

ABSTRACT

In the 20th century's telecommunications network is growing, one of them with their Fourth-Generation Network (4G) Long Term Evolution (LTE). LTE himself worked on many frequencies, one of which is the 1.8 GHz. To generate a frequency of 1.8 GHz. microstrip antenna used for a reason of microstrip antenna has the advantage of a compact with small dimensions, easily fabricated, easy to connect and easy to integrate with other devices. On Previous research has been Created 4G LTE at frequency 1.8 GHz for 4G LTE, so that in this study Created rectangular microstrip patch antenna with dual frequency at 1.8 GHz and 2.3 GHz with intention for Upcoming 4G technology will be used Frequency Spectrum at 2.3 GHz.

In this final project will be designed with a patch rectangular microstrip antenna and a rectangular slot to produce a dual band. The disadvantages of the microstrip antenna is the gain and bandwidth are not optimal, therefore at this time the final task used Electromagnetically coupled (EMC) power supply technique to generate a greater bandwidth.

The antenna is designed using software that features microstrip antenna design, then realized by using two substrates namely Rogers Duroid ($\epsilon_r = 2.2$ and substrate thickness = 1.57 m) and FR-4 Epoxy ($\epsilon_r = 4.6$ and substrate thickness = 1.6 m). From the realization obtained VSWR value 1,272 at 1,8 GHz frequency and 1,483 at 2,3 GHz frequency. Bandwidth 85 MHz (1,761 – 1,846) at 1,8 GHz frequency and 81 MHz (2,260 – 2,341) at 2,3 GHz frequency. With unidirectional radiation pattern at both frequency, gain value 5,04 dB at 1,8 GHz and 2,04 di 2,3 GHz.

Keyword: Antenna, Microstrip, Proximity Coupled, Electromagnetically Coupled, LTE, Dual Band