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Determination Of Magnetizing Characteristic Of A Single-phase Self Excited Induction Generator

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Abstract

The magnetizing characteristic of a Self Excited Induction Generator (SEIG) defines relationship between its magnetizing reactance and air-gap voltage. The characteristic is essential for steady state, dynamic or transient analysis of SEIGs as the magnetizing inductance is the main factor responsible for voltage build-up and its stabilization in these machines. In order to obtain essential data to get this characteristic the induction machine is subjected to synchronous speed test. The data yielded by this test can be utilised to extract complete magnetizing behaviour of the test machine. In this paper a detailed study is carried out on a single phase induction machine to obtain its magnetizing characteristic. The procedure of performing synchronous speed test to record necessary data has been explained in detail along with relevant expressions for the calculation of different parameters. The magnetizing characteristic for the investigated machine is reported in the paper.