

Influence of rotor position in FRA response for detection of insulation failures in salient-pole synchronous machines

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Abstract-

Frequency response analysis (FRA) is a very common test for the diagnosis of power transformers. This paper presents some relevant results on the application of FRA to the diagnosis of rotating machines. First, a reference rotor position for obtaining the reference FRA response of a rotating machine is proposed. Then, FRA with the proposed rotor position is used to identify faults in the stator of the machine. This paper studies turn-to-turn and ground faults in the stator for different fault resistance values. Several laboratory tests demonstrate the applicability and value of the use of FRA in the diagnosis of rotating machines.

Index Terms- Fault diagnosis, fault location, frequency response analysis, synchronous machines.

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