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Evaluation of the STBC coded MIMO-OFDM system's performance for WIMAX (IEEE 802.16) systems

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Abstract:

The evaluation of Space-Time Block Coding (STBC) in Multiple Input Multiple Output Orthogonal Frequency Division Multiplexing (MIMO-OFDM) systems for WiMAX (IEEE 802.16) networks is crucial for ensuring efficient data transmission in wireless communication. This study investigates the performance of STBC in enhancing the reliability and throughput of WiMAX systems. Through simulations and analysis, various parameters such as signal-to-noise ratio (SNR), bit error rate (BER), and throughput are evaluated under different channel conditions. The impact of varying factors like modulation schemes, antenna configurations, and channel models on system performance is assessed. Results demonstrate the effectiveness of STBC in mitigating fading effects and improving system robustness against channel impairments. Additionally, comparisons with non-STBC systems highlight the advantages of employing STBC techniques in MIMO-OFDM setups for WiMAX applications. Overall, this research provides valuable insights into optimizing the performance of WiMAX systems through the integration of STBC in MIMO-OFDM architectures.