

ABSTRACT

GPS (Global Positioning System) is a system of navigation satellite and location determination on the earth. This system has function to give position information, 3D speed rate, and also the information of time continuously. One of this system segment is user segment that is consists of GPS satellite users in all over the world. The GPS receiver is needed to receive and process signals from transmitter in satellite. Generally, one of main component of GPS receiver is antenna. The use of antenna determines performance of GPS receiver device.

This research is purposed to design and realize an antenna in range frequency of 1555.42 – 1595.42 MHz for GPS receiver. Ring slot in shape and proximity coupled method in the feeder are used to achieve bandwidth that is larger than use of other antennas. For the dimension's design of square ring slot antenna, the calculation is done in theory and simulated by software Ansoft HFSS 9.2. The next process is manufacturing and measurement of the antenna. Required polarization is circular

Measurement defines that antenna can operate in GPS frequency operation 1575.42 MHz with VSWR of 1.1. Because of its compact, this antenna can be implemented for satellite communication system in GPS receiver. Achieved bandwidth is about 13.9% (1487.54 – 1706.45 MHz) in VSWR of ≤ 1.5 . The polarization is already close to be circular (AR=2.3 dB) and radiation pattern is bidirectional with gain of 4.55 dBi.

Key Word: Square Ring Slot Microstrip Antenna, Proximity Coupled Feed, GPS