

## ABSTRACT

Microstrip antenna is used because of its small shape and easy-fabricated, but microstrip antenna has several weaknesses, one of it's weaknesses is the narrow bandwidth. The solution to increase the bandwidth without significantly affecting other antenna's parameters is to add slots to the patch. In this final project the slot method that tested is U,C and G-shaped slot.

In this final project has been designed MIMO 4x4 and MIMO 8x8 antenna with substrate material Rogers 5880 / DUROID ( $\epsilon_r = 4.3$  and  $h = 0,254 \text{ mm}$ ). This antenna works at a frequency of 28 GHz. One technique to increase the bandwidth applied to this antenna is to add a slot in the patch. Adding slots to the patch will change parameters such as gain , polarization and radiation patterns, therefore a MIMO Antenna comparison with different slot forms has been established.

The results showed that U-Slot can not work for frequency 27.925 GHz and C-slot has better performance than G-Slot in increasing bandwidth. The occurrence of increased bandwidth caused in the microstrip slot antenna happens because of the decreased quality factor (Q) of the circuit. The decreased of quality factor will increase the bandwidth. In addition, the number of antennas also affects the increased bandwidth. The more antennas used to increase the bandwidth will be wider. This can be concluded from MIMO 8x8's bandwidth that wider than MIMO 4x4.

The results of the antenna's simulation show that the radiation pattern for MIMO 4x4 and 8x8 are unidirectional. The polarization for both antennas is elliptical and the gain are 11 dB and 14 dB, respectively.

***Keywords : Antenna, Microstrip, MIMO, Slot.***