



**ANSI C37.50-2012**

American National Standard  
Switchgear—

**Low Voltage AC Power Circuit  
Breakers Used in Enclosures—  
Test Procedures**

Secretariat:

**National Electrical Manufacturers Association**

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## Foreword

(This Foreword is not part of American National Standard C37.50-2012.)

This standard was first published in 1973 as a replacement for Section 9 (Test Requirements) of American National Standard for Low-Voltage AC Power Circuit Breakers (600-Volt Insulation Class), ANSI C37.13-1969. In 1975, ANSI C37.50a-1975 American National Standard Test Procedures for Low-Voltage AC Integrally Fused Power Circuit Breakers, then a supplement, was published as a replacement for Section 8 (Test Requirements) of ANSI C37.28-1969 Standard for Low-Voltage AC Integrally Fused Power Circuit Breakers and Section 8 of ANSI C37.13a-1975. The contents of ANSI C37.50-1973 and C37.50a-1975 were combined for ANSI C37.50-1981 in accordance with the IEEE Low-Voltage Switchgear Devices Subcommittee revision and combination of ANSI C37.13-1969 and ANSI C37.13a-1975 into ANSI/IEEE C37.13-1981. The 1989 revision of the 1981 standard was developed to clarify miscellaneous areas of interpretation within the document. The present revision includes changes to coordinate with updated requirements in ANSI/IEEE C37.13 and with the rating structure in ANSI/IEEE C37.16, as well as accepting the trip system design and production test requirements from ANSI/IEEE C37.17.

This standard was originally written as a description of design test requirements and the performance criteria outlined established the basis for certification of low voltage ac-power circuit breakers used in enclosures for use in nonutility installations subject to regulation by public authorities and similar agencies concerned with laws, ordinances, regulations, administrative orders, and similar instruments. It was established as a separate document to facilitate its use by test laboratories and its timely revision based on experience. This revision supports that original proposition.

Experience has also indicated that there have been misinterpretations regarding the testing requirements for field design-change modifications. This has resulted in circuit breaker modifications without sufficient testing to properly recertify the modified products. Any change to a basic design should be coordinated with the original manufacturer. Otherwise, the original certification responsibility cannot be continued. Conversions of circuit breakers are discussed in detail in ANSI/IEEE C37.59 Requirements for Conversion of Power Switchgear Equipment.

This standard was prepared by a working group sponsored by the Power Switchgear Assemblies Technical Committee of the Switchgear Section of the National Electrical Manufacturers Association (NEMA 8SG-V). During the course of its preparation, coordination has been maintained with the Switchgear Committee of the Power Engineering Society of the Institute of Electrical and Electronics Engineers.

Through this joint effort over many years, the switchgear assemblies standards have been of extreme value to the industry and further suggestions for improvement gained in the use of this standard will be welcomed.

Suggestions for improvement of this standard will be welcome. They should be sent to:

**National Electrical Manufacturers Association**  
**1300 North 17th Street, Suite 1752**  
**Rossllyn, VA 22209**

This standard was processed and approved for submittal to ANSI by Accredited Standards Committee on Power Switchgear C37. Committee approval of the standard does not necessarily imply that all committee members voted for its approval. At the time of its approval, the ASC C37 Committee had the following members:

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## **Low Voltage AC Power Circuit Breakers Used in Enclosures—Test Procedures**

### **1 SCOPE**

This standard covers the test procedures for enclosed low-voltage ac power circuit breakers as follows:

- a) Stationary or drawout circuit breakers of two- or three- or four-pole construction, with one or more rated maximum voltages of 635 V (600 for units incorporating fuses), 508 V, and 254 V for application on systems having nominal voltages of 600, 480, and 240 V.
- b) Unfused or fused type circuit breakers
- c) Manually operated or power-operated circuit breakers with or without electromechanical or solid-state trip devices.
- d) Fused drawouts consisting of current-limiting fuses in a drawout assembly intended to be connected in series with a low-voltage ac power circuit breaker to form a non-integrally fused circuit breaker.

*Note:* In this standard the term circuit breaker shall mean enclosed low-voltage ac power circuit breaker, either fused or unfused. The term unfused circuit breaker shall mean a circuit breaker without either integrally or non-integrally mounted fuses, and the term fused circuit breaker shall mean a circuit breaker incorporating either integrally or non-integrally mounted current limiting fuses.

This document applies to both integrally and nonintegrally fused circuit breakers.

### **2 REFERENCES**

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments or corrigenda) applies.

ANSI/IEEE 4 Standard Techniques for High-Voltage Testing

ANSI/IEEE C37.09-1999 Standard Test Procedure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis

ANSI/IEEE C37.13-2008 Standard for Low-Voltage AC Power Circuit Breakers Used in Enclosures

ANSI/IEEE C37.16-2009 Standard for Preferred Ratings, Related Requirements, and Application Recommendations for Low-Voltage AC (635V and below) and DC (3200V and below) Power Circuit Breakers

ANSI/IEEE C37.17 Standard for Standard for Direct-Acting Trip Systems for Low-Voltage (1000 V and below) AC and General Purpose Low Voltage (1500 V and below) DC Power Circuit Breakers

ANSI/IEEE C37.26 Guide for Methods of Power-Factor Measurement for Low-Voltage Inductive Test Circuits

ANSI/IEEE C37.90.1 Standard for Surge Withstand Capability (SWC) Tests for Relays and Relay Systems Associated with Electric Power Apparatus

ANSI/IEEE C37.90.2 Standard for Withstand Capability of Relay Systems to Radiated Electromagnetic Interference from Transceivers

UL 248-8 Low-Voltage Fuses – Part 8: Class J Fuses

UL 248-10 Low-Voltage Fuses – Part 10: Class L Fuses