ABSTRACT

Endah Hijriani, *Design Rectifier At rectenna for Wireless Power Transfer In The frequency of 2.45 GHz. Thesis Jakarta, Education Studies Electronics Engineering Department of Electrical Engineering, Faculty of Engineering, State University of Jakarta, in 2017. Dr. Baso Maruddani, MT, Dr. Efri Sandi, MT.*

Increasingly technology is needed in energy supply or saving, Wireless Power Transfer System is a source for charging low power electronic devices, one of the easiest alternative energy sources because of its availability is access point (Wi-Fi).

Rectenna is a device that can be used to convert electromagnetic waves in the air into direct electric currents. Rectenna consists of an antenna and a rectifier circuit. Antenna is used to capture the electromagnetic waves emitted by RF sources. The power received by the antenna will be forwarded to the rectifier circuit, to be converted into direct current (DC).

This research aims to design, build, and measure Rectifier using the three-stage configuration at a frequency of 2.45 GHz using a simulation Software Advance Design System (ADS) in 2011 and measuring digital Multimeter, Multimeter Analog, Signal Generator, and Vector Network Analyzer (VNA).

On the results of the design simulated in ADS 2011 Software has met all specifications are expected at a frequency of 2.4 to 2.5 GHz with a value amounted to 2.027 Volt Output Voltage, S11 (Return loss) amounted to -31.529 dB and VSWR of 1.089 and Impedance ≈ 50Ω input is 50.022 - j4, 278

Based on the results of measurements at a frequency of 2.45 GHz Rectifier Output Voltage obtained by 54.8 mV, S11 (Return loss) amounted to -10.416 dB, and VSWR of 1.862. The second result *measurements rectifier used access point Wi-Fi at a distance 5 cm is 2,066 volt, while at 20 cm is 0,092 mV*

***Keywords** : Rectifier, Rectenna, Wireless Power Transfer, stage, Microstrip Line Matching Network, Single Stub, Dioda Schootcky, Output Voltage, Advance Design System (ADS) 2011, Multimeter digital, Signal Gener.ator, and Vector Network Analyzer (VNA). access point Wi-Fi.*