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Implementation of MIMO-OFDM system using V-BLAST ZF and V-BLAST MMSE detection algorithms

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Abstract

In this paper, MIMO-OFDM System is preferred as it is well-known for its wideband data transmission to extenuate interference and enhance system capacity. Zero Forcing (ZF) and Minimum Mean Square Error (MMSE) techniques are used as the MIMO-OFDM detection schemes at the receiver side to estimate the transmitted data symbols. Further, in order to yield higher accuracy, V-BLAST algorithm is implemented in colligation with Zero Forcing (ZF) and Minimum Mean Square Error (MMSE) techniques. This algorithm detects the most powerful signal and cancel its impact from the received signal. The simulations are done in MATLAB and the performance of the system is measured in terms of BER. As per the simulation analysis MIMO-OFDM system using V-BLAST MMSE detection algorithm gives better BER performance with high reliability and better Quality of Service (QoS).

Keywords

Multiple Input Multiple Output-Orthogonal Frequency Division Multiplexing [MIMO-OFDM]; Zero Forcing [ZF]; Minimum Mean Square Error [MMSE]; Vertical Bell Laboratories Layered Space Time [V-BLAST]

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