

ABSTRACT

Along with the growing era, telecommunication technologies also continue to develop over the time. The need for data communications that are fast, reliable, and can be accessed anywhere become larger. Wireless communication technology that can be used as is WLAN and WiMAX solutions. To support both of these technologies required one of the existing devices on the communications system, it is antenna. So that its performance is better and multifunctional, the antenna system used Multiple-Input Multiple-Output (MIMO) dual band.

In this Final Project discussed about making a 4x4 MIMO microstrip antenna Sierpinski Carpet fractal shaped for WLAN and WiMAX applications at frequencies 2400 - 2483.5 MHz and 5730 – 5830 MHz. Design and simulation of antenna is done in CST 2010 software. After it is simulated and the results are in accordance with the specification, then we make a prototype and measure it directly. From the measurement results will be obtained the necessary parameters. The latter will do an analysis of the comparison between the simulation results and the measurement results.

The results obtained in this Final Project is a 4x4 MIMO microstrip antenna Sierpinski Carpet fractal shaped that works at a frequency of 2400 - 2483.5 MHz and 5730 - 5830 MHz. This antenna has a VSWR ≤ 2 , gain ≥ 6 dBi, unidirectional radiation pattern, elliptic polarization, and coupling ≤ -20 dB.

Key words: microstrip antenna, Sierpinski Carpet fractal, MIMO, WLAN, WiMAX