

## ABSTRACT

Orthogonal Frequency Division Multiplexing (OFDM) is a transmission technique that use several subcarrier frequencies (multicarrier) which each subcarrier is orthogonal. OFDM can save fifty percent of the signal transmission bandwidth than the previous conventional techniques (FDM). The drawback in OFDM system is the large value of Peak to Average Power Ratio (PAPR) that caused by the superposition of the output signal from Inverse Fast Fourier Transform (IFFT) block on a certain phase in the time domain. PAPR which will reduce the efficiency of the system and amplifier, so we need a technique to reduce it. One of the method that can be used to reduce the PAPR value technique is Selective Mapping (SLM). Another technique that can be used to reduce the PAPR is Partial Transmit Sequence (PTS) and clipping methods.

This final project evaluating the PAPR reduction method using SLM method that will be compared its ability in reduce the PAPR value with Partial Transmit Sequence (PTS) method and clipping method. This final project will also comparing the BER performance in each methods that used to reduce PAPR value. Channel coding Linear Block Code (LBC) is used to know the influence in improving the BER performance on pure OFDM system (without SLM method) and the OFDM system with SLM.

The simulation results showed that LBC with code rate 4/11 produces better BER performance than code rate LBC 4/7 on pure OFDM system and OFDM system with SLM. In pure OFDM system, EbNo value on LBC (7,4) is 16.8 dB and the EbNo value on LBC (11,4) is 13.2 dB for BER  $10^{-3}$ . PAPR reduction on SLM method are influenced by iteration of phase multiplication (U), at U = 4 PAPR reduction is 3.55 dB and at U= 32 PAPR reduction is 5.45 dB. Based on the trade off between the ability of PAPR reduction and BER performance of the system, clipping method has better capabilities than SLM and PTS, but has the worst BER performance than PTS and SLM methods.

**Keywords :** OFDM, PAPR, IFFT, SLM, LBC, PTS, *clipping, code rate*