DESIGN AND SIMULATE A RECTANGULAR PATCH MICROSTRIP ANTENNA FOR BLUETOOTH SYSTEM

Project report is presented in partial fulfilment for the award of

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ABSTRACT

The main purpose of this project is to design, simulate, fabricate and measure a single rectangular patch antenna at microwave frequency range. This project used computer aided design (CAD) package for designing and simulation before the fabrication process of the designed antenna is being made.

The antenna was designed and simulated using CST Studio Suite 2006. CST Microwave Studio is a fully featured software package for electromagnetic analysis and design in the high frequency range. After the fabrication process, the antenna was measured using Vector Network Analyzer (VNA). The results obtained were compared with the simulation results. The antenna is designed to operate at Bluetooth system operating frequency of 2.4-2.484 GHz.

From the simulation results using CST Microwave Studio Suite 2006, the return loss is -21.84 dB and VSWR is 1.176 which is acceptable. Results from simulation using Genesys is also quite similar with CST Microwave Studio Suite 2006. As for the measurement, the result is slightly different compared to simulation. This is due to losses that occurred during transforming the design into hardware.

Keywords: Rectangular Microstrip Patch, Return Loss

TABLE OF CONTENTS