

A performance analysis of optimized semi-blind channel estimation method in OFDM systems

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Abstract — Nowadays, one of the effectively used technique in wireless communication area is an orthogonal frequency division multiplexing (OFDM). In OFDM systems, channel impairments due to multipath dispersive wireless channels can cause deep fades in wireless channels. Therefore, an accurate and computationally efficient channel state information necessary when coherent detection is involved in the OFDM receiver. Hence, it is essential to have a good channel estimation method for OFDM systems in wireless communication. And normally one of the good channel estimation methods is a semi-blind channel estimation. On the other hand, the semi-blind method requires a large number of processing operations. In order to avoid the high complexity of the existing method, the semi-blind channel estimation has been optimized. At the receiver side, we calculate subspace decomposition for blind channel estimation and further to improve channel estimation we use training based technique to estimate channel state information. Next we combine these channel estimations as semi-blind channel estimation methods and we optimized semi-blind channel estimation by choosing optimal technique for training based channel estimation.

Keyword—Semi-blind channel estimation, OFDM, least square and scaled LS



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