

Performance Estimation of Two Port Multiple-Input and Multiple-Output Antenna for Wireless Local Area Network Applications

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Abstract : In the presented work, inset fed microstrip patch antenna (IFMPA) based two port MIMO Antenna system has been proposed, which is suitable for wireless local area network (WLAN) applications. IFMPA has been designed, optimized for 2.4 GHz and applied for MIMO formation. The optimized parameters of the proposed IFMPA have been used for fabrication of antenna and two port MIMO in a laboratory. Fabrication of the designed MIMO antenna has been done and tested experimentally for performance parameters like Envelope Correlation Coefficient (ECC), Mean Effective Gain (MEG), Directive Gain (DG), Channel Capacity Loss (CCL), Multiplexing Efficiency (ME) etc and results are compared with simulated parameters extracted with simulated S parameters to validate the results. The simulated and experimentally measured plots and numerical values of these MIMO performance parameters resembles very much with each other. This shows the success of MIMO antenna design methodology.

Keywords : multiple-input and multiple-output, wireless local area network, vector network analyzer, envelope correlation coefficient

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