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Power transformers - Additional European  
requirements - Part 2-4: Medium power transformer -  
Special tests

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

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English Version

**Power transformers - Additional European requirements - Part 2-4: Medium power transformer - Special tests**

Transformateurs de puissance - Exigences européennes supplémentaires - Partie 2-4 : Transformateurs de moyenne puissance - Essais spéciaux

Leistungstransformatoren - Zusätzliche europäische Anforderungen - Teil 2-4: Mittelleistungstransformatoren - Sonderprüfungen

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## European foreword

This document (EN 50708-2-4:2022) has been prepared by CLC/TC 14 "Power transformers".

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) 2023-07-25
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2025-07-25

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## Introduction

This document defines the rules for the assessment of energy performance to ensure the product conformity to the EU Regulation 548/2014 and amendment of 2019.

Regulation leads to have a minimum level of energy performances of power transformers.

NOTE In the document the term Regulation refers to the EU Regulation 548/2014 and amendment of 2019.

For the purpose of this document, the requirements of EN 50708-1-1 apply.

This document contains particular requirements for specific transformers or transformer applications, which are based on the requirements of EN 50708-1-1.

This document should be considered in conjunction with the requirements of the general parts.

The particular requirements of the different sub parts of EN 50708 supplement, modify or replace certain requirements of the general parts of EN 50708-1 and/or EN 50708-1-X being valid at the time of publication of this document. The absence of references to the exclusion of a part or a clause of a general part means that the corresponding clauses of the general part are applicable (undated reference).

Requirements of other -X parts with X greater than 1 being eventually relevant for cases covered by this document also apply. This document could therefore also supplement, modify or replace certain of these requirements valid at the time of publication of this document.

The main clause numbering of each part follows the pattern and corresponding references of EN 50708-1-1. The numbers following the particular number of this document are those of the corresponding parts, or clauses of the other parts of the EN 50708 series, valid at the time of publication of this document, as indicated in the normative references of this document (dated reference). In the case where new or amended general parts with modified numbering were published after the sub part was issued, the clause numbers referring to a general part in sub parts might no longer align with the latest edition of the general part. Dated references should be observed.

## 1 Scope

This document describes the special tests for Medium Power Transformers  $\leq 3150$  kVA compliant with the EN 50708-2 series:

- for corrugated tank for liquid immersed transformers,
- for the method of measurement of losses for one winding in Highest Voltage (HV) and windings in Lowest Voltage (LV) for liquid immersed and dry type transformers.

## 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.

EN 50708 (series), *Power transformers — Additional European requirements*

EN 60076-1:2011, *Power transformers — Part 1: General*

IEC 60076-8, *Power transformers — Part 8: Application guide*

EN IEC 60076-11:2018,<sup>1</sup> *Power transformers — Part 11: Dry-type transformers*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in the EN 50708 series apply.

## 4 Service conditions

Refer to EN 60076-1.

## 5 Special test for corrugated tank

### 5.1 General information

For liquid immersed transformers with a corrugated tank a special test to check the reliability of the tank along the life is described here after.

This test is representative of the life cycle of the tank of the transformers under operation and ensures a relevant level of quality. Other kinds of tests can be carried out by agreement between the manufacturer and the customer at the time of the offer.

To avoid accident by overpressure in the tank, the manufacturer should indicate maximum value that has not been exceeded. If these pressures are reached, then the tests are not to be carried out.

### 5.2 Temperature variation

For the simulation of the seasonal and daily temperature variations, the average liquid temperature is assumed to vary between  $-25$  °C and  $+88$  °C.

By agreement between manufacturer and purchaser the maximum temperature used for the endurance test shall be  $40$  °C plus 0,8 times the liquid temperature rise determined by the temperature rise test.

NOTE 1  $-25$  °C is the minimum ambient temperature with de-energised transformer.

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<sup>1</sup> As impacted by EN IEC 60076-11:2018/AC:2019-06.