

Numerical Analysis of a Microstrip MIMO Antenna Array

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Abstract : In this paper, we present a simulation and design of a microstrip MIMO antenna array. The basic configuration is a microstrip patch antennas consist of a metallic patch on one side of the dielectric substrate with a ground plane on the other side. The antenna system consists of 2x4 radiating elements of similar geometry printed on a substrate. The designed antenna is excited using the microstrip feeding. The theoretical analysis is based on the finite difference time-domain (FDTD) method. In these analyses the characteristics of the MIMO antenna arrays are presented in terms of return loss, mutual coupling, gain and radiation patterns. The proposed antenna is simulated by using High Frequency Structure Simulator (HFSS). The designed antenna is suitable for MIMO systems operating for several WLAN applications.

Keywords : Microstrip antenna, MIMO system, Resonant Frequency, Radiation Pattern, FDTD Method.