ABSTRACT

One way to improve the ability of government officials to monitor and secure the territorial waters of the Republic of Indonesia is the coast surveillance radar. This radar is used to monitor marine vessels so as to prevent actions that are detrimental to the Republic of Indonesia. Radar watchdog coast in Indonesia is still relatively small due to the large cost to meet radar needs. Medium Power Radar (MPR) is one of the radars that works for coast watchers. MPR works at S-Band frequency of 3 GHz and has specifications such as 50 MHz bandwidth, 10 dBi gain, 20 Mw power and linear polarization.

In this study the simulation and realization of the antenna will work on the S-Band Medium Power Radar (MPR). Antenna simulation using CST Microwave Studio software. The design of this antenna uses a microstrip antenna that has patch, substrate and ground layers. And the material used on the substrate is FR4 Epoxy. In the design of the addition of pertubation, the cutting technique at the edges of the patch antenna sides diagonally. Pertubasi carried out aims to change the direction of polarization and increase the gain on the antenna.

In this final project produces a 6 × 2 array antenna arranged in parallel with one source of supply. The addition of arrays is done to increase the Gain value and correct the direction and phase diagrams in the antenna. The resulting antenna can work in the center frequency range of 3 GHZ, which is in accordance with the S-Band frequency. And it has a VSWR value of 1.07, Return loss of -29.51, Gain of 10.304. Antennas also have elliptical polarization that is close to circular and omnidirectional polaradiation. From the results obtained in the design of the antenna already meets the specifications of the antenna that works on Medium Power Radar (MPR).

***Keywords**: MPR, Radar, Antena, VSWR*