Abstract

Energy harvesting cognitive radio system where the secondary transmitter harvests energy either at transmitter or receiver end and it detects vacant channels from the used one and share it among the other users. This system operates under energy causality constraint it means average consumed energy should not exceed average harvest energy and collision constraint means the interference should not be occurred between the shared channels for protection of primary system. In this paper, we suggest a method to optimal pairing of sensing duration and energy detectors threshold to increase average throughput of the system by the use of energy harvesting system. To satisfy collision constraint, sensing duration must be kept smaller. Proposed algorithm use in this paper is Matched filter detection. The matched filter also referred to as coherent detector, is a sensing technique. It is very accurate since it maximizes the received signal-to-noise ratio (SNR). Matched filter correlates the signal with time shifted version and compares between the final output of matched filter and predetermined threshold will determine the PU presence.
Index Terms

Computer Science

Networks

Keywords
Cognitive radio networks  spectrum sensing  energy-harvesting  sensing duration  matched filter.