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低压窄带电力线载波通信的半盲式信道估计

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摘要：

针对低压电力线信道的频率选择性传输特性，提出一种半盲式信道估计方法，该方法使用一组在频域和时域上都等振幅的正交序列对正交频分复用发送信号进行预编码，仅利用一个导频子载波就能估计出所有子载波的频率响应。在低压电力线载波信道特性的实验研究基础上进行仿真，结果表明采用该方法能有效跟踪低压电力线信道的频率选择性衰落变化，从而明显改善信道的误码率性能。

关键词：

Semi-Blind Channel Estimation Based on Low-Voltage Narrowband Power Line Carrier Communication

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Abstract:

In allusion to the frequency-selective transmission characteristics of low-voltage power line carrier channel, a semi-blind channel estimation method is proposed. In the proposed method the transmitted orthogonal frequency division multiplexing signal is pre-coded by a set of orthogonal sequences with constant amplitudes in both time-domain and frequency-domain, so only utilizing one pilot sub-carrier the frequency response of all sub-carriers can be estimated. Results of the simulation based on the experiment research on channel characteristics of power line carrier communication system show that the variation of frequency-selective fading of low-voltage power line channel can be effectively traced by the proposed method can effectively track, thus the bit error rate performance of low-voltage power line carrier channel can be evidently improved.

Keywords:

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