ABSTRACT

The need for data access to obtain information freely is very much needed by the community, including the Indonesian community. The increasing need for internet must of course be balanced with the speed of data access that can meet that need. Long Term Evolution (LTE) is one of the solutions that can be offered for broadband telecommunications services because it has a downlink capability of up to 100 Mbps and an uplink of up to 50 Mbps. In the final project, a rectangular microstrip antenna design is proposed which is optimized using the Defected Ground Structure (DGS) method and a double layer that works at a frequency of 2.3 GHz. The DGS method aims to widen the bandwidth and the double layer method is used to increase the gain of the designed antenna. The type of substrate for the antenna to be used is FR4-Epoxy with a dielectric constant value = 4.3 substrate thickness = 1.6 mm. Based on the simulation results of the double layer DGS antenna at a frequency of 2.3 GHz, the Return Loss value is -18.911 dB, the gain value is 4.347 dBi, the bandwidth reaches 370.7 MHz, the radiation pattern is omnidirectional and has a total dimension of 50 x 50 x 27.6 mm. Based on the measurement results of the double layer DGS antenna at a frequency of 2.3 GHz, the Return Loss value is -12.91 dB, 3 dBi gain, unidirectional radiation pattern and the bandwidth is 205 MHz.

Keywords: *Long Term Evolution, Defected Ground Structure, Double Layer, Antena Rectangular*