

IEEE Guide for Transformer Impulse Tests

IEEE Power & Energy Society

Sponsored by the
Transformers Committee

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9 March 2012

IEEE Std C57.98™-2011
(Revision of
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Approved 11 December 2011

IEEE-SA Standards Board

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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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PDF: ISBN 978-0-7381-7194-4 STD97201
Print: ISBN 978-0-7381-7215-6 STDPD97201

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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.

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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.