

## ABSTRACT

In mobile wireless propagation, fading is a major characteristic. There are two types of fading, such as small scale fading and large scale fading. Small scale fading is the rapid fluctuation of the signal strength received by the receiver at a distance and a very small time. This is due to multipath reflections that can cause various problems such as multipath fading, delay spread and doppler shift. Large scale fading is propagation models that estimate data about signal's strength to the transmitter and receiver range varied useful for estimating the coverage area of the radio transmitter.

In this thesis the authors performed simulations to see the effect of differences in distance and speed of the received signal quality Mobile Station (MS) in technology Long Term Evolution (LTE). Analysis for a distance of 0,5 km to 5 km and at a speed of 3 kmph, 15 kmph, 50 kmph and 120 kmph.

To simulate the difference of user speed, when the user speeds low (3 kmph) at 36,5 dB SNR obtained using QAM-64 modulation for the target BER  $10^{-4}$ , while at high speeds at 120 kmph, the target BER of  $10^{-4}$  are not met, this is because there are the influences of the Doppler effect in canal which causes a decrease in transmission quality in LTE. The simulation results for the difference of user distance show in signal level received at the LTE user best when the distance as far as 500 m with RSL -73,165 user and to distance 5000 m, the signal level down to the RSL -111,165 dBm.

**Keyword:** Long Term Evolution, Walfisch Ikegami, Pathloss, Doppler Shift, Bit Error Rate