

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 more strong again multipath fading channels.

The spectral form of OFDM has sidelobe which can cause the energy of subcarrier signal will influence the other subcarrier. If we allow this thing happen, each subcarriers will not orthogonal to another anymore. This phenomenon usually call *Intercarrier Interference* (ICI). In OFDM is used cyclix prefix to cancel ICI.

In this final project will be analyze the performance of Polynomial Cancellation Coding to improve the spectral of an OFDM subcarrier in order to cancel linear distortion inter OFDM subcarriers. So cyclix prefix to cancel ICI in OFDM system will longer using.

The simulation result show that PCC-OFDM implementation can enhancement OFDM system performance in Rayleigh Multipath Fading Channel. At BER 10^{-3} and frequency Doppler 45 Hz PCC-OFDM simulation give 4,5 dB performance from conventional OFDM.

Keywords: OFDM, *Polynomial Cancellation Coding*, *Intercarrier Interference*