

# Simulation and Study of a Triangular Microstrip Patch Antenna

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**Abstract:** *This study considers the simulation and study of a probe fed triangular microstrip patch antenna developed on a FR4 type substrate. The antenna design is first simulated using Sonnet Lite™ electromagnetic (EM) analysis software. Sonnet Lite™ is memory limited free version of commercial Sonnet™ electromagnetic analysis tool. It is based on method of moments technique to solve electromagnetic boundary value problem. The simulation predicted antenna resonant frequency to be 2360 MHz, Return Loss bandwidth of 36 MHz and input impedance of 52.72 Ohm. The antenna is then studied for its return loss (RL), voltage standing wave ratio (VSWR) and impedance (Z<sub>in</sub>) to determine its resonant frequency. The antenna resonant frequency is found to be 2380 MHz and its return loss bandwidth to be 60 MHz. The antenna radiation pattern is then measured at 2380 MHz. The RL, VSWR and Z<sub>in</sub> of antenna predicated by Sonnet Lite™ are compared with their measurements which show a good agreement.*

**Keywords:** Microstrip Patch Antenna, Maxwell's Equations, Electromagnetic Simulation, Sonnet Lite™, Method of Moments

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