Abstract

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Multiscale Hilbert Transform Approach to Wideband Spectrum Sensing for Cognitive Radio Networks

Wideband spectrum sensing has been promoted to handle Cognitive Radio's spectrum allocation scenarios that are completely dynamic. Moreover, Cognitive Radio networks demand a fast and accurate wideband spectrum sensing in order to operate successfully and achieve efficient spectrum utilization. However, there are few existing techniques that employ edge detection as an approach to wideband spectrum sensing. Tn this paper, we propose an improved algorithm, based on a multi scale Hilbert transform, for wideband spectrum sensing. The proposed algorithm outperforms the existing counterparts. Tn addition, new performance measures are introduced and evaluated to provide accurate assessment of wideband spectrum sensing. Findings are verified using software simulation.