

ABSTRACT

Antenna is very important device in wireless telecommunication world. In this modern era, not only acceptable parameters of antennas that we need, but also *smart antenna* that have reconfigurable beam capability. This type of antenna is potential candidate to be developed and researched.

Today, many electromagnetic devices simulator had been released in public that can help the telecommunication engineer for designing and analyzing electromagnetic devices include antennas. One of them is *HFSS (High Frequency Structure Simulator)* that has the high level accuracy. Designing and analyzing antenna devices using *HFSS* is not easy and simple, technique and capability using this application software is very important to gain the high level of validation result.

A few of microstrip patch antennas with reconfigurable disturbance switch had been simulated using *High Frequency Structure Simulator (HFSS)* and reported in this *final assignment*. Simulation result give recommendation for choosing the type of patch antennas to become *beamforming* antennas.

The simulation result shows that combination of disturbance switches on Fractal shape patch antenna give potential candidate to become *beamforming* antenna. One of the simulation result shows that fractal square patch antenna with reconfigurable disturbance switch which has width dimension of patch 6,72 cm, and width of gap between primary square and secondary square (*cutting*) 0,2 cm could work at two states at *frequency* 2,4 Ghz and limit of *VSWR* is less than 2, where each state gave the result *bidirectional of radiation pattern*.

The analyzing of this experiment and simulation of microstrip antenna is focused on *radiation pattern* and *return loss*.

Key Word : *HFSS, Mikrostrip Antennas, Disturbance switch combination, Radiation Pattern and VSWR*