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IEEE Guide for Transformer Impulse Tests

IEEE Power & Energy Society

Sponsored by the
Transformers Committee

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Abstract: Transformer connections, test methods, circuit configurations, failure analysis of lightning impulse, and switching impulse testing of power transformers are addressed. This guide is also generally applicable to distribution and instrument transformers.
Keywords: digital recordings, IEEE C57.98, non-linear devices, switching impulse, transfer function, transformer impulse test

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Introduction

This introduction is not part of IEEE Std C57.98-2011, IEEE Guide for Transformer Impulse Tests.

Early in 1955 a Working Group was appointed by the Dielectric Test Subcommittee of the AIEE Transformers Committee to prepare an Impulse Test Guide for oil-immersed transformers. The present content of this guide is a consolidation of all the revisions that have occurred since then, revisions that introduced new developments in testing methods and new developments in impulse recording and fault detecting methods. In keeping with the continuing development of this Guide, additional sections are included in this edition on the testing of transformers that include non-linear devices, the use of digital impulse recording systems, and an Annex on the advanced processing of digital records and the application of the transfer function algorithm.

Contents

1. Overview 1
1.1 Scope 1
1.2 Purpose 1

2. Normative references 2

3. Impulse Testing 2
3.1 General 2
3.2 Impulse waveshapes 3

4. Lightning impulse test circuits 5
4.1 Waveshape control 5
4.2 Chopped-wave impulse testing of transformers 15
4.3 Non-linear devices 17
4.4 Arrangement of lightning impulse test circuits 18
4.5 Measurement of lightning impulse voltages 20
4.6 Digital recording instruments 21
4.7 Failure detection 23
4.8 Normal test procedure 26
4.9 Troubleshooting 26
4.10 Dry type transformers 28
4.11 Voltage and current transformers 29
4.12 Examples of impulse waveforms 32
4.13 Methods of presenting lightning impulse test results 42

5. Switching impulse testing 44
5.1 Switching impulse testing techniques 44
5.2 Switching impulse waveshapes 45
5.3 Switching impulse test circuit 46
5.4 Measurement of switching impulse voltage 49
5.5 Switching impulse failure detection 52
5.6 Switching impulse and non-linear devices 53
5.7 Methods of presenting switching impulse test results 53

6. Grounding practices 55
6.1 General 55

7. Impulse generator size 58

Annex A (informative) Advanced processing of digital records 62
A.1 Introduction 62
A.2 Transfer function background information 62
A.3 Transfer function theory 63
A.4 Application of transfer function 65
A.5 Transfer function of chopped-wave records 71
A.6 Transfer function of a full wave and chopped wave 73
A.7 Transfer function example with test equipment problems 75
A.8 Coherence function 76

Annex B (informative) Bibliography 78

IEEE Guide for Transformer Impulse Tests

1. Overview

1.1 Scope

To aid in the interpretation and application of the impulse testing requirements of the IEEE Standard Test Codes for Transformers.

1.2 Purpose

This guide is written primarily for power transformers, but it is also generally applicable to distribution and instrument transformers. Other IEEE standards, plus the purchaser's specifications determine the specific requirements for impulse tests. The purpose of this guide is not to change those standards in any way, but to add background information that will aid in the interpretation and application of those standards. The information contained in this guide is a compendium of technical information provided by engineers and technicians well versed in the art of transformer impulse testing. It is hoped that this guide will provide a basis for a better understanding of impulse test techniques and troubleshooting procedures.