

## ABSTRACT

OFDM ( Orthogonal Frequency Division Multiplexing ) is one of multicarrier modulation technique which can provides a high rate datastream transmission. . The basic principle of OFDM is to split a high rate datastream into a number of lower rate datastreams, than transmitted simultaneously over a number of orthogonal subcarriers. The way of separating high rate datastream into number of lower rate datastreams, makes the OFDM system more strong again multipath fading channels.

For enhancement the OFDM performances, many architecture had been stake. The one of OFDM performance enhancement method is called PO-CI/OFDM (Pseudo Orthogonal Carrier Interferometry/ OFDM). This method will be repaired the problem of OFDM as multicarrier system, specially ini highly PAPR (Peak to Average Power Ratio) problem. The negative effect is lower efficiency for amplifier, complexity Analog-to-Digital Converter (ADC) and Digital-to-Analog Converter (DAC). In implementation, negative effect from PAPR problem has result wasful battery in terminal mobile.

In this project will be analyze the performance of OFDM without PO-CI implemented and with PO-CI implemented at the AWGN and Rayleigh Multipath Fading Channel. The research will be show the performance of OFDM system in variaton subcarrier number and modulation.

The simulation result show that PO-CI/OFDM implementation can enhancement OFDM system performance, specially in Rayleigh Multipath Fading Channel. The PO-CI/OFDM simulation give 4,5 dB performace from conventional OFDM at BER  $10^{-2}$  and user mobile 100 km per hour with channel estimation.

Key words : OFDM, Pseudo-Orthogonal Carrier Interferometry, PAPR.