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Abstract

The success of health monitoring and condition assessment of power transformers based on winding current signature analysis lies on proper extraction of features. The extraction of features in turn depends on appropriate signal processing methods. Fourier based signal

analysis provides only frequency information and also suitable only for stationary signals. In this paper we present a combined Wavelet Packet Transform (WPT) and Hilbert Huang Transform (HHT) based time scale and time frequency analysis for the extraction of power transformer winding current features through an experimental study. The experimental work is based on short circuit test conducted on a 33 kV/11 kV, 10 MVA power transformer and axial winding deformation fault is introduced by loosening the bolts of winding structure. It is observed that Combined WPT and HHT offers better feature extraction strategy than analysis using HHT alone.

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Index Terms

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