

DUAL BAND MICROSTRIP PATCH ANTENNA

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Engineering (Hons.) Electronics (Communication)**

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ABSTRACT

This paper concentrates on designing a dual band microstrip patch antenna. The study involves two different frequencies which are 1.2GHz for Global Positioning System (GPS) and 2.4GHz for Wireless Local Area Network (WLAN) Industrial, Scientific and Medical (ISM) band applications respectively which these bands are standardized by Global Navigation Satellite Systems (GNSS) and IEEE 802.11b. The size of the antenna is 130mm x 131mm and simulated using Computer Simulation Technology (CST) software. Then the designed antenna is fabricated on a RT Duroid 5870 substrate with dielectric constant, $\epsilon_r = 2.33$, loss tangent, $\tan \delta = 0.0012$ and thickness, $h=0.787$ mm. The results of return loss (S_{11}), Voltage Standing Wave Ratio (VSWR) and input impedance of the designed antenna are compared between simulation and measurement. The measurement is done by using Vector Network Analyzer (VNA). From the simulation results, a good return loss and VSWR was obtained for both frequencies although there are some relative errors for 1.2GHz that is 16.96% and for 2.4GHz it is 1.08%. Meanwhile, in the measurement, the operating frequencies were same as in the simulation.

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