

## **ABSTRACT**

*Satellite communication systems are able to compete with terrestrial radio communication systems and fiber optics. A satellite communication system can be said to be a communication system using satellites as repeaters. The satellite functions as an active repeater where the satellite amplifies the signal power received from the earth and the frequency translation process then retransmits a different frequency to the receiving earth station. Currently, many developed countries have launched nano satellites which are used for surveillance missions, maritime, observation of the earth's surface, to the military.*

*In this final project research, a printed yagi antenna is designed at a frequency of 2.45 GHz using FR-4 material for the Substrate component and copper for the conductor material for the driven, director and reflector.*

*From the results of the simulation carried out, the parameters that become the reference are obtained, namely the working frequency at 2.45 GHz, VSWR value of 1.51, Return loss -14.31 dB, Gain of 9.38 dB with Omnidirectional polarization. After the design of the antenna is carried out in the simulation, the realization of the printed yagi antenna is carried out. From the results of the antenna realization, measurements were made with the results of measuring a working frequency of 2.45 GHz, a VSWR value of 1.59, Return loss with a value of -12.86 dB, a gain value of 8.45 dB.*

*Here is a difference between the results of the antenna design by simulation and the results of the actual antenna by measurement. Differences in measurement and simulation results are caused by several factors such as antenna measurements not carried out in a room that conforms to standards, namely in an anechoic chamber, there are human and external errors when making measurements such as making measurements manually, there is loss in the cable, the antenna fabrication is not thorough so there are differences dimensions. Based on the results obtained from the simulation and measurement of the antenna can be used and applied in satellite communications*

**Keywords:** *Microstrip Antenna, Nano Satellite, RSPL*