

## ABSTRACT

*Wireless communication technologies in the world is developed so rapidly and diversified. It developments will bring up the standard forms of new technology and increasingly sophisticated, as a result of these technological. One example of the tools used to support these technologies, namely the antenna. Antenna serves as the receiving and electromagnetic energy release that is very important in wireless communications.*

*In this final project, it has been designed and realized a microstrip antenna sierpinski carpet dual band that works on the operating frequency of 2450 MHz and 5800 MHz. With the dual band characteristics of this frequency , the antenna can be used to support communication W-LAN (Wireless Local Area Network) on ISM Band. Design process starts from a mathematical calculation, then this antenna design is simulated using Ansoft software HFSS 12. Manufacture prototype antenna made by photo etching process. And the final step is the measurement antenna.*

*This antenna is able to work on the working frequency of 2450 MHz with a bandwidth of 49MHz and 5800 MHz with a bandwidth of 561 MHz for VSWR below 2. Impedance are  $51\ 002 + j2.971\Omega$  at the working frequency of 2450 MHz and  $57\ 203 - j4.771\ \Omega$  at the working frequency 5800 MHz. Gain that are obtained 1924 dBi at the working frequency 2450 MHz and 2535 dBi at the working frequency 5800 MHz with the radiation pattern unidirectional. Thus, the antenna can be used for W-LAN applications.*

***Key words: microstrip antenna, ISM, sierpinski carpet, W-LAN***