

## *Abstract*

*Losing a lot of blood when doing surgery using a conventional scalpel is the thing that should be avoided. The purpose of this study is to replace conventional scalpels with tools that utilize a high frequency regulated duty cycle which centered on one point. Researchers utilize the heat effects produced by high frequencies that are centered on one point, to be used for the process of surgery and coagulation in the body tissues as to minimize the occurrence of a lot of blood loss. Researchers utilize a 350 KHz high frequency which is set with a 6% on 94% off duty cycle and is equipped with 3 levels of power selection and forceps as a medium to concentrate the high frequencies at one point. The module design consists of a 350 KHz frequency generator, a pulse regulator circuit to adjust the duty cycle, a power regulator circuit as a power setting, a driver circuit to combine the frequencies with the set up power to produce different outputs in accordance with the settings, and the inverter circuit to raise the charge. In this study, after doing an oscilloscope measurement on the driver circuit, the average amplitude output obtained for each setting ( low, medium, and high) are 27.25 Vpp, 28 Vpp, and 28,625 Vpp. The results show that the bipolar unit electrosurgery module (coagulation) can replace conventional scalpels in order to minimize the occurrence of a lot of blood loss during surgery. However, the frequency generator and power selection are need to be increased more.*

*Keywords: Electrosurgery, Bipolar, Coagulation, Frequency, Power, Tissue*

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