Abstract

Cognitive radio (CR) is an effective way to improve the utilization of spectrum resource. Spectrum sensing is playing an important role for finding free channels to be used by CR. One of the most critical issues in spectrum sensing is the interference on primary user (PU). In this work, a general optimal voting rule is studied to minimize the Bayes risk function in cooperative spectrum sensing. Furthermore, an algorithm to optimize the energy detection threshold for the CR users for any fusion rule is presented. On the other hand, an algorithm that determines the optimum fusion rule and optimum threshold that minimizes the false alarm probability while the missing probability is under constraint (bounded) is suggested.

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radio network over Rayleigh fading channel.

Index Terms

Computer Science 

Signal Processing

Keywords

Cognitive radio, cooperative spectrum sensing, Bayes risk function, optimization, energy
detector.