

## ***ABSTRACT***

Remote sensing technology is known as a technology that have broad benefits. Telkom University are developing remote sensing technology that used in the micro-satellite platform to get the image of the earth. The first mission is Remote Sensing Payload (RSPL) which uses camera technology. Then the system was developed with Synthetic Aperture Radar (SAR) which uses radar imaging technology. And the next mission is to develop a system Inter-Satellite Link (ISL), that is data communications between satellites to support the development of SAR Interferometry (InSAR) system. InSAR is one of the development of remote sensing technology to determine the geographic parameters such as surface topography, ground deformation and movement of ice (glaciers).

In the ISL system required a transmission medium such as an antenna. Design of antenna should have a circular polarization characteristics to overcome the effects of Faraday rotation that will create polarization loss factor (PLF), because due to rotations in the atmosphere.<sup>[2]</sup> In this final project, antenna was designed with triple proximity-fed to produce circular polarization.

Antenna was designed and simulated using assistive software and realized using *FR-4 Epoxy* as a substrate material with values ( $\epsilon_r = 4,3$  and  $h = 1,6$  mm). Antenna works at the frequency of the S-Band (2,4 to 2,45 GHz) which produces VSWR = 1,197, circular polarization (AR = 0,112 dB), gain = 5,314 dBi, unidirectional radiation pattern (HPBW  $\geq 80^\circ$ ), effective bandwidth  $\approx 50,5$  MHz, and the dimensions of antenna is (54 x 50 x 16,4 mm).

**Keywords :** Inter-Satellite Link (ISL), Microstrip Antenna, Micro-Satellite, Synthetic Aperture Radar (SAR), Triple Proximity-Fed, SAR Interferometry (InSAR).