SLOVENSKI STANDARD
SIST EN 61558-2-17:1999

01-julij-1999

Safety of power transformers, power supply units and similar - Part 2-17: Particular requirements for transformers for switch mode power supplies (IEC 61558-2-17:1997)

Safety of power transformers, power supply units and similar -- Part 2-17: Particular requirements for transformers for switch mode power supplies

Sicherheit von Transformatoren, Netzgeräten und dergleichen -- Teil 2-17: Besondere Anforderungen an Sicherheitstransformatoren für Schaltnetzteile

Sécurité des transformateurs, blocs d'alimentation et analogues -- Partie 2-17: Règles particulières pour les transformateurs pour alimentation à découpage

Ta slovenski standard je istoveten z: **EN 61558-2-17:1997**

ICS:

29.180	Transformatorji. Dušilke	Transformers. Reactors

SIST EN 61558-2-17:1999 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61558-2-17

November 1997

ICS 29.180

Descriptors: Transformers, electric power supply, protective transformers, isolating transformers, safety requirements, detail specifications, characteristics, ability to withstand short circuit, overload protection, temperature rise, mechanical strength, insulation resistance

English version

Safety of power transformers, power supply units and similar Part 2-17: Particular requirements for transformers for switch mode power supplies (IEC 61558-2-17:1997)

Sécurité des transformateurs, blocs d'alimentation et analogues
Partie 2-17: Règles particulières pour les transformateurs pour alimentation à découpage
(CEI 61558-2-17:1997)

Sicherheit von Transformatoren, Netzgeräten und dergleichen
Teil 2: Besondere Anforderungen an Transformatoren für Schaltnetzteile
(IEC 61558-2-17:1997)

This European Standard was approved by CENELEC on 1997-07-01. 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Ref. No. EN 61558-2-17:1997 E

Foreword

The text of document 96/52/FDIS, future edition 1 of IEC 61558-2-17, prepared by IEC TC 96, Small power transformers, reactors and power supply units and special transformers, reactors and power supply units: safety requirements, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61558-2-17 on 1997-07-01.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1998-02-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2002-08-01

For products which have complied with the relevant national standard before 2002-08-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2003-08-01.

This part 2-17 of EN 61558 is to be used in conjunction with EN 61558-1:1997.

This part 2 supplements or modifies the corresponding clauses of EN 61558-1, so as to convert it into the European Standard "Particular requirements for transformers for switch mode power supplies".

When a particular clause or subclause of part 1 is not mentioned in this part 2, that clause or subclause applies as far as is reasonable. Where this part 2 states "addition", "modification" or "replacement", the relevant text of part 1 is to be adapted accordingly.

Subclauses which are additional to those in part 1 are numbered starting from 101.

There are no special national conditions (snc) causing a deviation from this European Standard other than those listed in annex ZA of EN 61558-1.

Endorsement notice

The text of the International Standard IEC 61558-2-17:1997 was approved by CENELEC as a European Standard without any modification.

NORME INTERNATIONALE

INTERNATIONAL STANDARD

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IEC
61558-2-17

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PUBLICATION GROUPÉE DE SÉCURITÉ
GROUP SAFETY PUBLICATION

Sécurité des transformateurs, blocs d'alimentation et analogues –

Partie 2:
Règles particulières pour les transformateurs pour alimentation à découpage

Safety of power transformers, power supply units and similar –

Part 2:
Particular requirements for transformers for switch mode power supplies

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International Electrotechnical Commission
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SAFETY OF POWER TRANSFORMERS, POWER SUPPLY UNITS AND SIMILAR –

Part 2: Particular requirements for transformers for switch mode power supplies

FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.

3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.

4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.

5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.

6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61558-2-17 has been prepared by IEC technical committee 96: Small power transformers, reactors and **power supply units** and special transformers, reactors and **power supply units**: Safety requirements.

It has the status of a group safety publication in accordance with IEC Guide 104: Guide for the drafting of safety standards, and the role of Committees with safety pilot functions and safety group functions (1984).

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

FDIS	Report on voting
96/52/FDIS	96/75/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 part 2 is intended to be used in conjunction with IEC 61558-1. It was established on the basis of the first edition (1997) of that standard.

This part 2 supplements or modifies the corresponding clauses in IEC 61558-1, so as to convert that publication into the IEC standard: *Particular requirements for transformers for switch mode power supplies.*

When a particular subclause of part 1 is not mentioned in this part 2, that subclause applies as far as is reasonable. Where this standard states "addition", "modification" or "replacement", the relevant text of part 1 is to be adapted accordingly.

In this standard, the following print types are used:

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

In the text of the standard the words in **bold** are defined in clause 3.

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

SAFETY OF POWER TRANSFORMERS, POWER SUPPLY UNITS AND SIMILAR –

Part 2: Particular requirements for transformers for switch mode power supplies

1 Scope

Replacement:

This part 2 of IEC 61558 applies to associated power transformers for **switch mode power supplies**, single-phase or polyphase, air-cooled:

- **separating transformers**;
- **isolating transformers**;
- **safety isolating transformers**,

having a **rated supply voltage** not exceeding 1000 V a.c. and a **rated frequency** of 500 Hz to 1 MHz, the **rated output** not exceeding:

- 10 kVA for single-phase transformers;
- 16 kVA for polyphase transformers.

NOTE 1 – For higher frequencies, this standard may be used as a guide.

The **no-load output voltage** or the **rated output voltage** do not exceed:

- 1000 V a.c. or 1 415 V ripple-free d.c for **separating transformers**;
- 500 V a.c. or 708 V ripple-free d.c for **isolating transformers**.

NOTE 2 – For **isolating transformers**, the **rated output voltage** may be up to 1000 V a.c. or 1415 V ripple-free d.c. in accordance with the national wiring rules or designed for special purposes.

- 50 V a.c. r.m.s. and/or 120 V ripple-free d.c for **safety isolating transformers**.

This standard is applicable to **dry type transformers**. The windings may be encapsulated or non-encapsulated.

NOTES

3 For transformers filled with liquid dielectric or pulverized material, such as sand, additional requirements are under consideration.

4 In locations where special environmental conditions prevail, particular requirements may be necessary in accordance with IEC 364-5-51.

5 For higher output no-load voltages, additional requirements are necessary but this section may be used as a guide.

2 Normative references

This clause of part 1 is applicable.

3 Definitions

This clause of part 1 is applicable except as follows:

Addition:

3.1.101 **switch mode power supply**: A **power supply** incorporating a transformer for which the rated frequency is different from the frequency of the input circuit.

4 General requirements

This clause of part 1 is applicable.

5 General notes on tests

This clause of part 1 is applicable except as follows:

5.2 *Addition:*

If the tests of 14.101 and of clause 15 are made on a specially prepared specimen, one additional specimen is needed.

5.12 *Replacement:*

The transformers for ***switch mode power supplies*** *shall comply with the relevant section of IEC 61558-2 and the conditions under which they are used in the appliance or equipment shall be in accordance with their marking. However, if they are used in an appliance or equipment for which a relevant appliance or equipment standard exists, they may be tested under the conditions present in the appliance or equipment for which they are intended.*

Consequently a transformer for ***switch mode power supply*** *tested under conditions present in the appliance or equipment for which it is intended has to comply with the following clauses, subclauses or parts thereof, all other clauses, subclauses or parts thereof being considered to be covered by the relevant product standard:*

1 - 2 - 3 - 4 - 5.1 - 5.2 - 5.3 - 5.4 - 5.5 - 5.6 - 5.7 - 5.12 - 7.1 - 7.2 - 7.5 - 8.2 - 8.11 - 14.101 - 18.1 - 18.2 - 18.3 - 19.1 - 19.12 - 20.9 - 26.1 - 26.2 - 26.3 - 26.101 - 26.102 - 26.103 - Annexes A, C, D, G, K, L, M, N, P.

NOTE – Attention is drawn to the fact that if the appliance or equipment standard does not include tests for short-circuit or overload protection of the transformer, relevant tests of clause 15 may have to be made.

6 Ratings

This clause of part 1 is applicable except as follows:

Addition:

6.101 The **no-load output voltage** shall not exceed:

– 1000 V a.c. or 1415 V ripple-free d.c. for **separating transformers**, for a.c. the preferred values for the **rated output voltage** being: 72 V, 120 V, 230 V, 400 V, 440 V and 660 V;