

UNIVERSITI TEKNOLOGI MARA

**INTERFERENCE MITIGATION USING POWER
CONTROL TECHNIQUE IN MACROCELL-
FEMTOCELL LONG TERM EVOLUTION-
ADVANCED (LTE-A) NETWORK**

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ABSTRACT

Mobile phones are becoming the most used communication tool today. Almost people were interested to have Fourth Generation (4G) phone in order to have good higher data rates communication and quality of services. Thus, Long Term Evolution – Advanced (LTE-A) has been created by 3rd Generation Partnership Project (3GPP) to provide more capacity, better coverage, higher throughput, reduced latency with less complexity and low installation cost. The use of femtocell is becoming increasingly vital due to their capability to provide increased system capacity compared to a homogeneous network (HetNet) of macrocells. However, because of femtocells are randomly deployed without the network planning, many users may enter femtocells coverage and lead to major interferences challenges. The objectives of this research is to analyse the handoff performance based on proposed scheme in macrocell-femtocell LTE-A network. Two methods are used in this research. First is drive test measurement by using Nemo Outdoor equipment in order to access the signal performance of a mobile radio network. By using the obtained result from the real measurement, second method is doing the simulation by proposing the power control technique in femtocell using MATLAB software. From the result, it can be observed that the proposed power control technique shows better result in enhancing the performance of power received and decrease hence reduce the interference between femto and macro BS.

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