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Combined Approach to SSDF-Attacks Mitigation in Cognitive Radio Networks

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Abstract	Cognitive radio systems aim to solve the issue of spectrum scarcity through implementation of dynamic spectrum management and cooperative spectrum access. However, the structure of such systems introduced unique types of vulnerabilities and attacks, one of which is spectrum sensing data falsification attack (SSDF). In such attacks malicious users provide incorrect observations to the fusion center of the system, which may result in severe quality of service degradation and interference for licensed users. In this paper we investigate this type of attacks and propose a combined approach to their mitigation. On the first step a reputational method is used to isolate the initially untrustworthy nodes, on the second step specialized q-out-of-m fusion rule is utilized to mitigate the remains of attack. In this paper we present theoretical analysis of the proposed combined method.
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