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INTERNATIONAL STANDARD

CONSOLIDATED VERSION

Electromagnetic compatibility (EMC) -
Part 4-34: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests for equipment with ~~input~~ mains current more than 16 A per phase

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

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In this Redline version, a vertical line in the margin shows where the technical content is modified by amendments 1 and 2. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

International Standard IEC 61000-4-34 has been prepared by subcommittee 77A: Low frequency phenomena, of IEC technical committee 77: Electromagnetic compatibility.

It forms Part 4-34 of IEC 61000. It has the status of a Basic EMC Publication in accordance with IEC Guide 107.

The text of this standard is based on the following documents:

FDIS	Report on voting
77A/498/FDIS	77A/515/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

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INTRODUCTION

IEC 61000 is published in separate parts according to the following structure:

Part 1: General

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Immunity limits (in so far as they do not fall under the responsibility of the product committees)

Part 4: Testing and measurement techniques

Measurement techniques

Testing techniques

Part 5: Installation and mitigation guidelines

Installation guidelines

Mitigation methods and devices

Part 6: Generic standards

Part 9: Miscellaneous

Each part is further subdivided into several parts, published either as international standards or as technical specifications or technical reports, some of which have already been published as sections. Others will be published with the part number followed by a dash and a second number identifying the subdivision (example: 61000-6-1).

INTRODUCTION to Amendment 2

This amendment contains the following main changes in comparison with IEC 61000-4-34:2005 and IEC 61000-4-34:2005/AMD1:2009:

- Addition of a note in Annex C: The sign of phase angles of three-phase systems can differ depending on the convention used. It should be noted that phase angles opposite to those used in the figures and tables in this annex (i.e. -120° for L2 instead of +120°) are also common. It is not intended to specify the direction of rotation of the three-phase system used for testing.
- Add UL1-N = √(1+3P^2)/2 in Annex C.3,
- Add a new annex "Interpretation of the rise-time and fall-time requirements during EUT testing" (Annex F), as in IEC 61000-4-11:2020, Clause D.4:

1 Scope

This part of IEC 61000 defines the immunity test methods and range of preferred test levels for electrical and electronic equipment connected to low-voltage power supply networks for voltage dips, short interruptions, and voltage variations.

This standard applies to electrical and electronic equipment having a rated ~~input~~ mains current exceeding 16 A per phase. (See Annex E for guidance on electrical and electronic equipment rated at more than 200 A per phase.) It covers equipment installed in residential areas as well as industrial machinery, specifically voltage dips and short interruptions for equipment connected to either 50 Hz or 60 Hz a.c. networks, including 1-phase and 3-phase mains.

NOTE 1 Equipment with a rated ~~input~~ mains current of 16 A or less per phase is covered by publication IEC 61000-4-11.

NOTE 2 There is no upper limit on rated ~~input~~ mains current in this publication. However, in some countries, the rated ~~input~~ mains current may be limited to some upper value, for example 75 A or 250 A, because of mandatory safety standards.

It does not apply to electrical and electronic equipment for connection to 400 Hz a.c. networks. Tests for equipment connected to these networks will be covered by future IEC standards.

The object of this standard is to establish a common reference for evaluating the immunity of electrical and electronic equipment when subjected to voltage dips, short interruptions and voltage variations.

NOTE 1 Voltage fluctuations are covered by publication IEC 61000-4-14.

NOTE 2 For equipment under test with rated currents above 250 A, suitable test equipment may be difficult to obtain. In these cases, the applicability of this standard should be carefully evaluated by committees responsible for generic, product and product-family standards. Alternatively, this standard might be used as a framework for an agreement on performance criteria between the manufacturer and the purchaser.

The test method documented in this part of IEC 61000 describes a consistent method to assess the immunity of equipment or a system against a defined phenomenon. As described in IEC Guide 107, this is a basic EMC publication for use by product committees of the IEC. As also stated in Guide 107, the IEC product committees are responsible for determining whether this immunity test standard should be applied or not, and if applied, they are responsible for defining the appropriate test levels. Technical committee 77 and its sub-committees are prepared to co-operate with product committees in the evaluation of the value of particular immunity tests for their products.

2 Normative 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) applies.

IEC 60050-161, *International Electrotechnical Vocabulary (IEV) – Chapter 161: Electro-magnetic compatibility*

IEC 61000-2-8, *Electromagnetic compatibility (EMC) – Part 2-8: Environment – Voltage dips and short interruptions on public electric power supply systems with statistical measurement results*

IEC 61000-4-30, *Electromagnetic compatibility (EMC) – Part 4-30: Testing and measurement techniques – Power quality measurement methods*

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