A performance analysis of a new periodogram for spectrum sensing

ABSTRACT

The cognitive radio is considered a best solution for the limited spectrum resources problem. The periodogram based energy detection can be used for spectrum estimation in cognitive radio. It does not need any prior information about the primary signal. This paper presents a new periodogram by using the Discrete Cosine Transform (DCT). In addition, it analyses and compares the performance with raw periodogram. The result reveals the DCT based periodogram is better than the traditional one due to its low variance. Consequently, the proposed system has a high probability of detection with low probability of false alarm even in case of lower SNR.