Abstract

OFDM, (Orthogonal Frequency Division Multiplexing) is a technic which use large subcarriers that orthogonal each other. The concept of OFDM is to split serial data with high bit rate into parallel data with lower bit rate. Then parallel data's carried by subcarrier which orthogonal each other. OFDM has some drawbacks such as susceptible with frequency offset error which caused by the broken orthogonality of the signal, thus resulting in Intercarrier Interference (ICI) and high Peak-to-Average Power Ratio (PAPR) thus resulting in high complexity in analog to digital converter and digital to analog converter and reduction of RF amplifier efficiency.

One of PAPR reduction method is use combination of selected mapping (SLM) with Discrete Cosines Transform (DCT). SLM technic is a probability technic that can be used for PAPR reduction. On SLM scheme, PAPR reduction is obtained by multiply a block of phasa sequence with origin data sequence, then the PAPR values which has lowest PAPR will be transmitted. While, on DCT transform, DCT transform is used to reduce autocorrelation of input sequence for reduce PAPR problem and this technic do not need side information which transmitted in receiver.

On this Final Project, from simulation and analysis result, PAPR reduction technic with combination SLM technic and DCT transform bring improvement for PAPR value about 0.62dB-0.65dB in lowest probability of CCDF (1%) than PAPR reduction technic with only use SLM. Combination SLM technic and DCT do not interfere the performance of BER in OFDM system. From analysis result, for BER 10^{-4}, ofdm system need EbNo 10dB while for OFDM sistem with PAPR reductor, either with $U=8$ dan $U=16$ need EbNo 12dB.

Keyword : PAPR, OFDM, Selected Mapping, DCT transform