International J.of Multidispl.Research & Advcs. in Engg.(IJMRAE),
ISSN 0975-7074, Vol. 2, No. I, April 2010, pp 395-410

EXPERIMENTAL PERFORMANCE STUDIES OF SWITCHED DIVERSITY MIMO ANTENNA IN A FADING SCENARIO

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Abstract

The recovery of good signal-to-noise ratio (SNR) is a vital study in the effective operation of wireless communication system especially when the signal propagates through some corrupted environments. Moreover propagation environment and antenna array configuration have significant effect on spatial correlation properties of multiple-input multiple-output (MIMO) antenna system. In this paper, the experimental studies with MIMO antennas are presented. An adaptive algorithm has been used to achieve the best signal in a fading scenario. Under different propagation scenarios the MIMO antenna structure with selection algorithm offers best SNR with least correlation to other antenna elements. Microstrip patch antenna has been used for transmission and reception of the multipath signals. The characteristics of the antenna has been studied using Zeland IE3D electromagnetic simulator. The results obtained from the experiments with proposed antenna selection algorithm have been compared with that of classical communication model (SISO).

Keywords: MIMO and SISO systems, Fading channels, Adaptive algorithm, Antenna diversity, Microstrip patch antenna. Common RF channel, IE3D Electromagnetic Simulator.