

## ABSTRACT

In digital communication system with modulation and demodulation of QPSK, quality of signal depend on distortion between in-phase and quadrature on QPSK is crosstalk. Limitation of bandwidth by filtering can cause signals (pulses) received overlapping that be defined Intersymbol Interference (ISI).It is also influenced by effect of time varying channel. This distortion will cause error in receiver, so that performance of communication system decrease.

These distortions can be minimized by using equalizer. Process of equalizer is very influenced by channel condition. The real, channel condition is not constant, but time varying. For overcome this phenomena, it can use adaptive equalizer. In this Final Project will be done analysis an adaptive equalizer system with Least Mean Square (LMS) algorithm and Time Varying Least Mean Square (TV LMS) algorithm. Adjustment value of filter weight is done ala adaptive, so that can result an optimal value. In this Final Project, adaptation of filter weight is done with use mean error for several bits.

From result simulation show that adaptive equalization system on QPSK with TV LMS algorithm has convergent rate is faster than LMS algorithm. Performance of adaptive equalization system is also influenced by step size parameter, number of filter tap, and rate varying of time varying channel. For system with LMS algorithm and number of tap is 2, adaptive equalization can not compensate ISI and crosstalk on channel rate is 100 times during transmission process. Beside that, number of bits for filter weight adaptation process is also influence stability (performance) of adaptive equalization system on QPSK.