

Mean Mutual Information Based Link Adaptation Algorithm for Cooperative Relaying in Wireless Systems

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Abstract:

We propose a link adaptation algorithm for cooperative transmissions in an OFDMA-based wireless system. The link adaptation method selects the transmission type (cooperative or noncooperative), the modulation orders and amount and type of redundancy required to ensure a target block error rate at each phase of the cooperative transmission. The above parameter-values are chosen so as to minimize the number of occupied time-frequency radio resources required to transmit the K-bit log data block. The algorithm employs a BLER performance prediction method based on mutual information. The proposed link adaptation algorithm has linear complexity with the number of available resource blocks, but still provides a very good performance, as shown by simulation results.