

论文

基于高阶循环累积量的OFDM子载波盲估计

郑文秀, 赵国庆, 罗明

西安电子科技大学工程学院 西安 710071

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摘要

该文针对通信对抗和OFDM信号解调的实际应用, 提出一种利用高阶循环累积量估计OFDM信号子载波的方法。由于高阶循环累积量能有效抑制平稳噪声和非平稳高斯噪声, 通过理论分析可证明在上述噪声背景下, 子载波采用2/4PSK调制的OFDM信号的特定四阶循环累积量仅在子载波处存在, 因此可以通过检测此循环频率实现子载波的估计。该算法还可推广到采用星形QAM和高阶PSK调制的OFDM信号。仿真实验验证了该算法的有效性。

关键词 [通信对抗](#) [OFDM](#) [载波估计](#) [累积量](#)

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Blind Estimation of OFDM Sub-carrier Frequencies Based on the High-Order Cyclic Cumulants

Zheng Wen-xiu, Zhao Guo-qing, Luo Ming

School of Electronic Engineering, Xidian Univ., Xi'an 710071, China

Abstract

Aiming at the real application of the communication countermeasures and OFDM signal demodulation, a method is proposed to estimate the sub-carriers of OFDM signal using the high-order cyclic cumulants. Due to the fact that the high-order cyclic cumulants can suppress the stationary and non-stationary Gaussian noise, it is proved by theoretical analysis under the above noise background that the specific four-order cyclic cumulants of the OFDM signal with the 2/4 PSK modulation exist only at the location of its sub-carriers, so that the sub-carrier estimation can be implemented by detecting the cyclo-frequencies. The proposed method can also be popularized on the OFDM signal with star-QAM and high-order PSK modulation. And simulation proves the effectiveness of the proposed method.

Key words [Military electronic countermeasures](#) [OFDM](#) [Carrier estimation](#) [Cumulants](#)

DOI :

通讯作者

作者个人主页 郑文秀; 赵国庆; 罗明

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