

ABSTRACT

Wireless digital communication system should be capable of maintaining high data rate service with a reliable quality of service (minimal BER and SNR). The emerging of high data rate services has caused higher bandwidth demand which will leads to multipath fading condition. Multicarrier CDMA was developed in 1993 to overcome this condition.

Multicarrier system allowed overlapping between orthogonal subcarriers so it has advantages in the usage of spectrum frequencies. Orthogonal Frequency Division Multiplexing (OFDM) is a special derivative of multi-carrier modulation. Wavelet OFDM is an OFDM with wavelet transform as alternative of common OFDM that uses Fourier transform. Wavelet OFDM offers high efficiency because wavelet filter has high spectral containment.

This final project will perform simulations using Matlab 7.1 to analyze wavelet OFDM's BER to SNR performance by using combination of Reed-Solomon coding and Convolutional Codes in Wavelet MC-DS-CDMA system.

Simulation results shows that by applying coding combination of RS(32,24) and CC(2/3), the errors happened can be corrected better than other coding techniques. BER 10^{-5} in the Wavelet MC-DS-CDMA system can be acquired with 10,56 dB SNR.

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