

Measurement of asymmetric minor loops in soft ferrites up to medium frequencies

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Abstract-

An accurate measurement of the hysteresis cycle of magnetic cores is a crucial step in its characterization due to the importance that its nonlinear and past-dependent effects can have on the correct operation in most electric and electronic circuits. The measurements of asymmetric minor loops, in conditions where Foucault currents can be neglected, can be useful to train models. Performing such measurements only at very low frequencies is not a solution, given the need to identify dynamic parameters of the aforementioned models. In a previous paper, the authors proposed a method for measuring major loops of hysteresis cycles up to medium frequencies, given the limitation of the classic method when increasing frequency. The method, which has been improved in this paper, is tested by measuring nonsymmetric loops of the hysteresis cycle at medium frequencies. Simulated and experimental results are provided.

Index Terms- Ferrites, hysteresis, magnetic materials, measurement, nonlinearities

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