

ABSTRACT

Altimeter is an instrument for measuring altitude based on air pressure [17]. Measurement of altitude altimeter based MEA (mean sea level). If the air pressure is getting close to the ground, causes more inaccurate because the air molecules are extracted to the earth's gravity so air pressure altimeter is more accurate measurement is required if the position of the aircraft is at a minimum altitude is 11000 feet (flight level 130). Radio altimeter is a device that is in the airplane that serves to measure the altitude of the ground level^[14]. This altimeter using radio device and operates at center frequency of 4.3 GHz. Antenna sender and receiver of the device is usually separated. In practical use, the receiving antenna must detect the reflected signals coming from the runway, not directly from the transmitting antenna^{[18][14]}. The purpose of the separation of the sender and the receiver antenna is to avoid crosstalk effects^[14].

In this final task is to design and realize the microstrip antenna array with a proximity coupling portion of the radio altimeter applications. Designed used the CST Studio Suite 2014 software to get the characteristics through simulation. Antennas are designed to be able to work at center frequency of 4.3 GHz, the return loss <-10 dB, VSWR <2, a bandwidth of 100 MHz, $\geq 9:25$ dBi Gain, unidirectional radiation pattern and linear polarization. The substrate used is Rogers RT5880 which has a relative permittivity (r) of 2.2 and a thickness of 1.57 mm.

This antenna works on center frequency 4,3 GHz, VSWR 1,005, elliptic polarization, Gain 13,46 dB, and radiation pattern unidirectional, impedance 50,113,- $J228,123m\Omega$, Return loss -51,890 dB, effective bandwidth 286 MHz (4.175-4.461)MHz.

Keyword : Linear array antenna, proximity coupled, radio altimeter