UNIVERSITI TEKNOLOGI MARA

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

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ABSTRACT

The use of wireless networks has progressively increased over the past years and it has become the most important medium for communication and cost efficiently. With the rapid development of mobile communication, mobile telephone users are expecting higher network capacity and good connection quality especially at the cell-edges, were users experiencing bad signal coverage because of small cell capacity and cell coverage. To support high volume data services and applications it is required a peak data rate. Long Term Evaluation-Advanced (LTE-A) has been created by 3rd Generation Partnership Project (3GPP) where the improvement of the cell edges capacity as well as cell coverage are the expectation provided. The objective of this research is to place relay node (RN) at poor signal area in LTE-A cellular network to improve the coverage extension region. This research is divided into two parts. First is drive test measurement by using Nemo Outdoor equipment in order to get real signal performance. Second is deploy relay nodes by using MATLAB software at low signal area as obtained by the measurement result. The analysis results indicate an improvement in signal strength and increase successful handover performance and hence improving the network capacity for the deployment of the relay nodes.

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