

## ABSTRACT

*3G is the term used for mobile phone technology to the third generation system UMTS (Universal Mobile Telecommunication System) access method that uses WCDMA (Wide Code Division Multiple Access) technology is the development of second generation (2G). UMTS / WCDMA are designed to anticipate user demand on data transfer with a high bit rate, such as multimedia. So with the flexibility that include users, network operators and providers can realize a variety of technologies and new concepts are different. In order for user mobility in 3G services will need is met, it takes an accurate propagation channel model so that 3G networks can be well planned, especially to analyze the effect of the problems caused by multipath on the performance of 3G. The problem that can appear cause by multipath is fading multipath like the Doppler shift.*

*In this final project the authors studied the propagation channel modeling of 3G system is passed on Rayleigh channel by using one of the empirical propagation models, the COST 231 Walfish-Ikegami. This model is considered the most accurate modeling to describe the propagation of wireless mobile urban areas compared to other empirical propagation model for taking into account parameters such as high buildings between the transmitter and the user, the user's distance to the transmitter and the width of the urban area roads.*

*The simulation results show the performance of 3G mobile systems are best with a target BER of  $10^{-5}$  is at the user's speed 0 km / hours with  $E_b/N_0$  value is equal to 7 dB. LOS condition is best when the distance between the transmitter and receiver 1 km with a value of 108.62 dB path loss.*

**Keyword :** 3G, UMTS/WCDMA, Doppler Shift, Kanal Rayleigh, Walfish-Ikegami Cost 231.