

IEEE Trial-Use Guide for the Detection of Acoustic Emissions from Partial Discharges in Oil-Immersed Power Transformers

Sponsor

**Transformer Committee
of the
IEEE Power Engineering Society**

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Abstract: This trial-use guide applies to the detection of partial discharges in power transformers. It takes advantage of the acoustic emissions produced by partial discharges. Although primarily intended for field use, it can also be used in the factory environment, if required.

Keywords: acoustic emission (AE), attenuation, burst, gas-in-oil analysis, low-amplitude discharges, partial discharge (PD), power transformers

The Institute of Electrical and Electronics Engineers, Inc.
3 Park Avenue, New York, NY 10016-5997, USA

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Introduction

(This introduction is not part of IEEE Std C57.127-2000, IEEE Trial-Use Guide for the Detection of Acoustic Emissions from Partial Discharges in Oil-Immersed Power Transformers.)

Publication of this trial-use guide for comment and criticism has been approved by the Institute of Electrical and Electronics Engineers. Trial-use guides are effective for 24 months from the date of publication. Comments for revision will be accepted for 18 months after publication. Suggestions for revision should be directed to the Secretary, IEEE-SA Standards Board, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331, and should be received no later than 13 June 2002. It is expected that following the 24-month period, this trial-use guide, revised as necessary, shall be submitted to the IEEE-SA Standards Board for approval as a full-use guide.

Participants

At the time this trial-use guide was completed, the Working Group on Partial Discharge Tests in Transformers had the following membership:

John W. Harley, *Chair*

Donald Ayers
Ron L. Barker
Tord Bengtsson
William Carter
Roy Colquitt
Ed Cromer
John Crouse
Ron Dallbert
Gordon Denny

Fred E. Elliott
Don Fallon
Norman Field
Steve Jordan
Emil Kowal
Mike Lau
Raymond Lortie
Richard Lowe
Andre Lux

Jack McGill
Mark D. Perkins
Dirk Russwurm
Ewald Schweiger
Hemchandra Shertukde
James Smith
Subhash C. Tuli
Barry Ward
Eduardo Garcia Wild

The following members of the balloting committee voted on this trial-use guide:

Paul Alex
Dennis J. Allan
George Allen
Jacques Aubin
Donald E. Ballard
Ron L. Barker
Mike Barnes
A. Bartek
William H. Bartley
Martin Baur
Edward A. Bertolini
Enrique Betancourt
Wallace B. Binder
Alain Bolliger
William Carter
Donald J. Cash
James F. Christensen
Don Chu
Robert C. Degeneff
Alfonso M. Delgado
Dieter Dohnal
Randall L. Dotson
B. H. Dunlap, IV
John A. Ebert
Fred E. Elliott
Gary R. Engmann
Reto H. Fausch
Pierre T. Feghali
Joe Foldi
Michael A. Franchek
Charles G. Garner
Harry D. Gianakouros
Donald A. Gillies
Richard D. Graham
Robert L. Grunert
Ernst Hanique
N. Wayne Hansen

John W. Harley
Tommy W. Hayes
R. R. Hayes
Keith R. Highton
Peter J. Hoefler
Philip J. Hopkinson
Richard A. Huber
Virendra Jhonsa
Charles W. Johnson
Anthony J. Jonnatti
Lars-Erik Juhlin
C. J. Kalra
Egon Koenig
Barin Kumar
John G. Lackey
Thomas Lundquist
Joe D. MacDonald
William A. Maguire
Charles Mandeville
John W. Matthews
Terence McComb
Nigel P. McQuin
Sam Michael
R. E. Minkwitz, Sr.
Jack Moffat
Daleep C. Mohla
Harold R. Moore
Daniel H. Mulkey
R. J. Musil
Vladimir G. Neumann
Russell C. Nordman
E. T. Norton
B. K. Patel
Wesley F. Patterson
Jesse M. Patton
David Payne

Paulette A. Payne
Mark D. Perkins
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R. Leon Plaster
Donald W. Platts
G. Preininger
Tom A. Prevost
Jeewan L. Puri
J. C. Riboud
Peter G. Risse
John R. Rossetti
Hazairin Samaulah
Vallamkonda Sankar
Subhas Sarkar
Leo J. Savio
Rick Sawyer
William E. Saxon
Pat Scully
Dilipkumar Shah
Devki Sharma
Mark Siehling
Hyeong Jin Sim
Tarkeshwar Singh
Kenneth R. Skinger
Stephen D. Smith
Steven L. Snyder
Peter G. Stewart
Ron W. Stoner
Malcolm V. Thaden
James A. Thompson
Thomas P. Traub
Subhash C. Tuli
Georges H. Vaillancourt
John Vandermaar
Robert A. Veitch
William G. Wimmer
F. N. Young

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Ronald C. Petersen
Gerald H. Peterson
John B. Posey
Gary S. Robinson
Akio Tojo
Donald W. Zipse

*Member Emeritus

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Alan Cookson, *NIST Representative*
Donald R. Volzka, *TAB Representative*

Don Messina
IEEE Standards Project Editor

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1. Overview

1.1 Scope

This trial-use guide is applicable to the detection of partial discharges (PDs) in power transformers. It utilizes the acoustic emissions (AEs) produced by PDs. Although primarily intended for field use, this guide can also be used in the factory environment, if required.

IEEE Std C57.127-2000 is not intended to provide a precise method for defining the geometric location of the source of PDs, although it can sometimes provide a rough approximation of it.

1.2 Purpose

This trial-use guide organizes AE detection-measurement methods so that results may be compared by persons knowledgeable in this field, such as utility engineers, consultants, academics, and manufacturers.

1.3 Safety warnings

The safety warnings in this subclause and in 4.1 apply only to work done on transformers installed in the field, not to factory testing. **Refer to factory test codes for safety warnings for these situations.**

PD location should only be attempted by those technicians and engineers trained in working high-voltage transformers.