



Research Article



Optimal Multi Antenna Spectrum Sensing Technique for Cognitive Radio

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ABSTRACT

In this paper, we consider the primary user detection problem in cognitive radio systems by using multi antenna at the cognitive radio receiver. An optimal square law combiner multi antenna based spectrum sensing technique is proposed using the multitaper spectrum estimation method. The multitaper spectrum estimation method (MTM) produces single spectrum estimate with minimum spectral leakage and variance using an orthonormal family of tapers, the Discrete Prolate Slepian Sequences (DPSS). An energy detector (ED), which is simple, but has a poor performance at a low signal to noise ratio (SNR).

Keywords: Cognitive radio, spectrum sensing, multi taper spectrum estimation method, multi antenna spectrum sensing, ror.

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