolved universal terrestrial radio access (E-UTRA); User Equipment (UE) Radio Access Capabilities, 3GPP TS 36.306.
- [31] IETF, Robust header compression (ROHC): Framework and four profiles: RTP, UDP, ESP, and Uncompressed, RFC 3095.
- [32] J. Sun, O.Y. Takeshita, Interleavers for turbo codes using permutation polynomials over integer rings, *IEEE T. Inform. Theory* 51 (1) (January 2005) 101–119.
- [33] O.Y. Takeshita, On maximum contention-free interleavers and permutation polynomials over integer rings, *IEEE T. Inform. Theory* 52 (3) (March 2006) 1249–1253.
- [34] D.C. Chu, Polyphase codes with good periodic correlation properties, *IEEE T. Inform. Theory* 18 (4) (July 1972) 531–532.
- [35] J. Padhye, V. Firoiu, D.F. Towsley, J.F. Kurose, Modelling TCP reno performance: A simple model and its empirical validation, *ACM/IEEE T. Network.* 8 (2) (2000) 133–145.
- [36] 3GPP, 3rd generation partnership project; Technical specification group radio access network; Evolved universal terrestrial radio access (E-UTRA) and evolved universal terrestrial radio access network (E-UTRAN); User equipment (UE) conformance specification; Radio Transmission and Reception (Part 1, 2, and 3), 3GPP TS 36.521.
- [37] 3GPP, Evolved universal terrestrial radio access (E-UTRA); Physical layer for relaying operation, 3GPP TS 36.216.
- [38] 3GPP, 3rd generation partnership project; Technical specification group radio access network; Evolved universal terrestrial radio access (E-UTRA); User Equipment (UE) radio transmission and reception, 3GPP TS 36.101.
- [39] 3GPP, 3rd generation partnership project; Technical specification group radio access network; UMTS-LTE 3500 MHz Work Item Technical Report (Release 10), 3GPP TR 37.801.
- [40] 3GPP, 3rd generation partnership project; Technical specification group radio access network; Feasibility Study for Evolved Universal Terrestrial Radio Access (UTRA) and Universal Terrestrial Radio Access Network (UTRAN) (Release 7), 3GPP TR 25.912.
- [41] 3GPP, E-UTRA, UTRA and GSM/EDGE; Multi-Standard Radio (MSR) Base Station (BS) Radio Transmission and Reception, 3GPP TR 37.104.
- [42] 3GPP, E-UTRA, UTRA and GSM/EDGE; Multi-Standard Radio (MSR) Base Station (BS) Conformance Testing, 3GPP TR 37.141.
- [43] 3GPP, 3rd generation partnership project; Technical specification group radio access network; Evolved universal terrestrial radio access (E-UTRA); User Equipment (UE) Radio Transmission and Reception, 3GPP TR 36.803.

- [44] 3GPP, 3rd generation partnership project; Technical specification group radio access network; Evolved universal terrestrial radio access (E-UTRA); Base Station (BS) Radio Transmission and Reception, 3GPP TR 36.804.
- [45] 3GPP, Evolved universal terrestrial radio access (E-UTRA); User Equipment (UE) Radio transmission and reception, 3GPP TR 36.807.
- [46] 3GPP, Evolved universal terrestrial radio access (E-UTRA); Carrier Aggregation Base Station (BS) Radio transmission and reception, 3GPP TR 36.808.
- [47] 3GPP, 3rd generation partnership project; Technical specification group radio access network; Evolved universal terrestrial radio access (E-UTRA); Base Station (BS) Radio transmission and reception, 3GPP TS 36.104.
- [48] 3GPP, 3rd generation partnership project; Technical specification group radio access network; Evolved universal terrestrial radio access (E-UTRA); Base Station (BS) conformance testing, 3GPP TS 36.141.
- [49] FCC, Title 47 of the Code of Federal Regulations (CFR), Federal Communications Commission.
- [50] 3GPP, 3rd generation partnership project; Technical specification group radio access network; Evolved universal terrestrial radio access (E-UTRA); Radio Frequency (RF) system scenarios, 3GPP TR 36.942.
- [51] ITU-R, Unwanted Emissions in the Spurious Domain, Recommendation ITU-R SM.329–10, February 2003.
- [52] ITU-R, Guidelines for Evaluation of Radio Interface Technologies for IMT-Advanced, Report ITU-R M.2135–1, December 2009.
- [53] E. Dahlman, S. Parkvall, J. Sköld, P. Beming, 3G Evolution-HSPA and LTE for Mobile Broadband, second ed., Academic Press, 2008.
- [54] Ericsson, “Ericsson Mobility Report,” November 2015, <http://www.ericsson.com/res/docs/2015/mobility-report/ericsson-mobility-report-nov-2015.pdf>.
- [55] 3GPP, “3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Evolved Universal Terrestrial Radio Access (E-UTRA); Relay radio transmission and reception,” 3GPP TS 36.116.
- [56] A. Mukherjee, et al., System Architecture and Coexistence Evaluation of Licensed-assisted Access LTE with IEEE 802.11, ICC 2015.
- [57] 3GPP TR36.889, “Feasibility Study on Licensed-Assisted Access to Unlicensed Spectrum,” <http://www.3gpp.org/dynareport/36889.htm>.
- [58] ETSI EN 301 893, Harmonized European Standard, “Broadband Radio Access Networks (BRAN); 5 GHz High Performance RLAN.”
- [59] E. Perahia, R. Stacey, “Next Generation Wireless LANs: 802.11n and 802.11ac.” Cambridge University Press, ISBN 9781107352414.
- [60] Internet Engineering Task Force, RFC 6824, “TCP Extensions for Multipath Operation with Multiple Addresses.”
- [61] T. Chapman, E. Larsson, P. von Wrycza, E. Dahlman, S. Parkvall, J. Skold, “HSPA Evolution – The Fundamentals for Mobile Broadband,” Academic Press, 2015.
- [62] D. Colombi, B. Thors, C. Tornevik, “Implications of EMF exposure limits on output power levels for 5G devices above 6 GHz,” *Antennas Wireless Propagation Lett. IEEE* 14 (February 2015) 1247–1249.
- [63] ITU-R, IMT Vision – Framework and Overall Objectives of the Future Development of IMT for 2020 and beyond, Recommendation ITU-R M.2083, September 2015.
- [64] ITU-R, Future Technology Trends of Terrestrial IMT Systems, ITU-R Report ITU-R M.2320, November 2014.
- [65] ITU-R, Radio Regulations, Edition of 2012.
- [66] 3GPP, 3rd Generation Partnership Project; Technical Specification Group Radio Access Network; Study on Scenarios and Requirements for Next Generation Access Technologies, 3GPP TR 38.913.
- [67] IEEE, 802.16.1-2012 - IEEE Standard for WirelessMAN-Advanced Air Interface for Broadband Wireless Access Systems, Published 2012-09-07.

- [68] M. Akdeniz, et al., “Millimeter wave channel modeling and cellular capacity evaluation,” *IEEE J. Sel. Area. Comm.* 32 (6) (June 2014).
- [69] FBMC physical layer: a primer, <http://www.ict-phydyas.org>.
- [70] M. Jain, et al., Practical, Real-time, Full Duplex Wireless, *MobiCom’11*, Las Vegas, Nevada, USA, September 19–23, 2011.
- [71] M. AL-Imari, M. Imran, R. Tafazolli, Low density spreading for next generation multicarrier cellular system. *International Conference on Future Communication Networks*, 2012.
- [72] T. Richardson, R. Urbanke, Efficient encoding of low-density parity-check codes, *IEEE T. Inform. Theory* 47 (2) (February 2001).
- [73] E. Ankan, Channel polarization: A method for constructing capacity-achieving codes for symmetric binary-input memoryless channels, submitted to *IEEE Trans. Inform. Theory* (2008).
- [74] 3GPP TS23.402, Architecture enhancements for non-3GPP accesses.
- [75] J. Javadin, D. Lacroix, A. Rouxel, Pilot-aided channel estimation for OFDM/OQAM, *57th IEEE Vehicular Technology Conference*, Jeju, South Korea, April 22–25, 2003, pp. 1581–1585.
- [76] H. Nikopour, H. Baligh, Sparse Code Multiple Access, *24th IEEE International Symposium on Personal, Indoor and Mobile Radio Communications*, London, UK, September 8–11, 2013, pp. 332–336.
- [77] NGMN Alliance, NGMN 5G White Paper (17 February 2015).
- [78] Mobile and wireless communications Enablers for the Twenty-twenty Information Society (METIS), Deliverable D1.1: Scenarios, requirements and KPIs for 5G mobile and wireless system, Document ICT-317669-METIS/D1.1, Version 1, April 29, 2013.
- [79] 4G Americas, 4G Americas Recommendation on 5G Requirements and Solutions, October 2014.
- [80] IMT-2020 (5G) Promotion Group, 5G Visions and Requirements, White paper, 2014.
- [81] E. Semaan, F. Harrysson, A. Furuskär, H. Asplund, Outdoor-to-indoor coverage in high frequency bands, *Globecom 2014 Workshop – Mobile Communications in Higher Frequency Bands*, IEEE, 2014.
- [82] 3GPP TS 36.304: Evolved Universal Terrestrial Radio Access (E-UTRA); User Equipment (UE) procedures in idle mode.
- [83] F. Boccardi, J. Andrews, H. Elshaer, M. Dohler, S. Parkvall, P. Popovski, S. Singh, Why to decouple the uplink and downlink in cellular networks and how to do it, *IEEE Comm. Magazine* (March 2016) 110–117.