

ABSTRACT

Energy harvesting is the process by which energy is derived from external sources such as solar or sun, heat, radio frequency (RF), and other electromagnetic waves that emit a signal. One of the devices that can be used to harvest energy is in the form of a rectifier which is integrated with the antenna. Antennas are used as catcher of free space electromagnetic waves, whereas wave rectifier or converter is used as an AC power signal that has been received by the antenna into an electrical signal DC.

In this final project is to design and realization of RF energy harvesting system with source antenna at the working frequency of TV UHF (470-806 MHz). The system was designed and realized in the form of the hand wave rectifier, a circuit which serves to convert the AC voltage into a DC power supply voltage. Rectifiers are designed and realized in the form of the type of full wave rectifier. The use of 4 pieces rectifier diode schottky type HSMS 2820 with filter capacitors to minimize the voltage ripple

From the test results obtained show that the rectifier circuit can convert the AC signal is obtained at the source into a DC power supply voltage. The data obtained in the measurement of the output voltage signal rectifier using an antenna type of double quad is equal to 0.954 volts on the measurement rectifier in indoor, 1.206 Volts on the measurement rectifier in outdoor, and using a television antenna at 2.604 Volts on measuring rectifier the working UHF frequency (470-806 MHz) TV signals. The output voltage rectifier obtained can turn on an LED as an indicator that the voltage has the form of a DC power supply voltage.

Keywords: Energy Harvesting, Rectifiers, Schottky Diodes