ABSTRACT

Information signal that is sent to the receiver based on the terrestrial system has a problem because of the interference that happened in channel. This problem occurs the information signal is also changes' resulting in channel response varies with time. To restore the information signal, the receiver needed a filter that can adjust the channel response. This process in the OFDM technique called channel estimation and equalization.

Channel estimation used in this thesis requires the pilot symbol insertion pattern into the data stream to the receiver side. The pilot symbols patterns are known both on the sender or receiver. Calculation of channel response using the inverse autocorrelation pilot symbols and cross correlation pilot symbols with reference symbol. This calculation used Wiener filter algorithm. Wiener filter is the optimum linear filter because it's able to provide the best performance in the filtering process.

In this final form compared DVB-T system with the process of channel estimation using Wiener filter algorithm and DVB-T system without the Wiener filter channel estimation process. Simulation and analysis of the influence of channel estimation is using a target bit error rate (BER) 10^{-3}. Based on the simulation, in the Doppler frequency 0 Hz EbNo repair using an estimate by the Wiener filter algorithm by 1 dB at subcarrier 8192 and 1.3 dB at subcarrier 2048. In speed 0 km / h, subcarrier 8192 has a maximum estimated Wiener performance at the order of 8. More and more number of orders, the performance of the channel estimation system will be increasingly.

Keywords: OFDM, channel estimation and equalization, Wiener filter, DVB-T.