

ABSTRACT

Energy needs up to now mostly expect only from fossils. Though fossil sources over time will be used up. One solution to overcome this problem is energy harvesting on radio frequency. Energy collection on radio frequency or commonly known as RF energy harvesting is the process of capturing RF energy that is emitted in the air, then absorbed and converted into electrical energy to be stored into energy storage devices and will then be used to supply devices with small power.

This final project discusses the design and manufacture of rectenna (rectifying antenna) for energy harvesting. Input from rectenna is an electromagnetic wave with an output in the form of DC. To determine the performance of the antenna and rectifier, a simulation is performed using software. Antenna microstrip designed with patch bowtie with a 1x2 array and groundplane modified with u-slot and rectifier using a 7 stage voltage multiplier topology with bat 46 scottky diode.

In this final project, the antenna with the return value after measurement is -18.445 dB. The VSWR value at the 2.4 GHz frequency is 1.29 and the gain is 2.798 dBi. An input -2 dB rectifier can produce an average output of 86.77 mV and the lower the frequency the greater the output of the rectifier. The measurement of rectenna with an average input of -26 dBm can produce an average output of 8,09 mV.

Keywords: Rectenna, Energy Harvesting, Schottky Diodes, Microstrip