

## **ABSTRACT**

This final project proposes the design of a microstrip antenna with a rectangular shape that is optimized using the parasitic method for ultra wideband at a working frequency of 1800 MHz. The parasitic method aims to widen the bandwidth and increase the gain value of the designed antenna. The type of substrate of the antenna to be fabricated is FR-4 with dielectric constant ( $\epsilon_r$ ) = 4,3, substrate thickness (h) = 1,6 mm, and tangent loss = 0,0265. From the simulation results, the bandwidth width is 392 MHz. In the measurement results using the parasitic method on rectangular patches that work at 1,800 MHz frequency with a return loss of -12 dB and a VSWR value of 1,679, but not obtained a wide bandwidth for ultra wideband, which is  $\geq 20\%$  of the 1,800 MHz frequency. Obtained triple band results, namely at a frequency of 1,809 MHz with a return loss value of -15.35 dB and at a frequency of 2,055 MHz with a return loss value of -20.97 dB. However, it is still in the frequency range during simulation, which is 1,789 MHz up to 2,121 MHz.

**Keywords:** *microstrip antenna, ultra wideband, parasitic, triple band*