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(Revision of IEEE Std C62.45-1992)

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IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000 V and Less) AC Power Circuits

IEEE Power Engineering Society

Sponsored by the
Surge Protective Devices Committee

IEEE

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Surge Protective Devices Committee
of the
Power Engineering Society

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American National Standards Institute

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Abstract: The scope of this recommended practice is the performance of surge testing on electrical and electronic equipment connected to low-voltage ac power circuits, specifically using the recommended test waveforms defined in IEEE Std C62.41.2™-2002. Nevertheless, these recommendations are applicable to any surge testing, regardless of the specific surges that may be applied.
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Introduction

(This introduction is not part of IEEE Std C62.45-2002, IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000 V and Less) AC Power Circuits.)

This recommended practice is the result of ten years of use as a guide, and it incorporates only minor additions or updates of the original 1987 document, which was revised in 1992. These earlier versions were published independently, and not concurrently with their intended companion, IEEE Std C62.41-1991, with the result that a "catch-up" situation was created as each document was separately updated.

With the approval of the Surge-Protective Devices Committee, the companion IEEE Std C62.41-1991 was split into two separate documents, IEEE Std C62.41.1-2002 and IEEE Std C62.41.2-2002. Together with the present recommended practice, the two IEEE Std C62.41.1-2002 and IEEE Std C62.41.2-2002 present a "Trilogy" concerning the occurrence, characterization, and testing of surges in low-voltage ac power circuits, to be published concurrently and thus avoid the previous ambiguities of the catch-up updates.

CAUTION

Surge testing of electrical equipment presents potentially hazardous situations for both personnel and equipment. Safety directives promulgated by the laboratory where testing takes place must be observed. Additional precautions are suggested in 4.8 and 6.4.

Participants

At the time this recommended practice was completed, the Working Group on Surge Characterization on Low-Voltage Circuits had the following membership:

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Contents

IEEE Recommended Practice on Surge Testing for Equipment Connected to Low-Voltage (1000 V and Less) AC Power Circuits

1. Overview

This recommended practice is divided into 11 clauses. Clause 1 provides an overview of this recommended practice, including its scope and its context with respect to other IEEE standards directly related to the subject. Clause 2 lists references to other standards that are useful in implementing the recommendation of the present document. Clause 3 provides definitions of common English words, but with a specific meaning in the context of this recommended practice. No new technical definitions have been generated in connection with this recommended practice. Clause 4 provides the necessary information for the planning of surge testing, a prerequisite to the performance of tests. In Clause 5, information is provided on the equipment to be used in performing the tests. Clause 6 provides general recommendations on test procedures, with further details in Clause 7 and Clause 8. Clause 9 provides a description of Standard Surge Test Waveforms. Clause 10 provides a similar description of Additional Surge Test Waveforms. Clause 11 provides guidance on evaluating results and offers some concluding remarks.

This recommended practice also contains four informative annexes. Annex A provides information on Surge-Protection Devices (SPD) Class I test parameters. Annex B provides additional information on surge-related issues. Annex C provides practical hints on surge testing. Annex D provides the listing of citations.

1.1 Scope

The scope of this recommended practice is the performance of surge testing on electrical and electronic equipment connected to low-voltage ac power circuits, specifically using the recommended test waveforms defined in IEEE Std C62.41.2™-2002.[1] Nevertheless, these recommendations are applicable to any surge testing, regardless of the specific surges that may be applied.

[1]Information on references can be found in Clause 2.