Orthogonal Frequency Division Multiplexing (OFDM) is one of the strong prospects as a future wireless communication system. Improved spectral efficiency has been found in OFDM based on DFT, has a good orthogonality but inter symbol interference (ISI) and inter carrier interference (ICI) degrade the performance. ISI and ICI can be improved by using cyclic prefix (CP). About 20% of bandwidth is consumed by CP. For preferable performance DWT based OFDM gives better outlook than DFT based OFDM. Three advantages of using DWT are desirable signal to noise ratio, desirable data rate and below per power requirement are given by wavelet based OFDM. Comparison of performances of BER using practical channel model known as Stanford University Interim (SUI) is given in this paper. Consideration to QPSK, 4QAM, 8QAM, 16-QAM, 32QAM, 64-QAM, 128QAM and 256 QAM has been given in modeling. Channel condition and modulation are the pre-cursors given for the selection of particular
performance.

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