

**SINGLE MICROSTRIP PATCH ANTENNA WITH APERTURE COUPLER
FED TECHNIQUE AT 2.4 GHz FOR WIRELESS COMMUNICATION**

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ABSTRACT

This paper presents the basic design of simulation and measurement of the single microstrip patch antenna with aperture coupler fed technique which operates at 2.4 GHz frequency. The microstrip patch antenna with aperture coupler feeding was designed and simulated using Computer Simulation Technology (CST) Microwave Environment Studio 2009 and to be used for wireless application. The basic designation is the aperture coupled microstrip antenna couples the patch antenna with microstripline through an aperture. The proposed antenna was fed by aperture coupler fed technique with Defected Ground Structure (DGS) at the middle on the ground plane of the antenna. The performance results of the designed and simulation antenna was analyzed in terms of return loss (S11) in dB, VSWR, radiation pattern and gain. The microstrip rectangular patch antenna with aperture coupler fed was fabricated on Fiber Reinforced (FR-4) with dielectric constant and thickness of 5.0 and of 1.6 mm respectively. The proposed antenna was measured in the Microwave Technology Center (MTC) laboratory using Vector Network Analyzer (VNA). The most effective way to increase the return loss is to optimize the patch size, feeder size and slot size. With the suitable chosen combination substrate and perfect match between them, it will give an optimum and the best improvement of the radiation pattern and gain. The simulated and measurement result are presented.

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