

ABSTRACT

High voltage direct current (DC) sources are widely used in electrospray and electrospinning. In a previous study a DC high voltage generator system was created using a step up transformer and a voltage folding using a box input signal and a 50Hz frequency. At the output of the voltage folding, voltage is up to 5kV but the current value is very low at 17 microamperes so that the power generated is 0.085 watts. The output voltage on the step up transformer is 503.1 VAC with a maximum power of 8.87 watts. In this study one part of the voltage generating system has been evaluated, namely the transformer. The efficiency of the transformer is sought by varying the shape of the signal and the variation in frequency values. This measurement system uses RIGOL DG1022 Function Generator, 150W OCL power amplifier and 5A non-CT transformer. The input signal at the transformer input and output will be evaluated using an oscilloscope. The signals used are sine, triangle and square signals. From the research results obtained the highest efficiency in the sine signal, then followed by triangular and square signals with values of 72.59%, 70.84% and 65.54%. Optimal frequencies for sine, triangle and square signals are 500, 100 and 50 Hz. From these results obtained the highest efficiency at a frequency of 500Hz using a sine signal that is equal to 72.59%.

Keywords: *Transformer, Transformer Efficiency, Power Amplifier, HVPS*