

ABSTRACT

Antenna is one of the important components in a communication system that is able to convert electric current into electromagnetic waves and radiate into a vacuum or vice versa. There are various kinds of antennas, one of them is a microstrip antenna. Microstrip antennas have several advantages such as relatively small size, relatively inexpensive fabrication, thus making this microstrip antenna more effective and more efficient.

The development of Wireless Fidelity (*wifi*) at this time is very fast. Today's *wifi* users are scattered in various places around us to help complete our job, play games, and other things. IEEE has made standards to regulate the use of this wireless network. 802.11 is the IEEE standard for *wifi* at the 5.8 GHz frequency.

To support the standardization that has been set by the IEEE, in this final project, a 2x2 patch rectangular microstrip array antenna will be made with added slots such as the letter U to increase the bandwidth that works at a frequency of 5.8 GHz for *wifi*. This antenna has a unidirectional radiation pattern and linear polarization.

The Antenna that is realized has dimensions of 69.60 mm x 68.26 mm, it can work at a frequency of 5.9606-5.6724 GHz. This Antenna has a VSWR < 2 and a return loss of -18,279 dB. The gain produced by the Antenna is 7.6492 dBi. And this antenna has unidirectional radiation pattern and elliptical polarization.

Keywords: Array Antenna, *patch rectangular*, *wifi*, U-slotted.