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Research Article

Exploiting Redundancy in an OFDM SDR Receiver

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Abstract

Common OFDM system contains redundancy necessary to mitigate interblock interference and allows computationally effective single-tap frequency domain equalization in receiver. Assuming the system implements an outer error correcting code and channel state information is available in the receiver, we show that it is possible to understand the cyclic prefix insertion as a weak inner ECC encoding and exploit the introduced redundancy to slightly improve error performance of such a system. In this paper, an easy way to implement modification to an existing SDR OFDM receiver is presented. This modification enables the utilization of prefix redundancy, while preserving full compatibility with existing OFDM-based communication standards.