

ABSTRACT

Natural resources in the current global situation are running low. There are so many studies that discuss energy harvesting or energy harvesting from renewable natural resources. One application of energy harvesting is the realization of an antenna rectifier system (rectenna). This final project is designing and experimenting with Rectenna at Multiband frequency using several working frequencies, namely 2.3 GHz, 2.4 GHz, 3.5 GHz and 5.5 GHz with rectangular patch shape using FR-4 Epoxy substrate with a value of $h = 1.6$ mm, loss tangent = 0.0265, and $r = 4.3$. which will be used for energy harvesting applications where the antenna used uses the log periodic array method so that it can work effectively and efficiently. The antenna used for energy harvesting requires two main parameters, namely a high gain in order to receive electromagnetic wave sources from a long distance and a unidirectional radiation pattern so that the antenna can focus on the emitted electromagnetic wave source. The simulation results that have been carried out on the CST Studio Suite 2019 software obtained a VSWR value < 2 , a return loss -10 dB, a gain > 4 dBi, and a unidirectional radiation pattern so that the antenna can focus on capturing RF signals to be used as energy harvesting applications. The addition of the log periodic array method used is proven to increase the gain on rectangular microstrip antennas so that the antenna can receive RF energy sources from a long distance which is good for energy harvesting applications.

Keywords: Multiband, Energy Harvesting, Gain, Log Periodic Array