

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

GROUP SAFETY PUBLICATION  
PUBLICATION GROUPEE DE SÉCURITÉ

**Safety of transformers, reactors, power supply units and combinations thereof –  
Part 2-9: Particular requirements and tests for transformers and power supply  
units for class III handlamps for tungsten filament lamps**

**Sécurité des transformateurs, bobines d'inductance, blocs d'alimentation et des  
combinaisons de ces éléments –  
Partie 2-9: Règles particulières et essais pour les transformateurs et blocs  
d'alimentation pour lampes baladeuses de classe III à filament de tungstène**



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INTERNATIONAL  
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COMMISSION

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SAFETY OF TRANSFORMERS, REACTORS,  
POWER SUPPLY UNITS AND COMBINATIONS THEREOF –****Part 2-9: Particular requirements and tests for transformers and  
power supply units for class III handlamps for tungsten filament lamps**

## FOREWORD

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International standard IEC 61558-2-9 has been prepared by IEC technical committee 96: Transformers, reactors, power supply units and combinations thereof.

This second edition cancels and replaces the first edition published in 2002. It constitutes a technical revision. The main changes consist of updating this part in accordance with IEC 61558-1:2005, and adding power supply units to the scope.

This part has the status of a group safety publication in accordance with IEC Guide 104: 1997, *The preparation of safety publications and the use of basic safety publications and group safety publications*.

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

FDIS	Report on voting
96/355/FDIS	96/362/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.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

This part is intended to be used in conjunction with the latest edition of IEC 61558-1 and its amendments. It is based on the second edition (2005) of that standard.

This part supplements or modifies the corresponding clauses in IEC 61558-1, so as to convert that publication into the IEC standard: *Particular requirements and tests for transformers and power supply units for class III handlamps for tungsten filament lamps*.

A list of all parts of the IEC 61558 series, under the general title: *Safety of transformers, reactors, power supply units and combinations thereof*, can be found on the IEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

Where a particular subclause of Part 1 is not mentioned in this part, that subclause applies as far as is reasonable. Where this part states "addition", "modification" or "replacement", the relevant text of Part 1 is to be adopted accordingly.

In this part, the following print types are used:

- requirements proper: in roman type;
- *test specifications: in italic type;*
- explanatory matters: in smaller roman type.

In the text of this part, the words in **bold** are defined in Clause 3.

Subclauses additional to those in Part 1 are numbered starting from 101; supplementary annexes are entitled AA, BB, etc.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

NOTE The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months from the date of publication.

## SAFETY OF TRANSFORMERS, REACTORS, POWER SUPPLY UNITS AND COMBINATIONS THEREOF –

### Part 2-9: Particular requirements and tests for transformers and power supply units for class III handlamps for tungsten filament lamps

#### 1 Scope

##### *Replacement:*

This part of IEC 61558 deals with the safety of **transformers** for **class III handlamps for tungsten filament lamps** and **power supply units** incorporating **transformers** for **class III handlamps for tungsten filament lamps**. **Transformers** incorporating **electronic circuits** are also covered by this standard.

NOTE 1 Safety includes electrical, thermal, mechanical and chemical aspects.

Unless otherwise specified, from here onward, the term **transformer** covers **transformers** for **class III handlamps for tungsten filament lamps** and **power supply units** incorporating **transformers** for **class III handlamps for tungsten filament lamps**.

This part is applicable to **stationary** or **portable** single-phase air-cooled (natural or forced) **independent** or **associated dry-type transformers**. The windings may be encapsulated or non-encapsulated.

This standard is applicable to **transformers** and **power supply** (linear) with **internal operational frequencies** not exceeding 500 Hz.

This standard used in combination with Part 2-16 for **switch mode power supply (SMPS)** units is also applicable to power supplies with **internal operational frequencies** higher than 500 Hz. Where the two requirements are in conflict, the most severe take precedence.

The **rated supply voltage** does not exceed 1 000 V a.c., and the **rated supply frequency** and the **internal operational frequencies** do not exceed 500 Hz.

**Transformers** for **class III handlamps for tungsten filament lamps** have the following additional characteristics:

- **the no-load output voltage** and the **rated output voltage** do not exceed 50 V a.c. or 120 V ripple-free d.c.;
- there is only a small difference between the **no-load voltage** and the **rated output voltage**.

The **rated output** does not exceed:

- 10 kVA.

This part is not applicable to external circuits and their components intended to be connected to the input terminals and output terminals of the **transformers**.

**Transformers** covered by this part are used in applications where **double or reinforced insulation** between circuits is required by the installation rules or by the end product standard.

NOTE 2 Attention is drawn to the following:

- for **transformers** intended to be used in vehicles, on board ships, and aircraft, additional requirements (from other applicable standards, national rules, etc.) may be necessary;
- measures to protect the **enclosure** and the components inside the **enclosure** against external influences such as fungus, vermin, termites, solar-radiation, and icing should also be considered;
- the different conditions for transportation, storage, and operation of the **transformers** should also be considered;
- additional requirements in accordance with other appropriate standards and national rules may be applicable to **transformers** intended for use in special environments.

NOTE 3 Future technological development of **transformers** may necessitate a need to increase the upper limit of the frequencies, until then this part may be used as a guidance document.

## 2 Normative references

This clause of Part 1 is applicable except as follows:

*Addition:*

IEC 61558-1:2005, *Safety of power transformers, power supplies, reactors and similar products – Part 1: General requirements and tests*

## 3 Terms and definitions

This clause of Part 1 is applicable, except as follows:

*Addition:*

### 3.1.101

**transformer for class III handlamps for tungsten filament lamps**

associated **safety isolating transformer** intended to supply one or more class III handlamps for tungsten filament lamps

### 3.1.102

**power supply unit incorporating transformer for class III handlamps for tungsten filament lamps**

**power supply unit** where an associated **safety isolating transformer** is used intended to supply one or more **class III handlamps for tungsten filament lamps**

## 4 General requirements

This clause of Part 1 is applicable.

## 5 General notes on tests

This clause of Part 1 is applicable.

## 6 Ratings

This clause of Part 1 is applicable, except as follows:

*Addition:*

**6.101** The **rated output voltage** shall not exceed 50 V a.c. or 120 V ripple-free d.c.