Abstract

The 3GPP Long Term Evolution (LTE) technology provides higher system throughput over Broadband Wireless Access (BWA) telecommunication systems in order to meet the escalating demands of multimedia services. In such systems, the higher noise factor at the base station (eNB) degrades the system throughput, since the increase in noise factor at the eNB decreases the Signal to Noise Ratio (SNR) of the received signal. Thus the network deployment with lower noise factor at the eNB support higher system throughput and it is essential to provide high Quality of Services (QoS) in LTE networks. Hence in this paper, an attempt has been made to study and evaluate the effect of various noise factors at the eNB on system performance in uplink LTE network using QualNet 7.1 network simulator. The performance metrics considered for the simulation studies are spectral efficiency, system throughput, total numbers of data bytes received, total numbers of transport blocks received with errors, delay and jitter.

References
3. Westell Technologies
4. Purnachandar Poshala, Rushil KK, Robin Gupta, "Signal Chain Noise Figure Analysis” Texas Instruments Application Report, October 2014
5. Agilent Technologies “Agilent Fundamentals of RF and Microwave Noise Figure Measurements”, Application Note 57-1
6. Prof. Murat Torlak, “Path Loss” EE4367 Telecom. Switching & Transmission
7. Han-Nien Lin, Feng-Chia University, Taiwan, R.O.C., “Analysis of Platform Noise Effect on Performance of Wireless Communication Devices”
9. Wen-Bin Yang, Michael Souryal “LTE Physical Layer Performance Analysis”, NISTIR 7986
10. Ronell B. Sicat, Professor Tareq Y. Al-Naffouri, “Bit Error Probability Computations for M-ary Quadrature Amplitude Modulation”

**Index Terms**

Computer Science 

Networks

**Keywords**

3GPP, Spectral Efficiency, Throughput, Data Bytes Received, Delay, Jitter, SNR, MCS