

UNIVERSITI TEKNOLOGI MARA

**PERFORMANCE EVALUATION OF
RELAY DEPLOYMENT IN
LONG TERM EVOLUTION ADVANCED
(LTE-A) NETWORK**

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ABSTRACT

Normally, the cell-edged users in wireless network experiencing a low Signal-to-Interference-plus-Noise-Ratio (SINR). This problem will result in low signal strength and it will cause a bad performance for the overall system. Moreover, the small cell capacity and cell coverage will occur at the cell-edge. To support a high data services and applications it is required a peak data rate. The enhancement of the cell-edge capacity as well as cell coverage are the expectation that can be provided by Long Term Evolution Advanced (LTE-A). In this paper, a new scheme for an optimum Relay Node (RN) placement in LTE-A cellular network to enhance the coverage extension at cell-edges region is proposed. It is due to user with low SINR will hand over to the Relay Node (RN) and will efficiently utilize the system resources. Various LTE-A technologies including RN deployments have been studied to meet these requirements. To provide high data rates coverage with a minimum operator cost is the advantage of RNs. Algorithms to determine the minimum distance between users and both Base Station (BS) and RN and the signal strength received in the proposed scheme also provided. The simulation results indicate an improvement in signal strength for the deployment of fixed relays.

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