

DESIGN OF AN EQUIPOTENTIAL GROUNDING SYSTEM FOR PULSED POWER LABORATORY

Thesis is presented in partial fulfillment for the award of
Bachelor Degree in Electrical Engineering (Hons.)
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MOHD NADZRI BIN ABU BAKAR
School of Electrical Engineering
MARA Institute of Technology
40450 Shah Alam
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ABSTRACT

The objective of this project is to construct an equipotential ground in terms of grid system for the Pulsed Power Laboratory of the School of Electrical Engineering, ITM, Shah Alam. A room allocated for the laboratory is equipped only with a single-point grounding connected to the beam structure structure of the building.

High voltage impulse test give rise to high currents of several kiloamperes, and the rate at which the currents may change ranges between 10^7 to 10^9 ampere/second. If proper care is not taken, flashover or damage to control gear and risk of life to person can occur.

There is only a single point grounding for an existing grounding system for the Pulsed Power Laboratory. The total indoor grounding resistance is 0.2 ohm and outdoor resistance is 0.12 ohm, which fulfills the IEEE standard.

The Pulsed Power Laboratory grounding system has to be improved because the existing grounding is not practicable to a certain extent. A new design using multiple electrodes may require a connecting network, which is in it so effective that the original electrodes may be superfluous. So a Grid (Mesh) Grounding Method was used to improve our grounding in Pulsed Power Laboratory. The grid will serve the purposes of;

- i. a separate grounding system, isolated from the existing, or,
- ii. can be connected to the existing grounding system, if a lower resistance is required.

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In the name of ALLAH S.W.T, The Merciful, the Beneficent, the Almighty One. Praised to HIM alone for HIS endowment that renders the completion of this project.

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