**Calculation of the current transformer core saturation time taking into account the nonlinearity of its magnetization characteristics.**

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This article presents a calculation of the transients in a current transformer during a short circuit by utilizing numerical integration of a system of differential equations with nonlinear coefficients, taking into account the core's magnetization characteristic. The calculated results are compared with experimental oscillograms, as well as with the outcomes derived from GOST 58669–2019 standards and simulations using the Real Time Digital Simulator. It is demonstrated that, in the considered scenario, the calculation according to the standard provides a relatively coarse estimation of the saturation time compared to the presented system of equations. This discrepancy arises due to the neglect of the non-sinusoidal nature of the magnetization current during the transient process.

*Key words: power system, relay protection, current transformer.*