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IEEE Guide for the Application of Surge-Protective Components in Surge Protective Devices and Equipment Ports—Part 6 High Frequency Signal Isolation Transformers

IEEE Power and Energy Society

Sponsored by the
Surge Protective Devices Committee

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IEEE Guide for the Application of Surge-Protective Components in Surge Protective Devices and Equipment Ports—Part 6 High Frequency Signal Isolation Transformers

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Abstract: Surge protective components (SPCs) used in power and telecom surge protective devices (SPDs) and equipment ports are covered in the IEEE C62.42 guide series. The following are covered in this part of the series on high-frequency signal isolation-transformer technology SPCs: component construction, characteristics, and ratings.

Keywords: characteristics, common-mode surge, differential-mode surge, Ethernet, high frequency, IEEE C62.42.6™, isolation transformer, PoE, ratings

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Introduction

This introduction is not part of IEEE Std C62.42.6-2018, IEEE Guide for the Application of Surge-Protective Components in Surge Protective Devices and Equipment Ports—Part 6 High Frequency Signal Isolation Transformers.

Failures of the Ethernet Local Area Network (LAN) ports have been attributed to use of inappropriate Surge Protective Devices (SPDs) and lack of insulation coordination, which caused the breakdown of transformers, associated wiring, and connectors. This guide discusses isolation-transformer parameters and how they influence the equipment common-mode and differential-mode surge performance. A copy of IEEE C62.69™, IEEE Standard for the Surge Parameters of Isolating Transformers Used in Networking Devices and Equipment is necessary to fully understand this document.[1]

Dedication

This standard is dedicated to the memory of Phillip Havens, a great friend and contributor.

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

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1. Overview

1.1 Scope

The IEEE C62.42™ guide series covers surge protective components (SPCs) used in power and telecom surge protective devices (SPDs) and equipment ports. This part on high-frequency signal isolation-transformer technology SPCs covers:

- Component construction
- Characteristics
- Ratings
- Application examples

2. Normative references

The following referenced documents are indispensable for the application of this document (i.e., they must be understood and used, so each referenced document is cited in text and its relationship to this document is explained). For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments or corrigenda) applies.

IEEE Std C62.69™, IEEE Standard for the Surge Parameters of Isolating Transformers Used in Networking Devices and Equipment.[2,3]

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