

ABSTRACT

In this era of technological has been development very significant, especially wireless technology that has been growing very rapidly and it is inversely proportional to the availability of the resource, which is a sufficient frequency spectrum allocation. Therefore, the presence of cognitive radio technology with spectrum sensing functions that are useful for detecting unused spectrum then be used for other users or secondary user to more efficiently and effectively.

Cognitive Radio is a new technology that allows the secondary user (unlicence) can use the primary spectrum user (license) whenever available. Spectrum sensing is affected by the time of detection of the primary frequency spectrum, to avoid their detection error. The longer sensing time, the more accurate the detection of the frequency spectrum. Thus, the possibility of interference from the secondary user will be smaller.

In this study, cognitive radio system will be designed to detect signals in the form of modulated signal PU Orthogonal Frequency Division Multiplexing (OFDM) with two different types of noise. The process will start with randomly generate OFDM signal with the sensing time is different. then it will be added to the noise power remains (Certain noise) and changing (uncertain noise) and each output will be used as input or input to a process of spectrum sensing to be performed by the method of covariance matrix to determine the detection performance with a second input the form -an distribution E. Upon detection results obtained, will be compared with the spectrum sensing method of energy detector and two outputs obtained during the sensing time will be compared throughput where better without ignore the results of the detection accuracy (probability of detection) ,

Keyword :*Cognitive Radio, OFDM, Energy Detector, Covariance Matrix, Sensing time, Throughput*