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SIGNAL DETECTION IN COGNITIVE RADIO OVER FADING CHANNELS USING LOCALLY OPTIMUM DETECTION

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Abstract

In Cognitive Radio (CR) networks, reliable spectrum sensing is highly necessary to determine the presence of primary user(PU) in order to avoid interference from secondary users(SU).Spectrum sensing allows opportunistic secondary (unlicensed) users to access the spectral resources unused by their primary (licensed) owners. It is equally important to have trusted spectrum access methods even under low signal to noise ratio environments. To solve this issue, Locally Optimum (LO) Detection of random signals under weakly correlated noise model over fading (Rayleigh)channels is proposed. This method allows the detection of PU signal even under low SNR conditions where average probabilities are measured under different channel gains. On analysis, it can be seen that numerical and simulation results shows better results of the proposed method over known energy detection with certain complexities under correlated noisy environments.

Keywords

Cognitive Radio,Spectrum Sensing,Locally Optimum Detection,Correlated noise samples.