

## ***ABSTRACT***

Antenna is one of important device in wireless communication term. Single patch microstrip antenna has narrow bandwidth and small gain characteristic. This final project discusses about the design of microstrip array antenna that work on two working frequencies or dual bands, 2.4 GHz and 5 GHz which can be applied to WiFi (Wireless Fidelity) according to the IEEE 802.11n standard.

The method used to get dual band frequency is by adding slots on the patch side. Array techniqu can solve the shortcomings of microstrip antenna that have a narrow bandwidth. Besides being able to widen bandwidth, array techniqu can also increase gain values.

This design uses a microstrip array antenna (arranged) with rectangular patches and the addition of slots on the patch side to obtain a different resonant frequency. The patch and groundplane material used is cooper which has a thickness of 0.035 mm, and for the substrate the material used is Epoxy Fr-4 which has a thickness of 1.6 mm and  $\epsilon_r = 4.4$ . The rationing technique uses the microstrip line rationing technique and will be compared with the EMC rationing technique. The results obtained in this final project are 4 element microstrip array antenna with feed line rationing technique that has better results if applied to WiFi. The antenna with this feed line unit technique has a bandwidth of 75 MHz - 184.4 MHz in accordance with the IEEE 802.11n standard and has a gain of 4.321 dB so that the goal is to increase the bandwidth value and large gain. Whereas in the EMC group, even though the EMC union technique has a very large gain of 11.54 dB, the bandwidth obtained is very narrow at 14.9 MHz - 27.5 MHz.

*Keywords: Microstrip Antenna, Dual Band, Array Antenna, WiFi, EMC, Microstrip Line*