ABSTRACT

The aim of this final project is to create a rectangular microstrip antenna with the aim of increasing the antenna bandwidth. Designed using two methods, namely proximity coupled and DGS, to compare them. With a bandwidth of >1 GHz and an omnidirectional radiation pattern, this antenna is designed to operate well at the 6.2 GHz frequency. An FR-4 dielectric substrate (εr = 4.3) with a thickness of 1.6 mm is used in this antenna design. The antenna simulation was carried out with the help of the CST Studio Suite 2019 program.

Results of the final simulation of the antenna designed using two methods, proximity coupled and DGS, with return loss, VSWR, bandwidth and gain parameters. In this simulation, it was found that these two methods can increase bandwidth and gain, with a bandwidth of 0.6175 GHz, return loss of -13.034 dB, VSWR of 1.573, and gain of 4.707 dBi

Results from measurements of antennas designed using two methods, proximity coupled and DGS, with return loss, bandwidth and radiation pattern parameters. This research found that there was an increase in return loss and bandwidth, with a bandwidth of -39.967 dB and an omnidirectional radiation pattern with a frequency of 6.2 GHz. Always make a difference between simulation results and measurements.

Increase in bandwidth = 406.6% and return loss = 95.22%. To improve the radiation pattern, when simulating the radiation pattern on a rectangular microstrip antenna, it only has the main radiating direction in one particular direction. Meanwhile, Omnidirectional has the main beam direction in all directions even though there is a little noise.

Keywords : *Microstrip antenna, proximity coupled, DGS, Radar C-Band, CST Studio Suite 2019, bandwidth, frequency, gain, VSWR, return loss, radiation pattern, omnidirectional.*