ABSTRACT

Global Positioning System (GPS) is a system capable of providing accurate position, speed, and time information. In order to get accurate results on GPS, an adequate receiving antenna is needed. This makes the authors want to do research on the shape of a triangular patch that works at the L1 frequency band 1575.42 MHz using Epoxy FR4 substrate with circular polarization, directional radiation pattern, VSWR < 2, and bandwidth ≥ 24 MHz.

In this final project, the antenna will be designed using CST Studio software based on predetermined dimensions, as well as adding truncated and slot methods to obtain circular polarization, and adding substrate thickness to increase bandwidth width. After getting optimal results in the simulation, then the antenna realization and measurements are carried out.

The results obtained in the simulation are VSWR on the L1 frequency band 1575.42 MHz with a value of 1.368, directional radiation pattern, circular polarization, and 41.4 MHz wide bandwidth. While the results of the antenna fabrication measurements obtained the VSWR value with an optimal frequency at 1581.42 MHz of 1.0711, directional radiation pattern, elliptical polarization, and a wide bandwidth of 40.54 MHz.

Keywords: microstrip antenna, GPS, triangular patch.