

ABSTRACT

Mutual coupling is an effect that causes a decline in the quality parameters of the antenna because of two or more antennas that were located too close together. Mutual coupling effects can cause changes in the parameters of both the antenna gain, return loss, coupling, and the desired radiation pattern. Mutual coupling effect is often happened in a region where there is works two or more communication portables with different frequency, such as Wifi and WiMax.

In this final project, conducted experiments and simulations of two equilateral triangle microstrip antennas with different frequency that is in 1.5 GHz and 1.7 GHz by varying the positions both of the antennas, and variations of the distance and angle using software Computer Simulation Technology (CST) version 2010, so that the simulation results can provide information about the effect of coupling between adjacent antennas, so as to obtain the closest distance and angle of the antenna configuration to get antenna configuration with the best performance.

The result of simulations show that position and distance between antennas influences parameter antennas such as gain, return loss, coupling, and radiation pattern. From the simulation results is known that the best stacking configuration of the antenna at an angle of 90° where the value of gain, return loss, and coupling at this point close to the current value of a single condition. The simulation results also show that the shortest distance to mutual coupling effects are very small at 2.2λ with a value of -22.42 dB return loss for antenna 1.5 GHz and -25.287 dB to 1.7 GHz antenna, other than that at this distance coupling values obtained for S21 and S12 of -81.65 dB -75.78 dB.

Keywords : two equilateral triangle microstrip antennas, gain, return loss, coupling, radiation pattern