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TRANSIENT STUDIES IN A MODEL TRANSFORMER AND VALIDATION OF THE MODEL DEVELOPED USING ORCAD / PSPICE WITH TURN RESOLUTION PART – I, EXPERIMENTAL STUDY

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Abstract

The Paper presents an investigation on transient voltage distribution in transformers, which is of significance to all power system engineers. A better knowledge of this is possible with today's digital computers, for which a good modeling of the transformer is necessary. Using this information, the design engineers can develop a more reliable and possibly economic insulation structure which is the main issue affecting the cost of the transformer. Therefore, in this paper an attempt has been made to study the impulse response on a small model transformer for different types of pulses of varying frequency. The main objective of this paper is to show the significance of frequency and rise times for different types of pulses on transient voltage distribution in the model transformer. Also, transient response is studied on the model transformer with a high frequency pulse representing VFTO which comes into picture in GIS systems. Later in a companion paper, a transformer model is developed for the purpose of simulation with turn resolution, which is supposed to be the best approach.

Keywords : Transients, Voltage Distribution, High Frequency Pulses.