

论文

认知无线电系统中协同能量检测算法的性能研究

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摘要

该文首先研究了单认知用户能量检测算法的检测性能和检测灵敏度与检测时长和噪声短时间内平均功率波动性之间的关系, 得出检测性能和检测灵敏度随噪声短时间内平均功率波动性的增大而急剧下降的结论, 在低信噪比时尤为明显; 针对检测性能和检测灵敏度随噪声短时间内平均功率波动性的增大而急剧下降, 提出了基于多用户协同能量检测算法。仿真表明, 在低信噪比环境下, 即使噪声短时间内的平均功率存在较大的波动性, 只要适当地增加协同检测的用户数, 仍可获得较为准确的检测性能。

关键词 [认知无线电](#) [能量检测](#) [噪声平均功率波动性](#) [检测灵敏度](#) [协同检测](#)

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Energy Detection Algorithm Investigation Based on Cooperative in Cognitive Radio Systems

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Abstract

In this paper, detection performance and detection sensitivity with detection duration and noise average power fluctuation in short time is investigated firstly. Performance accuracy and detection sensitivity drop quickly with noise average power fluctuation increasing and it is worse when signal-to-noise ratio lower. Considering the characteristic, a novel new energy detection algorithm based on cooperative is presented. Simulations show that the proposed scheme improves antagonism of noise average power fluctuation in short time and gets a good detection performance as long as increasing the number of cooperative detection users.

Key words [Cognitive radio](#) [Energy detection](#) [Noise average power fluctuation](#) [Detection sensitivity](#) [Cooperative detection](#)

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