

A Compact Microstrip Antenna for Ultra-Wide Band Applications

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This project introduces new implementation and design of planar low profile antenna for UWB (Ultra-Wideband) applications. Our new microstrip antenna mainly consists of the partial conducting ground plane and the conducting elliptical patch, while having a fabrication dimensions of 41.95x21.2x1.27 mm, fabricated using Rogers substrate 5880-LZ. The selected ground length for our designed antenna is 10 mm, and the resulted impedance bandwidth of our designed antenna is between 3 and 10.75 GHz. S11 and VSWR for our antenna are obtained through HFSS simulation for different lengths of ground plane. Radiation pattern, antenna group delay and maximum antenna gain for our new antenna are analyzed and studied using variable resources. To ensure our simulation results, we take the project one step beyond and fabricate a prototype for testing. Experimental results from the fabrication along with simulation results obtained show an excellent agreement and perfect matching achieving the desired bandwidth.