

ABSTRACT

Until now, some SAR sensor has broadcast a linear polarization in the antenna system. Linear polarization is very sensitive to Faraday rotation in propagation in the ionosphere because the interaction between the electromagnetic waves and earth's magnetic field. This problem can resolve by using CP-SAR (Circularly Polarization Synthetic Aperture Radar). The goal of this sensor is to reduce the effects of Faraday rotation when radiation of electromagnetic wave spread to ionosphere.

To resolve these problem we can made antenna with specs for frequency in 1.27 GHz, impedance 500Ω , $VSWR \leq 1.5$, unidirectional radiation pattern, circular polarization gain, axial ratio $\leq 3\text{dB}$ with substrate FR-4 Epoxy has a dielectric 4.3, and proximity coupled microstrip feed.

In this final project compared two different shapes of the circle and the square patch. Then select the one with the best performance and fulfill the required specifications. Then the results show patch antenna with circular shape has the best performance and fulfill the required specifications. Circular patch antenna has a bandwidth of 27 MHz, radiation pattern unidirectional, axial ratio $\leq 3 \text{ dB}$ and Right Hand Circular Polarization (RHCP).

Keywords: SAR, circularly polarization, proximity coupled

