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Various Insights of Wireless Communication

Lavanya Vaishnavi D. A.¹ and Anil Kumar C²

Assistant Professor, Dept. of Electronics and Communication Engineering¹ Associate Professor and Head, Dept. of Electronics and Communication Engineering² R L Jalappa Institute of Technology, Doddaballapur, India lavanyavaishnavi@gmail.com and canilkumarc22@gmail.com

Abstract: Communication is a globally growing industry, In the past five years, we have seen more than 3 generation of communication technology. This paper is an effort to understand the insights of communication technology. The communication is simply the transformation of information from source to the destination. There are different generations of communication technologies this paper gives an insight on the different generation and the key aspects of communication. The major changes of the technology that affected the communication system is clearly mentioned and explained. The modulation methods used in the communication are QAM and OFDM, which have taken the communication technology to a different perspective. In reality, the theoretical standards are not yet achieved in the modern communication system. this is due to the interferences in the physical environment. This has created a research gap to analyse. The effort is to understand and summarise the key aspects of communication system.

Keywords: 4G, 5G NR,5G,BPSK, GPRS, GSM, LTE, Modulation, OFDM, QAM, QPSK

REFERENCES

- S. Nagul, "A review on 5G modulation schemes and their comparisons for future wireless communications," 2018 Conference on Signal Processing And Communication Engineering Systems (SPACES), Vijayawada, India, 2018, pp. 72-76, doi: 10.1109/SPACES.2018.8316319.
- [2]. Z. Ling, C. Liu and H. Li, "Wideband Patch Antenna Array for 5G Terminal Devices," 2020 IEEE 3rd International Conference on Electronic Information and Communication Technology (ICEICT), Shenzhen, China, 2020, pp. 610-612, doi: 10.1109/ICEICT51264.2020.9334228.
- [3]. F. Qin, Y. Ji, X. Sun and Z. Wei, "Research on Frequency Domain Channel Estimation Method Based on OTFS System," 2022 IEEE 6th Information Technology and Mechatronics Engineering Conference (ITOEC), Chongqing, China, 2022, pp. 973-978, doi: 10.1109/ITOEC53115.2022.9734656.
- [4]. P. Zhu, K. Zhu and L. Zhang, "Security Analysis of LTE-V2X and A Platooning Case Study," IEEE INFOCOM 2020 - IEEE Conference on Computer Communications Workshops (INFOCOM WKSHPS), Toronto, ON, Canada, 2020, pp. 532-537, doi: 10.1109/INFOCOMWKSHPS50562.2020.9162860.
- [5]. Seung-Ku Hwang, Deuk-Su Lyu and KyungHi Chang, "4G vision and technology development in Korea," International Conference on Communication Technology Proceedings, 2003. ICCT 2003., Beijing, China, 2003, pp. 26-27 vol.1, doi: 10.1109/ICCT.2003.1209028.
- [6]. Y. Yang, Y. Xie and W. Wang, "The Statistical-Sakagami Model for the 4G Mobile Communication Systems," 2010 Second International Conference on Networks Security, Wireless Communications and Trusted Computing, Wuhan, China, 2010, pp. 462-465, doi: 10.1109/NSWCTC.2010.115.
- [7]. S. Chen, S. Sun, Y. Wang, G. Xiao and R. Tamrakar, "A comprehensive survey of TDD-based mobile communication systems from TD-SCDMA 3G to TD-LTE(A) 4G and 5G directions," in China Communications, vol. 12, no. 2, pp. 40-60, Feb. 2015, doi: 10.1109/CC.2015.7084401.
- [8]. G. Kakkavas et al., "Demo Proposal: Tele-Operated Support over 4G/5G Mobile Communications," 2021 IEEE International Mediterranean Conference on Communications and Networking (MeditCom), Athens, Greece, 2021, pp. 1-2, doi: 10.1109/MeditCom49071.2021.9647643.

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- [9]. Q. Wu, "4G Communication Technology Wireless Network Secure Communication," 2021 International Wireless Communications and Mobile Computing (IWCMC), Harbin City, China, 2021, pp. 915-918, doi: 10.1109/IWCMC51323.2021.9498797.
- [10]. W. Yang and Y. Cai, "On the performance of the block-based selective OFDM decode-and-forward relaying scheme for 4G mobile communication systems," in Journal of Communications and Networks, vol. 13, no. 1, pp. 56-62, Feb. 2011, doi: 10.1109/JCN.2011.6157252.
- [11]. T. Ohya and T. Miki, "Enhanced-reality multimedia communications for 4G mobile networks," 2005 1st International Conference on Multimedia Services Access Networks, 2005. MSAN '05., Orlando, FL, USA, 2005, pp. 69-72, doi: 10.1109/MSAN.2005.1489945.
- [12]. "Fifth IEE International Conference on 3G Mobile Communication Technologies (3G 2004) The Premier Technical Conference for 3G and Beyond," Fifth IEE International Conference on 3G Mobile Communication Technologies, London, UK, 2004, pp. 0_3-.
- [13]. W. Hong et al., "Research Advances on RF Technologies for 3G/B3G Mobile Communications," 2007 IEEE/MTT-S International Microwave Symposium, Honolulu, HI, USA, 2007, pp. 121-124, doi: 10.1109/MWSYM.2007.380270.
- [14]. Z. Gao, F. Gao, B. Zhang, F. Ning and G. Zhao, "The Optical Integrative Switching networks supporting 3G mobile communications," 2009 IEEE International Conference on Network Infrastructure and Digital Content, Beijing, China, 2009, pp. 851-855, doi: 10.1109/ICNIDC.2009.5360802.
- [15]. S. Chen, S. Sun, Y. Wang, G. Xiao and R. Tamrakar, "A comprehensive survey of TDD-based mobile communication systems from TD-SCDMA 3G to TD-LTE(A) 4G and 5G directions," in China Communications, vol. 12, no. 2, pp. 40-60, Feb. 2015, doi: 10.1109/CC.2015.7084401.
- [16]. W. Anyi and W. Meifang, "Research on layout of wireless location application based on 3G platform," 2009 ISECS International Colloquium on Computing, Communication, Control, and Management, Sanya, China, 2009, pp. 127-129, doi: 10.1109/CCCM.2009.5268133.
- [17]. M. Haoyu, "The Study of the Electronic Gift Certificate System Based on 3G Mobile and RSA Encryption," 2010 International Conference on E-Business and E-Government, Guangzhou, China, 2010, pp. 4965-4968, doi: 10.1109/ICEE.2010.1247.
- [18]. S. Syarmila Bt Sameon, S. Yussof and B. N. Jørgensen, "Comparison between Communication Technology used in Smart Building," 2020 8th International Conference on Information Technology and Multimedia (ICIMU), Selangor, Malaysia, 2020, pp. 212-217, doi: 10.1109/ICIMU49871.2020.9243447.
- [19]. S. Chen, S. Sun, Y. Wang, G. Xiao and R. Tamrakar, "A comprehensive survey of TDD-based mobile communication systems from TD-SCDMA 3G to TD-LTE(A) 4G and 5G directions," in China Communications, vol. 12, no. 2, pp. 40-60, Feb. 2015, doi: 10.1109/CC.2015.7084401.
- [20]. F. Nisar and S. Baseer, "A Comprehensive Survey on Mobile Communication Generation," 2021 International Conference on Innovative Computing (ICIC), Lahore, Pakistan, 2021, pp. 1-6, doi: 10.1109/ICIC53490.2021.9692972.
- [21]. J. Lee and D. Chang, "Performance comparison of V2V communication based on LTE-D2D with cooperative schemes," 2016 International Conference on Information and Communication Technology Convergence (ICTC), Jeju, Korea (South), 2016, pp. 921-925, doi: 10.1109/ICTC.2016.7763331.
- [22]. Y. -y. Fang and C. -b. Wang, "Analysis on development status quo of science and technology in Taizhou City — Based on the comparison of 11 cities in Zhejiang province," 2011 International Conference on Electronics, Communications and Control (ICECC), Ningbo, China, 2011, pp. 3101-3103, doi: 10.1109/ICECC.2011.6068175.
- [23]. Y. Fang, G. Cai, G. Han, L. Wang and P. Chen, "Performance analysis and comparison of three multipleaccess DCSK cooperative communication systems over multipath fading channels," 2017 17th International Symposium on Communications and Information Technologies (ISCIT), Cairns, QLD, Australia, 2017, pp. 1-5, doi: 10.1109/ISCIT.2017.8261161.

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