ABSTRACT

COFDM (coded Orthogonal Frequency Division Multiplexing) is a transmission technique that combines the error control coding and OFDM (Orthogonal Frequency Division Multiplexing). COFDM system has been in applied to many technologies such as DVB-T (Digital Video Broadcasting Terrestrial) because of the high spectrum efficiency, and is resistant to frequency selective fading. However, this system has a weakness, namely the level of PAPR (Peak to Average Power Ratio) is high. This resulted in reduced effectiveness of the HPA (High Power Amplifier), distortions in the band, and the radiation out of the band. Many methods can be used to reduce PAPR in OFDM systems such as the use of Huffman codes, clipping, and filtering.

In this final analysis of the influence of the implementation of COFDM, and the application of Huffman code combination method with clipping and filtering on the DVB-T system. The analysis conducted is to measure the performance of the simulated system with MATLAB software on the condition of AWGN and Rayleigh fading distributed based on the level of BER and PAPR level.

The simulation results show that systems that implement the DVB-T COFDM method have the performance and PAPR level is better than the system without COFDM DVB-T. From the simulation can be seen that the DVB-T system using COFDM result in improved performance of $\pm$ 3.4 dB for BER of 10-4 and a lower level of PAPR $\pm$ 4.72dB. Use a combination of Huffman codes with clipping and filtering, also resulted in increased optimal PAPR reduction is $\pm$ 5.10 dB.

Keywords = DVB-T, COFDM, PAPR, Huffman code, Clipping, Filtering