# ANALYSIS AND SIMULATION OF SELF-CONFIGURING FRACTIONAL REQUENCY REUSE (SCFFR) INTERFERENCE MITIGATION METHOD IN LTE FEMTOCELL RADIO PLANNING

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## ABSTRACT

Femtocell is a promising choice for cellular subscribers that able to increase network capacity and QoS (Quality of Service). However, in big scale, femtocell poses a serious interference issue whether it is co-tier interference or cross-tier interference. For mitigating the interference, self-configuring fractional frequency reuse (SCFFR) method can be a good method. The SCFFR shows that it can maximize the user satisfaction by allocating the frequency in a fair way so that the user can experience the similar throughput. The calculation is based on the parameter of power, SINR, cell throughput and user metric as a custom value to calculate the user satisfaction. The Fractional Frequency Reuse (FFR) also maximize the SINR in the femtocell deployment inside macrocell coverage where the interference only exists on the inner/outer borderline and the femtocell range overlaps the neighboring area. The research is simulated with WinProp Suite as the radio planning simulator and MATLAB for analytical tools.

Index Terms — SINR, throughput, user satisfaction, interference mitigation, femtocell, macrocell, WinProp, MATLAB

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