

TIME-FREQUENCY ANALYSIS FOR DIFFERENT IMPULSE VOLTAGES

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ABSTRACT

The aim of this paper is to point out the advantages of the use of the time-frequency analysis in the digital processing of the waveforms recorded in the high voltage impulse tests. Impulse voltage tests are essential to inspect and test insulation integrity of high voltage apparatus. The measured waveforms in practice may contain oscillations and overshoots due to contribution of different noise sources. The different methods incorporating signal-processing method such as wavelets and Short Time Fourier Transform are proposed for failure identification. It is now possible to distinguish failure during lightning tests as well as chopped lightning impulse tests. The method is experimentally validated on a transformer winding. Obtained voltage waveforms usually have some sort of interferences originated from the different sources. These interferences have to be removed from the original impulse data in order to evaluate the waveform characteristics precisely. In this paper two impulse signal with and without shielding are given concerned with the methods used for the time-frequency analysis. Time-frequency analysis is powerful signal processing tool in order to recognize the noise of impulse voltage data. Thus the sources of the noise can be found and eliminated.