ABSTRACT

Radio altimeter is a device that is very important in the world of aviation. In general, the radio altimeter antenna flight has a separate transmitter and receiver. Antenna that is required for radio altimeter system has to able to generate unidirectional antenna radiation pattern with a wide bandwidth. Microstrip antenna is chosen because of its advantages which are having a light period and easy to be fabricated.

This final project is to design and realize the microstrip antenna for the radio altimeter application. Designing process will be done using CST Studio Suite to obtain the desired characteristics through simulation. The antenna is designed to be able to work at frequency 4.3 GHz, has return loss < -10 dB, VSWR < 2, bandwidth 100 MHz, gain ≥ 9.25 dBi, unidirectional radiation pattern, and linear polarization. The used substrate is Rogers RT5880 that has relative permitivity ($\mathcal{E}_r$) 2.2 and thickness 1.57 mm.

The realized antenna in this final project has return loss -15.121 dB, VSWR 1.425, bandwidth 185.188 MHz, and gain 9.276 dBi. This parasitic microstrip antenna acquires unidirectional radiation pattern and linear polarization.

Keywords : radio altimeter, microstrip antenna, parasitic element