ABSTRACT

Capturing video from the air is a very important requirement nowadays especially in information section. Capturing video over the air using UAV (FPV) has many benefits such as aerialshooting activities, helping to make aerialmapping or monitoring on a location. Making activities such as aerial video mapping sometimes require considerable distance. The problem is often found the performance of shooting video from UAV was not optimal due to the distance that does not reach the maximum capacity of the video transceiver.

In this study, designed microstrip antenna using perturbation techniques or truncated edge that cuts the edges of the circular-shaped patch at an angle of 315 ° and 135 ° to get to the axis of polarization LHCP ration. Feeding technique that used is a proximity coupled with the height of the upper and lower layers are made equal. The design process is using an antenna simulator-based Finite Integration Technique (FIT) with a substrate material FR-4 epoxy has a dielectric constant of 4.3 at a frequency of 5.8 GHz.

Results from this study indicate perturbation technique can modify the polarization of microstrip antenna into circularly polarized LHCP or RHCP with dimensional parameters that affect the circularity is width of patch (l), the depth of perturbation (tr), length of the feeding (pl), and the width of the ground (GH, GV). After designed, from the simulation results by using simulation software obtained 471,2 MHz impedance bandwidth on return loss <-10 dB. The Gain of the simulation obtained by 8,401 dB at the resonant frequency 5,825 GHz. In the measurement results obtained 605 MHz impedance bandwidth on return loss <-10dB with gain achievements is 8,098 dBi. The radiation pattern of microstrip antenna arrays is unidireksional. The polarization result is circular with an axial ratio is 0.7775 dB at the 5,825 GHz resonant frequency. According results of antenna measurement results can be applied to AV receiver module on UAV system especially in ground segment because the antenna has been suitable with system specification

Keywords : microstrip antenna , circularly polarized , first person view , UAV (Unmanned Aerial Vehicle)