ABSTRACT

Over the past few years, they have been growing interest in usage of *Code Division Multiple Access* (CDMA). Many systems such as IS_95 and UMTS use CDMA. CDMA posses many desirable qualities such as low power, good coverage, and capacity. Due to the excellent multicarrier modulation properties in the frequency selective fading channel, multi carrier techniques have began to gain popularity to developers. *Orthogonal Frequency Division Multiplexing* (OFDM) is one of the methods. To enhance the capabilities and accommodate the benefits of both system, a hybrid combination called MC-CDMA (*Multi-Carrier CDMA*) was developed.

In generaly, communication systems have 3 component, there are transmitter, receiver, and transmition media (*channel*). MC-CDMA system, in the receiver side need combiner block that usefull to restoring signal that received. There are many kinds of combining techniques that have been developed. In the implementation, adaptive RLS (*Recursive Least Square)* combining became interesting alternative, because the rate of convergence of the RLS algorithm is faster than another scheme combining.

On this final project *Analysis of Adaptive Equalization System with RLS Algorithm for Combining Technique on MCCDMA*. Whereas the analyze done in the worst condition using fading channel modelling that have *Rayleigh* distribution. The purpose are to known performance from RLS algorithm. Parameter of performance that will be compared are BER *(Bit Error Rate)* and SNR *(Signal to Noise Ratio),* considering only voice service that will be simulated. Beside of that, the simulation also looking for the influence of *subcarrier* and number of *user* to system performance.

From the result using 64 *subcarrier*, can be obtained for AWGN channel, adaptive combining RLS scheme be able to achieve BER = 10^{-3} when SNR = 5,7 dB. When through fading channel that contain of Rayleigh distribution, for the same *subcarrier,* RLS algorithm be able to achieve BER = 10^{-3} when SNR = 8,3 dB.