ABSTRACT

Multiple Input Multiple Output (MIMO) technique is technique use multiple antennas at both transmitter and receiver. This technique can provide capacity of information is greater and also provide quality of information is better. To overcome the effect of frequency selective fading channel occur when the transmission data is very high, then this technique combined with OFDM (Orthogonal Frequency Division Multiplexing). The combination of both systems is often mentions as MIMO-OFDM.

In this final project, conducted research and analysis of comparative performance of SFBC scheme with STBC scheme on the MIMO-OFDM system. Both of scheme is MIMO diversity technique. SFBC scheme or STBC scheme requires knowledge of the channel estimation at the receiver. Excess of SFBC scheme can solve the problems of channel fading is changing rapidly. Channel fading rapidly changing due to movement of the user. The analysis was done by creating a simulation in MATLAB programs.

The simulation results show that the performance of SFBC MIMO OFDM system is better than STBC MIMO OFDM system when the user speed of 60 km / hour and using 256 subcarriers. To achieve the BER 10^{-4} SFBC scheme only requires EbNo 14.8 dB, while the STBC scheme requires EbNo 16.7 dB. Performance of STBC MIMO OFDM system is better than SFBC MIMO OFDM system when the user is not moving and using of 16 subcarriers. To achieve the BER 10^{-4} STBC scheme only requires EbNo 8.2 dB, while the SFBC scheme requires EbNo 9.3 dB.

Keyword : MIMO, OFDM, STBC, SFBC, Rayleigh fading, Subcarrier