Abstract

Indonesia has double times larger marine area than it vast archipelago. It make foreign vessels freely enter the territorial waters of Indonesia. Due to the limitations of the human senses, it's necessary to have technology to detect the presence of foreign ships. This technology is called RADAR (Radio Detection and Ranging). This tool can detect the presence of an object that utilizes electromagnetic waves at a certain distance exceeding the human visual sense. Radar works on the S-Band, great for rainy and foggy weather. One important component in RADAR is an antenna. Antenna is used to send and receive signals.

In this final project, to simplify the design process used simulation software CST 2014 to simulate microstrip antenna with circular shape patch using microstrip line rationing technique which has 8 elements made in composite. After the antenna design is realized and measured. Results of measurements of antenna parameters indicate that at frequency of 3 GHz, has a VSWR 1.035, -35.254 dB return loss, impedance is 48.455 Ω - j711,027 mΩ, and gain 11,975 dB, and bandwidth 166 MHz at the intersection of VSWR 1.5.

Keywords: Radar, Microstrip Antenna, Circular