IMPROVEMENT OF BER PERFORMANCE IN THE MIMO-OFDMA SYSTEM FOR MOBILE WIMAX SYSTEM USING DIFFERENT EQUALIZATION ALGORITHM

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ABSTRACT

Combination of Multiple Input Multiple Output (MIMO) and Orthogonal Frequency Division Multiple Access (OFDMA) is implemented to offer the simple and high performance system as to increase channel capacity and serve high data rate. Even though the OFDMA concept is simple in its basic principle, but it represents one of the most challenging issues, which is synchronization that introduces the inter-symbol interference (ISI), which tends to degradations of signal performance. The goal of this paper is to provide a method to mitigate this ISI by placing the equalizers at the receiver end to improve the Bit error rate (BER) performance and at the same time, evaluate the different type of diversity, the Space-Time-Frequency Block Codes (STFBC), Space-Time Block Codes (STBC) and Space-Frequency Block Codes (SFBC) to achieve maximum diversity order in the system by using simulation based on the platforms of MATLAB software. The result will be shown that the BER performance is improved when implementing equalizer at the receiver and the STFBC is the maximum diversity order in the Mobile WiMAX system.

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