

## ABSTARCT

Nowadays, development of communication technology is moving so fast along with the human need in various advancing fields. One of developing technology is radar technology. Radar is a system of electromagnetic wave that function to detect, measure distance, elevation and to map an object. Recently, incidents of violation occur in certain regions of territorial sea in Indonesia carried out by outsiders to take benefit of the wide territorial sea in Indonesia. It can be seen form many practices of illegal fishing undertaken by alien vessels to steal assets of waters in Indonesia, illegal immigrants, human trafficking, and fuel smuggling for aliens so on and so forth. This has caused a lot of loss for Indonesia. Thus, to cope these problems, Indonesia governments try to develop technology of radar. The radar will be designed as an antenna. Antenna can be defined as a transformator of guided wave that is passed through transmission line to become free space wave. Main function of antenna is as a releaser of electromagnetic energy to air or as a receiver of electromagnetic energy of free spaces.

In this final project has been designed a rectangular antenna mikrostrip array with frequency 9,4 GHz contains with the subtract Roger 5880 / Duroid (2,2). The process of designing this antenna was started by making the quantification toward parameter- antenna parameter, determined that antenna, designed by using the Software CST and making stimulation and realization for the antenna.

After designing, realization and quantification of antenna, we got the parameters that indicated that antenna can work based on the specification in the beginning which were the Gain = 21,4 dBi, VSWR  $\leq$  1,5, Impedance almost  $55,517999+j0,571636 \Omega$ , Bandwidth 60 MHz. The parameter that has been gotten, it can be concluded that antenna could operate with frequency 9,4 GHz for radar application.

*Key words: Mikrostrip, Array ,Radar , Duroid , Rectangular*