# Survey of ICIC techniques in LTE networks under various mobile environment parameters

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**Abstract:**

LTE networks' main challenge is to efficiently use the available spectrum, and to provide satisfying quality of service for mobile users. However, using the same bandwidth among adjacent cells leads to occurrence of Inter-cell Interference especially at the cell-edge. Basic interference mitigation approaches consider bandwidth partitioning techniques between adjacent cells, such as frequency reuse of factor m schemes, to minimize cell-edge interference. Although SINR values are improved, such techniques lead to significant reduction in the maximum achievable data rate. Several improvements have been proposed to enhance the performance of frequency reuse schemes, where restrictions are made on resource blocks usage, power allocation, or both. Nevertheless, bandwidth partitioning methods still affect the maximum achievable throughput. In this proposal, we intend to perform a comprehensive survey on Inter-Cell Interference Coordination (ICIC) techniques, and we study their performance while putting into consideration various design parameters. This study is implemented throughout intensive system level simulations under several parameters such as different network loads, radio conditions, and user distributions. Simulation results show the advantages and the limitations of each technique compared to frequency reuse-1 model. Thus, we are able to identify the most suitable ICIC technique for each network scenario. © 2015, Springer Science+Business Media New York.