

ABSTRACT

The growth of wireless communication demands to provide the high-speed data service (data rate) and wide bandwidth. Some techniques to cover this problem are by using multicarrier modulation OFDM and multiple antennas (MIMO). At OFDM, the effect of frequency selective fading will be felt flat fading by its every sub carriers. Besides that, the orthogonality of inter subcarriers gives possibilities of overlapping inter subcarrier to be occurred, so the bandwidth usage will be more efficient. Otherwise at MIMO technique, using multiple transmitter and receiver improves the communication system's performance by increasing the capacity or gaining the gain diversity. Unity between OFDM and MIMO system is known as MIMO-OFDM system.

Symbol detection process on MIMO-OFDM needs presences of channel information, so the channel estimator at receiver point would be needed. Channel estimator to be used should be able to follow the changes of the channel, because in wireless communication system the channel response is time varying.

On this Final Assessment, channel estimation on MIMO-OFDM system is analyzed by using MMSE method with adaptive LMS algorithm. With channel information update that occurs continually, expected the system performance would be improved.

Result of the simulation shows that optimum step size is 0.05, needed minimum pilot is 48 pilots, and needed SNR for channel error under 1% is 25dB.