عنوان مقاله:

A Robust Reduced-Complexity Spectrum Sensing Scheme Based on Second-Order Cyclostationarity for OFDM-Based Primary Users

محل انتشار:

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خلاصه مقاله:

One of the main requirements of cognitive radio systems is the reliable high-speed spectrum sensing. Recently, cyclostationarity-based detection methods, which are generally more complex than energy detection methods, have gained renewed attention because of their reliable detection performance in low-SNR conditions. In cyclostationary detection context, optimum GLRT-based method is a common approach. However, due to its extensive computational complexity, it has the wellknown drawback of implementation feasibility. In this paper, we propose a reduced-complexity spectrum sensing method for OFDM-based primary user sensing, which exploits the secondorder cyclostationary properties of OFDM signals. The proposed method has good detection performance and is robust against noise uncertainty. We show that the complexity of the proposed suboptimum method is significantly reduced, as compared with the GLRT-based scheme. In order to perform binary hypothesis testing, we also establish the asymptotic F distribution under the null hypothesis. Simulation results are presented to illustrate the detection performances of both schemes

کلمات کلیدی: