

**DESIGN OF EXPERIMENT DEVICES FOR A STUDY ON THE
ELECTRICAL PROPERTIES OF SILICONE RUBBER**

**Thesis presented in partial fulfilment for the award of the
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**IN THE NAME OF ALLAH S.W.T, THE MOST GRACIOUS AND EVER
MERCIFUL**

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ABSTRACT

This paper describes the design of devices required in studying the breakdown strength and the electrical properties of the silicone rubber. The intended tests are the Impulse and AC Withstand Voltage. The withstand voltage is around 90 ~ 390 kV/cm. This can be interpreted as between 9 ~ 39 kV/mm. The silicone rubber need to be cut into a thin layer (1mm thickness) since the available Impulse Tester in the ITM's Pulsed Power Laboratory is only up to 32 kV. A cutting jig was designed for this purposes.

To conduct the actual test, a pair of electrodes needed to be designed. In report gathered, the usually employed is a pair of spherical electrodes embedded in the molded silicone rubber. This type is not possible to be conducted as the facility available in the laboratory does not warrant so. As an alternative, a pair of electrodes with Rogowski profile was designed for the testing through a computer simulation. The main apparatus including auxiliary fixtures for the AC Withstand are provided by a local Ring Main Unit manufacturer.

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