

ABSTRACT

The use of wireless technology is increasing because of the ease of communication anywhere and anytime. So many different types of transmitters are installed to increase the coverage area of wireless telecommunications services. Without realizing it there are so many free electromagnetic sources, especially the radiation results from various types of transmitters. So the research arises about electromagnetic energy harvesting where the free electromagnetic signal in the air is harvested to produce power in the form of DC.

In this final project realized wideband microstrip antenna with frequency band 900 MHz - 2.4 GHz which can be used for electromagnetic energy harvesting system. Antenna has function to receive free electromagnetic in the air in the form of AC (Alternating Current).

The realized antenna is a rectangular array 1x2 microstrip antenna using DGS (Defected Groundplane Structure). From the measurement results obtained bandwidth of 1.7145 GHz. The results of VSWR measurements at 900 MHz, 1.65 GHz, 1.8 GHz, 2.1 GHz and 2.4 GHz respectively are 1.27, 1.29, 1.79, 1.87, and 1.52. The gain measured at 900 MHz, 1.65 GHz, 1.8 GHz, 2.1 GHz and 2.4 GHz respectively are 2.09 dBi, 5.77 dBi, 5.75 dBi, 4.09 dBi and 4.47 dBi. The result of radiation and polarization patterns are omnidirectional and elliptical.

Keywords: Electromagnetic Harvesting, Microstrip Antenna, Array Antenna