14th IEEE Mediterranean Microwave Symposium

2014

Numerical Analysis of a Microstrip MIMO Antenna Array

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Abstract : In this paper, we present a simulation anddesign of a microstrip MIMO antenna array. The basic configuration is a microstrip patch antennas consist of ametallic patch on one side of the dielectric substrate with aground plane on the other side. The antenna system consists of2x4 radiating elements of similar geometry printed on asubstrate. The designed antenna is excited using the microstripfeeding .The theoretical analysis is based on the finitedifferencetime-domain (FDTD) method. In these analyses thecharacteristics of the MIMO antenna arrays are presented interms of return loss, mutual coupling, gain and radiationpatterns. The proposed antenna is simulated by using HighFrequency Structure Simulator (HFSS). The designed antennais suitable for MIMO systems operating for several WLANapplications.

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