

## **ABSTRACT**

*Microstrip antenna as one of the main components of wireless communication is one solution in compliance with the antenna design has a variety of advantages. One of the advantages of Microstrip antenna is a patch that can be modified to suit the needs of the user.*

*Double E shaped is one of the method to modify the microstrip antenna with some element variation so it can work in several different frequency in one device antenna. The design is done with use of an extra slot on the design as well as with supply the microstrip line feeds. .This final project have done a design, simulation, and realization of a double E shaped antenna with modified patch microstrip antenna working at a frequency of 2.4 GHz, 3.4 GHz, and 5.8 GHz . The design is done by using an extra slot on patch antenna using microstrip line supply feed. Using the CST Studio Suite to analyze the result, the results needs to meet the specification of Return Loss <- 10 dB, VSWR < 2, bandwidth 100 MHz for 2.4 and 3.4 GHz, 125 MHz for 5.8 GHz, gain > 3 dBi, unidirectional radiation pattern and linear type of polarization. The materials used for the substrate is FR-4 epoxy with the relative permittivity 4.4 and thickness of 1.6 mm.*

*As the measurements results showed this antenna generates a Return Loss in each of the working frequency of -11.72, -11,792, -21.33 with a value of VSWR 1,774, 1,683, 1,157. Impedance obtained 43.28 ohm, 43,082 ohm 34,112 ohm. Each gain of 3.47 dB, 3.51 dB, and 3.53 dB with 64.2 MHz, 67.52 MHz, and 100.08 MHz of bandwidth, unidirectional radiation pattern and ellips type of polarization.*

*Keywords: Double E shaped, microstrip, multiband*