

Spectrum sensing using multiple dual polarization antennas for cognitive radio systems in microcell environments

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- The use of multiple antenna techniques in CR is one approach for spectrum sensing by exploiting the available spatial domain observations
- Spectrum sensing with multiple antennas for cognitive radio systems is affected by the spatial correlation among multiple antennas
- To reduce the adverse effects of the spatial correlation on spectrum sensing performance, we employ multiple dual polarization antennas at the sensing node of secondary users

Sensing performance for spectrum sensing with multiple dual polarization antennas

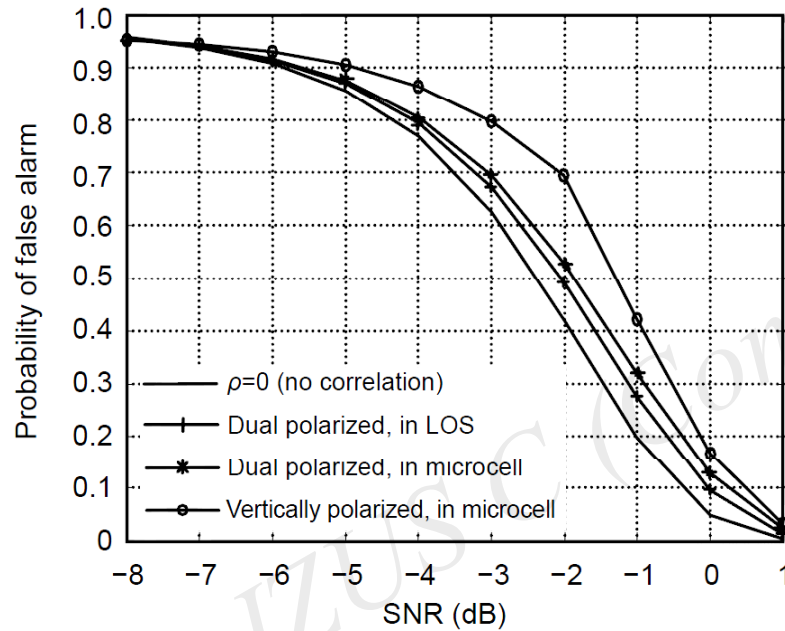


Fig. 4 Sensing performance comparison between spectrum sensing with multiple dual polarized antennas and conventional multiple antennas spectrum sensing

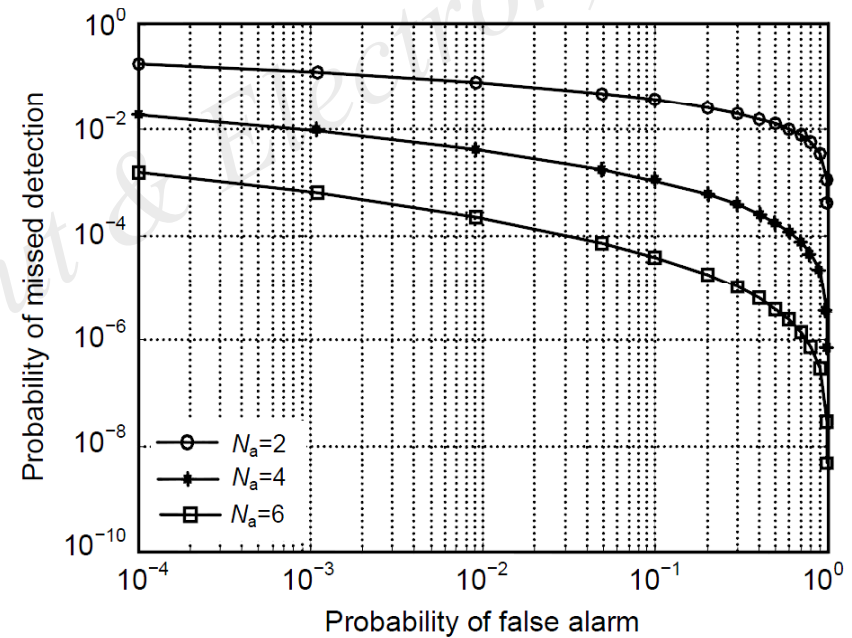


Fig. 6 The receiver operating characteristic (ROC) curves for spectrum sensing with two, four, and six dual polarized multiple antennas