ABSTRACT

The development of information technology about the surface of the earth is needed to support the management of natural resources. CP-SAR is remote sensing sensor that can be used to obtain high resolution images of earth without the intervention of the weather and light.

This study discusses circular patch 1×4 array linier antenna with 1.27 GHz frequency for CP-SAR. Antenna design is carried out at frequency of 1.27 GHz because it has better resolution through the canopy of vegetation and snow, besides that a 1.27 GHz frequency can produce useful information to distinguish characteristics from the earth's surface. Circular patch choice because it has a higher directivity and Array Antenna to increase gain. CP-SAR itself is a development of LP-SAR where CP-SAR is able to provide better performance by reducing the losses that occur during propagation, this allowing CP-SAR to be smaller than SAR when it can be used to improve the effects of faraday play.

Antenna design is done by simulation using software and realized with FR-4 Epoxy substrate with dielectric constant ε r = 4.6 and thickness h = 1.6 mm. On the simulation results the antenna works at 1.27 GHz middle frequency resulting in a gain of 7.45 dB, and an axial ratio of 2.2 dB so that this antenna is a circular polarized antenna. The result are antenna polarized on LHCP (Left Handed Circularly Polarized) at a frequency range of 1.27 GHz. In the realization of the antenna get the result of both return loss and VSWR values, the value of each result below -10 dB and 2, the value of return loss -14.47 dB and VSWR 1.46. in the realization measurement also obtained bandwidth of 87.5 MHz and a gain of 6.716 dBic.

Keywords : CP-SAR, L-Band, Antenna microstrip circular patch, Antenna Array