Adaptive Spectrum Sensing in Cognitive Radio Networks

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Abstract

The available radio spectrum is not used efficiently, therefore a new technology called Cognitive Radio (CR) is used to increase the spectrum utilization. The objective of CR is to use the available spectrum efficiently without any interference to the Primary Users (PUs). Spectrum sensing plays an essential part in cognitive radio networks inorder to obtain spectrum awareness. Energy detection, matched filter detection, cyclostationary detection etc are the most commonly used techniques for spectrum sensing. This paper proposes an Adaptive spectrum sensing technique in which a particular sensing method from matched filter detection, Energy detection or Wavelet based detection is chosen according to the information available and SNR of the received signal. This paper also investigates the performance of both Eigen value and Wavelet based sensing in low SNR regions.

References


Index Terms
Keywords

Cognitive Radio, Spectrum sensing, Energy detection, Eigen value, Wavelet, Matched filter