

## Performance of Nakagami Fading Channel over Energy Detection Based Spectrum Sensing

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**Abstract :** Spectrum sensing is the main feature of cognitive radio technology. Spectrum sensing gives an idea of detecting the presence of the primary users in a licensed spectrum. In this paper we compare the theoretical results of detection probability of different fading environments like Rayleigh, Rician, Nakagami-m fading channels with the simulation results using energy detection based spectrum sensing. The numerical results are plotted as  $P_f$  Vs  $P_d$  for different SNR values, fading parameters. It is observed that Nakagami fading channel performance is better than other fading channels by using energy detection in spectrum sensing. A MATLAB simulation test bench has been implemented to know the performance of energy detection in different fading channel environment.

**Keywords :** spectrum sensing, energy detection, fading channels, probability of detection, probability of false alarm

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