

ABSTRACT

In recent years, there have been many technological developments in wireless systems, one of which is 4G LTE which produces electromagnetic energy or radio frequency waves. The waves are mostly in the environment, this is what gives rise to the energy harvesting system. Energy harvesting is a method of utilizing electromagnetic wave energy sources and converting them into DC power. This system requires a signal catcher and a rectifier circuit. The catcher of the signal is an antenna and the type of antenna in the form of a rectangular patch is commonly used. In this final project, it is focused on designing a 1x2 rectangular patch array microstrip antenna, the addition of the array method aims to increase the gain value of the antenna that works at a frequency of 2600 MHz. The simulation uses AWR Microwave Office 2009 software. The standard specifications that must be met are VSWR 1-2, return loss 10 dB and gain 4 dB. In addition, using the FR-4 Epoxy substrate, the value of the dielectric constant (ϵ_r) = 4.3, the thickness of the substrate (h) = 1.6 and the loss tangent = 0.0265. The results obtained from the dimensions of the antenna substrate 120 mm x 80 mm, namely VSWR of 1.019, return loss of -40.52 dB, gain of 8.041 dB and bandwidth of 504 MHz. From the simulation results, it is found that the matched antenna has a large gain and a wider bandwidth.

Keyword: energy harvesting, antena mikrostrip, array