DYNAMIC SIMULATION OF TRANSFORMERS

This thesis is presented in partial fulfilment for the award of the
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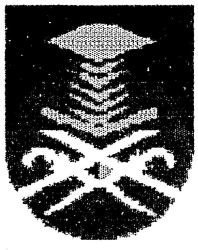

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In the Name ALLAH S.W.T

Most Gracious Most Merciful

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ABSTRACT

This project is about dynamic simulation of transformers' various connections using a simulation software program. It covers modelling of transformer and simulating its different types of connections namely two-winding transformer, autotransformers and three-phase transformer. Simulation and testing at different operating conditions for single-phase two-winding transformer such as short-circuit, open-circuit, *RL* and *RC* load terminations, in-rush current, dc-bias core saturation, and transformer load tests with the inclusion of core saturation are developed and performed. Ratio tests for autotransformers and three-phase transformer are also included in the simulations. Simulation and analysis of zero-sequence current components during balance and unbalance conditions for Delta-Wye three-phase transformer are included in the scope of this project. The results that were obtained through these simulations and tests are highly accurate and follow the actual characteristics and behaviour of actual transformers, such as development of inrush current, dc bias and harmonics in currents.

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