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# Analysis and Simulation of H-Shape Microstrip Patch Antenna using an Adaptive FDTD Method

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*Abstract* – **In this paper, the characteristics of a small antenna using an H-shaped microstrip patch are studied. Significant reduction in antenna size can be realized when the H-shaped patch is used instead of the conventional rectangular microstrip patch antenna. The theoretical analysis will carried out based on the finite-difference time-domain (FDTD) method, optimization of output of this microstrip patch antenna will done using Genetic algorithm scheme, in order to find best results. The FDTD programs can be develop and validate by available measurement results. The effects of various parameters of antenna on the resonant frequency and radiation patterns will use to carry results. Several design curves should be use, which are useful for practical antenna design. The current distributions on the patch and those on the ground plane are described together with the results illustrating the electric field distributions under the patch. This antenna is appropriate for applications where small size and broad beam-width are required.**

*Keywords* – **Microstrip Patch Antenna, FDTD, Genetic Algorithm Scheme.**

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