

BANDWIDTH ENHANCEMENT OF CIRCULAR PATCH ANTENNA

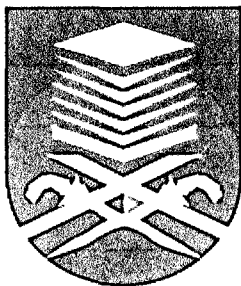
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ABSTRACT

This thesis focused on the bandwidth enhancement of Circular Patch Antenna (CPA) at resonant frequency 2.5 GHz for wireless application. Computer Simulation Tool (CST) software used to simulated the CPA design. First, the CPA was designed and simulate at resonant frequency 2.5 GHz. After the result achieved, two methods were used to enhance the performance of CPA. The first method is by adding passive element beside the patch. After the result obtained, it shows bandwidth enhancement from 31 MHz to 41 MHz. Second method is using U-shaped slot. From simulation result it shows that U-shaped slot enhance the bandwidth up to 41.7 MHz. After the simulation process, the CPA was implemented onto FR-4 material with thickness 1.6 mm and dielectric constant 4.3. Vector Network Analyzer (VNA) was used to measure the S_{11} of antenna and bandwidth. The simulation and fabrication both were then compared and analyzed. It is shows that both methods enhance the performance of CPA and by using U-shaped slot it enhance the performance of CPA more than using passive element.

Keywords: Circular Patch Antenna, CST microwave studio, simulation, substrate FR4

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