In broadband wireless communication, orthogonal frequency division multiplexing (OFDM) is used as a multi-carrier technique to combat the inter-symbol interference (ISI). Adaptive array antenna (AAA) can be combined with OFDM to reduce the effect of directional interferences. The optimum beamformer weight set is based on minimum bit error rate (MBER) criteria in pilot-assisted OFDM systems. The development of a block-data adaptive implementation of the MBER beamforming solution is based on the Parzen window estimates of probability density function. The Gradient Newton algorithm has been proposed to enhance the performance and increase the convergence rate speed, but at the expense of complexity. In this paper a block processing objective function for the MBER is formatted in three beamforming algorithm, Least MBER (LMBER), Newton Least MBER (NLMBER), and Block-Shanno MBER (BSMBER) are proposed on Pre-FFT OFDM system. Simulation results showed that the BSMBER algorithm structure had the lowest computational complexity, the best BER performance and the fastest convergence rate over the other algorithms.

References

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Block-Shanno Minimum Bit Error Rate Pre-FFT Beamforming for OFDM Communication Systems


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