ANSI C37.54-2024

American National Standard for Alternating Current High-Voltage Circuit Breakers Applied in Metal-Enclosed Switchgear—Conformance Test Procedures

Secretariat:

National Electrical Manufacturers Association

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Contents

Tables

Figures

Foreword

(This Foreword is not part of American National Standard C37.54-2024.)

Major revisions have been made in this edition to coordinate with revisions to IEEE C37.04™, which now incorporates the preferred ratings from IEEE C37.06™ (now withdrawn), IEEE C37.09™, and IEEE C37.20.2™. Test procedures in IEEE C37.09 have been harmonized with those in IEC 62271-100 and these new test procedures are incorporated here.

Since this edition eliminates the voltage range factor, circuit breakers with K ≥ 1.0 that may be produced after the approval date of this standard should have conformance tests conducted in accordance with the procedures in the 1996 edition of C37.54.

This standard was developed to describe selected tests and procedures to demonstrate conformance in accordance with clause 4 of IEEE C37.09-2018. The scope of this standard is limited to Conformance Test Procedures for Alternating Current High-Voltage Circuit Breakers Applied in Metal-Enclosed Switchgear—Conformance Test Procedures. To facilitate its use and to permit timely revisions based on experience, this document has been prepared.

This standard is one of several in a series of test procedure standards for conformance testing of switchgear products. While this standard is written for general guidance, performance criteria are established so that this standard can be adopted as the basis for certification of identified circuit breakers for use in installations subject to regulation by public authorities and similar agencies concerned with law ordinances, regulations, administrative orders, and similar instruments. It is noted that certain utility installations continue to be excluded from the scope of this standard as a result of historical discussions among representatives from EEI and NEMA.

Suggestions for improvements are welcome and should be sent to the National Electrical Manufacturers Association, 1300 North 17th Street, Suite 900, Rosslyn, 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 C37 Committee had the following members:

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Alexander, Roy	RWA Engineering LLC
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AMERICAN NATIONAL STANDARD **ANSI C37.54-2024**

For Alternating Current High-Voltage Circuit Breakers Applied in Metal-Enclosed Switchgear—Conformance Test Procedures

1 General

1.1 Scope

1.1.1 Scope and Objectives

When conformance tests are required, this standard specifies tests to demonstrate that the circuit breaker being tested conforms with the ratings assigned to it by the manufacturer in accordance with IEEE C37.04. Preferred values of the ratings are listed in clause 6 of IEEE C37.04; other values may be assigned to the circuit breaker by the manufacturer where supported by a complete set of type tests supporting these alternative values. Conformance tests according to this standard must utilize the assigned rated values from the type testing. As a requirement of conformance testing, the circuit breaker shall have completed the design testing requirements of IEEE C37.09. If IEEE C37.09 tests have not been previously performed, the tests required by IEEE C37.09 beyond tests described by this standard may be performed concurrently with conformance testing.

Note: Additional tests per IEEE C37.09 need not be witnessed by the certifying party.

1.1.2 Application

This standard applies to alternating current high-voltage circuit breakers rated above 1000 volts used as removable elements in metal-clad switchgear assemblies in accordance with IEEE C37.20.2 and removable or stationary-mounted elements in metal-enclosed switchgear assemblies in accordance with IEEE C37.20.3.

1.1.3 Installations Not Covered

This standard may not apply to installations under the exclusive control of electric utilities for the purpose of communication, or metering, or for the generation, control, transformation, transmission, and distribution of electric energy located in buildings used exclusively by utilities for such purposes or located outdoors on property owned or leased by the utility or on public highways, streets, roads, etc., or outdoors by established rights on private property.

1.2 Definitions

The definitions of terms contained in this standard, or in other standards referred to in this standard, are not intended to embrace all legitimate meanings of the terms. They are applicable only to the subject treated in this standard.

If a term is not defined in this standard, the definition in IEEE C37.20.10 or IEEE C37.100.5 applies. An asterisk (*) following a definition indicates that the definition in this standard is not contained in either IEEE C37.20.10 or IEEE C37.100.5, while a dagger (†) indicates that the definition differs from that in IEEE C37.20.10 or IEEE C37.100.5.

1.2.1 Design Tests (Type Tests)

Tests made by the manufacturer to determine the adequacy of the design of a particular type, style, or model of equipment or its component parts to meet its assigned ratings and to operate satisfactorily under