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KOMPAUNDIVORMIDE KASUTAMINE SAASTEKAITSEKS

Insulation coordination for equipment within
low-voltage systems - Part 3: Use of coating, potting or
moulding for protection against pollution

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 60664-3:2017 sisaldab Euroopa standardi EN 60664-3:2017 ingliskeelset teksti.	This Estonian standard EVS-EN 60664-3:2017 consists of the English text of the European standard EN 60664-3:2017.
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English Version

Insulation coordination for equipment within low-voltage systems
- Part 3: Use of coating, potting or moulding for protection
against pollution
(IEC 60664-3:2016)

Coordination de l'isolement des matériels dans les systèmes (réseaux) à basse tension - Partie 3: Utilisation de revêtement, d'empotage ou de moulage pour la protection contre la pollution
(IEC 60664-3:2016)

Isolationskoordination für elektrische Betriebsmittel in Niederspannungsanlagen - Teil 3: Anwendung von Beschichtungen, Eingießen oder Vergießen zum Schutz gegen Verschmutzung
(IEC 60664-3:2016)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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European foreword

The text of document 109/153/FDIS, future edition 3 of IEC 60664-3, prepared by IEC/TC 109 "Insulation co-ordination for low-voltage equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60664-3:2017.

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- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2020-06-16

This document supersedes EN 60664-3:2003.

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This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association.

Endorsement notice

The text of the International Standard IEC 60664-3:2016 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60194:2006

NOTE Harmonized as EN 60194:2006

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INTRODUCTION

This part of IEC 60664 details the conditions in which the reduction of clearance and creepage distances can apply to rigid assemblies such as **printed boards** or terminals of components. **Protection** against pollution can be achieved by any kind of encapsulation such as **coating**, potting or moulding. The **protection** may be applied to one or both sides of the assembly. This standard specifies the insulating properties of the protecting material.

Between any two unprotected conductive parts, the clearance and creepage distance requirements of IEC 60664-1 apply.

This document refers only to permanent **protection**. It does not cover assemblies after repair.

Technical committees should consider the influence on the **protection** of overheating **conductors** and components, especially under fault conditions, and to decide if any additional requirements are necessary.

Safe performance of assemblies is dependent upon a precise and controlled manufacturing process for the application of the protective system. Requirements for quality control, e.g. by sampling tests, should be considered by technical committees.

INSULATION COORDINATION FOR EQUIPMENT WITHIN LOW-VOLTAGE SYSTEMS –

Part 3: Use of coating, potting or moulding for protection against pollution

1 Scope

This part of IEC 60664 applies to assemblies protected against pollution by the use of **coating**, potting or moulding, thus allowing a reduction of clearance and creepage distances as described in IEC 60664-1.

This document describes the requirements and test procedures for two methods of **protection**:

- type 1 **protection** improves the microenvironment of the parts under the **protection**;
- type 2 **protection** is considered to be similar to **solid insulation**.

This document also applies to all kinds of protected **printed boards**, including the surface of inner layers of multi-layer boards, substrates and similarly protected assemblies. In the case of multi-layer **printed boards**, the distances through an inner layer are covered by the requirements for **solid insulation** in IEC 60664-1.

NOTE Examples of substrates are hybrid integrated circuits and thick-film technology.

This document refers only to permanent **protection**. It does not cover assemblies that are subjected to mechanical adjustment or repair.

The principles of this standard are applicable to functional, basic, supplementary and reinforced insulation.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 60068-2-1, *Environmental testing – Part 2-1: Tests – Test A: Cold*

IEC 60068-2-2, *Environmental testing – Part 2-2: Tests – Test B: Dry heat*

IEC 60068-2-14, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*

IEC 60068-2-78, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state*

IEC 60326-2:1990, *Printed boards – Part 2: Test methods*

IEC 60454-3-1:1998/AMD1:2001, *Pressure-sensitive adhesive tapes for electrical purposes – Part 3: Specifications for individual materials – Sheet 1: PVC film tapes with pressure – sensitive adhesive*

IEC 60664-1:2007, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 61189-2:2006, *Test methods for electrical materials, printed boards and other interconnection structures and assemblies – Part 2: Test methods for materials for interconnection structures*

IEC 61189-3:2007, *Test methods for electrical materials, printed boards and other interconnection structures and assemblies – Part 3: Test methods for interconnection structures (printed boards)*

IEC 61249-2 (all parts), *Materials for printed boards and other interconnecting structures – Reinforced base materials, clad and unclad*

IEC Guide 104:2010, *The preparation of safety publications and the use of basic safety publications and group safety publications*

ISO/IEC Guide 51, *Safety aspects – Guidelines for their inclusion in standards*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60664-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

base material

insulating material upon which a conductive pattern may be formed

Note 1 to entry: The **base material** may be rigid or flexible, or both. It may be a dielectric or an insulated metal sheet.

[SOURCE: IEC 60050-541:1990, 541-02-01]

3.2

printed board

base material cut to size containing all required holes and bearing at least one conductive pattern.

Printed boards are typically subdivided according to

- their structure (e.g., single- and double-sided, multilayers)
- the nature of the **base material** (e.g., rigid, flexible)

[SOURCE: IEC 60050-541:1990, 541-01-03]

3.3

conductor (of a printed board) single conductive path in a conductive pattern

[SOURCE: IEC 60050-541:1990, 541-01-20]