

# Empty Frequency Band Detection using Simulation Tool

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**Abstract:** Cognitive radio (CR) technology could be a promising thanks to improve the information measure efficiency of underutilized radio-frequency spectrum. Spectrum sensing is a vital thought in psychological feature radio. During a real time spectrum sensing energy detection is simplest technique of user detection; however its performance degrades with increase in SNR. The Match Filter Detection needs previous info concerning User for its detection. Therefore to beat noise downside and security problems Cyclostationary Spectrum Sensing technique is employed. Cyclostationary Detection (CD) uses the cyclic property of the signal for the user detection. These cyclic property area unit time variables as there mean and autocorrelation changes with time. These signals area unit referred to as Cyclostationary Signal. The noise is non-cyclic in nature therefore at the time of detection noise is eliminated. To beat the one node sensing issue and hidden node downside that arises because of channel impediments, cooperative sensing is getting used. This paper performs Cyclostationary spectrum sensing that is optimized by Frequency Accumulation technique

**Keywords:** Cyclostationary Detection, Frequency Accumulation Method, Energy Detection, Probability of detection