Abstract

The combination of multiple-input-multiple-output (MIMO) wireless technology with orthogonal frequency division multiplexing (OFDM) has been recognized as one of the most promising techniques to support high data rate, improved capacity, high performance, and reduced inter-symbol interference (ISI). The broadband channel is a typically non-line-of-sight channel and includes many impairments such as time-selective and frequency-selective fading, due to which MIMO-OFDM serves as a better solution. MIMO-OFDM system has various detection techniques such as ZF (Zero Forcing), MMSE (minimum mean square error), ML (Maximum Likelihood, V-BLAST (Vertical Bell Labs Layered Space-Time). V-BLAST detection undergoes SIC (successive interference calculation) technique which uses spatial multiplexing. This paper mainly focuses on SNR performances based on BER (bit error rate) of received MIMO signals by applying the V-BLAST algorithm. The algorithm was tested on ZF, MMSE, ML detectors at the receiver end of MIMO system with the help of MATLAB simulation. ML was found out to be the best configuration, and BNR improvement of 102 and SNR of at least 12dB can be easily achieved.
SNR Performance of Various MIMO-OFDM Detectors using V-BLAST

References


Index Terms

Computer Science Signal Processing
Keywords

MIMO-OFDM, V-BLAST, ZF, MMSE, ML, SIC