

**General procedure for verifying the effectiveness of the protective measures of electrical equipment after repair**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

|  |  |
|--|--|
| See Eesti standard EVS-EN 50678:2020 sisaldab Euroopa standardi EN 50678:2020 ja selle paranduse AC:2021 ingliskeelset teksti.   | This Estonian standard EVS-EN 50678:2020 consists of the English text of the European standard EN 50678:2020 and its corrigendum AC:2021.  |
| Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.<br><br>Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 06.03.2020.  | This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.<br><br>Date of Availability of the European standard is 06.03.2020.     |
| Parandusega AC lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega <b>AC</b> <b>AC</b> .<br><br>Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest. | The start and finish of text introduced or altered by corrigendum AC is indicated in the text by tags <b>AC</b> <b>AC</b> .<br><br>The standard is available from the Estonian Centre for Standardisation and Accreditation. |

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English Version

General procedure for verifying the effectiveness of the  
protective measures of electrical equipment after repair

Procédure générale visant à vérifier l'efficacité des mesures  
de protection des équipements électriques après réparation

Allgemeines Verfahren zur Überprüfung der Wirksamkeit  
der Schutzmaßnahmen von Elektrogeräten nach der  
Reparatur

This European Standard was approved by CENELEC on 2019-12-16. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
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## European foreword

This document (EN 50678:2020) has been prepared by CLC/TC 85X “*Measuring equipment for electrical and electromagnetic quantities*”.

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2020-12-16
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2022-12-16

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## Introduction

This standard intends to provide a general test procedure to verify the effectiveness of the basic protective measures for current-using equipment or appliances after they have been repaired, thus ensuring the safety of people using repaired equipment.

This standard may be considered to support compliance with the European Directive 2009/104/EU concerning the minimum safety and health requirements for the use of work equipment by workers at work.

In general, the test procedure for verification of products after repair is the responsibility of the related product technical committees. This document may be taken into consideration by product technical committees if they need to take into consideration modified or additional tests for verification after repairs for products falling within their scope.

# 1 Scope

This document specifies requirements for setting a uniform procedure to verify the effectiveness of the protective measures for current-using equipment or appliances after they have been repaired.

This procedure is applicable to current-using equipment or appliances with a rated voltage above 25 V AC and 60 V DC up to 1 000 V AC and 1 500 V DC, and currents up to 63 A, connected to final circuits. They may be either pluggable equipment type A connected or permanently connected.

This document is not intended to replace test covered by safety standards nor product standards, for example type tests, routine tests and acceptance tests.

This document assumes that the current-using equipment or appliances under consideration complies with its related product standard, has been introduced on the market, has been in use, has failed, and has then been repaired.

It intends to verify that operations for repairs have not jeopardized basic protective measures, for example to verify the continuity of the protective conductor, the withstand capability of the insulation or to verify that no metallic part is loose or is inadvertently inserted in the device.

This document does not apply to:

- recurrent tests defined in EN 50699;<sup>1</sup>
- devices and equipment that are part of the fixed electrical installations. For these, tests for verification after repair are covered by HD 60364-6;
- audio/video, information and communication technology equipment;
- uninterruptible Power Supply (UPS);
- charging stations for electro-mobility;
- power supplies;
- programmable Logic Controllers (PLC);
- power Drives;
- devices for EX-zones or for mining applications in general;
- products already covered by standards addressing similar topics such as:
  - medical equipment covered by EN 60601-1. For these devices, tests for verification after repair are covered by EN 62353;
  - arc welding equipment covered by EN IEC 60974-1. For these devices, tests for verification after repair are covered by EN 60974-4.
  - machinery covered by EN 60204-1. For these devices, EN 60204-1 applies.

<sup>1</sup> Under preparation. Stage at time of publication: prEN 50699:2019.

## 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.

HD 60364-6, *Low-voltage electrical installations — Part 6: Verification (IEC 60364-4)*

EN 61557 (series), *Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC — Equipment for testing, measuring or monitoring of protective measures (IEC 61557, series)*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions 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>

NOTE Some of the definitions may differ from those in the product standards for type testing, as different test methods are used.

### 3.1

#### **electrical safety**

protection within an equipment which limits the effects of electrical current on a user or other individuals

Note 1 to entry: Safety is defined as freedom from unacceptable risk (refer to ISO 14971:2007, definition 2.24).

### 3.2

#### **testing**

visual control, measure and prove the electric equipment after repair to assure that equipment remains safe to use

### 3.3

#### **repair**

means for restoration of the intended function of the equipment

### 3.4

#### **(electrically) skilled person**

person with relevant education and experience to enable him or her to perceive risks and to avoid hazards which electricity can create

[SOURCE: IEC 60050-195:1998, 195-04-01]

### 3.5

#### **electrical equipment**

single apparatus using electrical energy and connected by plug or permanently connected to a final circuit of the distribution system

Note 1 to entry: Equipment includes those accessories as defined by the manufacturer that are necessary to enable the normal use of the equipment.

### 3.6

#### **final circuit (of buildings)**

electric circuit intended to supply directly electric current to current-using equipment or socket-outlets

[SOURCE: IEC 60050-826:2004, 826-14-03]