

SLOVENSKI STANDARD

SIST-TP CLC/TR 50417:2014

01-november-2014

Nadomešča:

SIST-TP CLC/TR 50417:2011

Varnost gospodinjskih in podobnih električnih aparatov - Razlage v zvezi z evropskimi standardi skupine EN 60335

Safety of household and similar electrical appliances - Interpretations related to European Standards in the EN 60335 series

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Sécurité des appareils électrodomestiques et analogues - Interprétations relatives aux Normes Européennes de la série **EN 60335**

<https://standards.iteh.ai/catalog/standards/sist/26fdb62-913d-4cef-8e8e-a2bcd257525b/sist-tp-clc-tr-50417-2014>

Ta slovenski standard je istoveten z: CLC/TR 50417:2014

ICS:

13.120	Varnost na domu	Domestic safety
97.030	Električni aparati za dom na splošno	Domestic electrical appliances in general

SIST-TP CLC/TR 50417:2014

en

iTeh STANDARD PREVIEW **(standards.iteh.ai)**

SIST-TP CLC/TR 50417:2014

<https://standards.iteh.ai/catalog/standards/sist/26fdb62-913d-4cef-8e8e-a2bcd257525b/sist-tp-clc-tr-50417-2014>

TECHNICAL REPORT
RAPPORT TECHNIQUE
TECHNISCHER BERICHT

CLC/TR 50417

May 2014

ICS 97.030

Supersedes CLC/TR 50417:2010

English Version

**Safety of household and similar electrical appliances -
Interpretations related to European Standards in the EN 60335
series**

This Technical Report was approved by CENELEC on 2014-04-21.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

ITeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST-TP CLC/TR 50417:2014](https://standards.iteh.ai/catalog/standards/sist/26fdb62-913d-4cef-8e8e-a2bcd257525b/sist-tp-clc-tr-50417-2014)

<https://standards.iteh.ai/catalog/standards/sist/26fdb62-913d-4cef-8e8e-a2bcd257525b/sist-tp-clc-tr-50417-2014>



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

1.	EN 60335-1:1994, General requirements	4
2.	EN 60335-1:2002, General requirements	7
3.	EN 60335-1:2002/A2:2006, General requirements	17
4.	EN 60335-1:2012, General requirements	18
5.	EN 60335-2-2:2003/A11:2010, Vacuum cleaners and water-suction cleaning appliances	19
6.	EN 60335-2-3:2002/A11:2010, Electric irons	20
7.	EN 60335-2-4:2002, Spin extractors	21
8.	EN 60335-2-6:2003, Cooking ranges, hobs and ovens	22
9.	EN 60335-2-6:2003/A11:2010, Cooking ranges, hobs and ovens	24
10.	EN 60335-2-7:2003, Washing machines	26
11.	EN 60335-2-8:2003, Shavers, hair clippers, etc.	27
12.	EN 60335-2-9:2003, Toasters, grills, etc.	28
13.	EN 60335-2-9:2003/A13:2010, Grills, toasters and similar portable cooking appliances	30
14.	EN 60335-2-11:2003 + A1:2004, Tumble dryers	31
15.	EN 60335-2-13:2003 + A1:2004, Deep fat fryers, frying pans and similar appliances	32
16.	EN 60335-2-14:2006, Electric kitchen machines	33
17.	EN 60335-2-15:2002, Appliances for heating liquids	37
18.	EN 60335-2-17:2002, Blankets, pads and similar flexible heating appliances	38
19.	EN 60335-2-23:2003, Appliances for skin or hair care	40
20.	EN 60335-2-23:2003/A11:2010, Appliances for skin or hair care	41
21.	EN 60335-2-24:2003, Refrigerating appliances	42
22.	EN 60335-2-25:2002/A11:2010, Microwave ovens, including combination microwave ovens	43
23.	EN 60335-2-27:2003, UV appliances	44
24.	EN 60335-2-30:2003, Room heaters	45
25.	EN 60335-2-30:2009, Room heaters	46
26.	EN 60335-2-31:2003, Range hoods	47
27.	EN 60335-2-31:2003 + A1:2006 + A2:2009, Range hoods	49
28.	EN 60335-2-34:2002, Motor-compressors	51
29.	EN 60335-2-43:2003, Clothes dryers and towel rails	52
30.	EN 60335-2-52:2003, Oral hygiene appliances	53
31.	EN 60335-2-52:2003/A11:2010, Oral hygiene appliances	54
32.	EN 60335-2-60:2003, Whirlpools	55
33.	EN 60335-2-61:2003, Storage room heaters	56
34.	EN 60335-2-65:2003+A1:2008, Air-cleaning appliances	57
35.	EN 60335-2-75:2004, Commercial dispensing appliances and vending machines	58
36.	EN 60335-2-76:2005/A12:2010, Fence energizers	59
37.	EN 60335-2-82:2003, amusement machines and personal service machines	60
38.	EN 60335-2-89:2002, Commercial refrigerating appliances	61
	Annex A (informative) Collection of interpretations of the requirement for vulnerable people in 7.10 of EN 60335-1:2012 and different Parts 2	62
	Annex B (informative) Interpretations withdrawn in this edition of CLC/TR 50417	65

Foreword

This Technical Report was prepared by the Technical Committee CENELEC TC 61, "Safety of household and similar appliances".

This document supersedes CLC/TR 50417:2010.

It includes all the interpretations agreed up to the CLC/TC 61 meeting in December 2011.

This Technical Report includes all Interpretations currently in force made by CENELEC TC 61 on EN 60335 series of standards. It also includes all decision sheets in force made by OSM/HA. Both types of interpretations are clearly identified. Interpretations relating to a particular standard are listed together, the Parts 2 of EN 60335 being associated with the appropriate edition of Part 1. For each standard, the interpretations are listed in the order of clauses and subclauses.

Each **CENELEC TC 61** interpretation is identified by

- the place and date of the meeting when it was agreed;
- the document number of the minutes of the meeting;
- the number of the reference document, when applicable;
- a code with the format YYYY/XX, where
 - YYYY is the year when the interpretation was decided,
 - XX is the number of the interpretation, restarted every year.

Each **OSM/HA** decision sheet is identified through the following template:

DECISION SHEET				Date YYYY-MM-DD
Standard EN 60335-X	SIST-TP CLC/TR 50417:2014			OSM/HA
(Sub)clause	Meeting	Agenda item	Document	Exp. date
...	

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

1. EN 60335-1:1994, General requirements

NOTE: The interpretations for EN 60335-1:1994 and EN 60335-1:2002 will be withdrawn at the dow of EN 60335-1:2012, i.e. 2014-11-21

1995/01 – General

**Dublin, May 1995, CLC/TC 61(SEC)1027
CLC/TC 61(FR)292**

In class II constructions of appliances it is not allowed to reverse the basic and the supplementary insulation.

1996/01 - General

**Copenhagen, May 1996, CLC/TC 61(SEC)1075
CLC/TC 61(SEC)1000**

For testing motor capacitors in appliances under the scope of EN 60335, document IEC 61/1055/CD should be used.

1996/02 – General

**Athens, November 1996, CLC/TC 61(SEC)1098
CLC/TC 61(SEC)1087**

The mass of the appliance is to be considered with the empty appliance, if nothing is said in the particular standard or for a particular clause.

1998/01 - General

Brussels, May 1998, CLC/TC61(SEC)1185

Controls are considered to comply with EN 60730 if they complied with the previous relevant standard before the dow specified in EN 60730, and may be used in an appliance until the end of the certification period.

NOTE Controls will also have to comply with the applicable requirements of EN 60335 series standards.

<https://standards.iteh.ai/catalog/standards/sist/26fdb62-913d-4cef-8e8e-a2bcd257525b/sist-tp-clc-tr-50417-2014>

2000/01 - General

Kristiansand, June 2000, CLC/TC 61(SEC)1287

The word “similar” in the title “Toxicity and similar hazards” means other hazards, which may be applicable but not covered by the standard.

2000/02 - General

Brussels, October 2000, CLC/TC 61(SEC)1302

Concerning the use of socket-outlets on appliances, those should be of the appropriate type as specified in IEC 60083:1997 for the relevant countries.

1998/02 - Clause 1

Naples, November 1998, CLC/TC61(SEC)1218

The scope of EN 60335-1:1994 is meant to include the safety of operators which are instructed to operate the machine, but which are non electrical experts.

1996/03 - Subclause 15.1.2

**Copenhagen, May 1996, CLC/TC 61(SEC)1075
CLC/TC 61(SE)351**

Parts which are to be removed in accordance with the instructions for use and which can be removed only with the aid of a tool, shall not be removed, only for the purpose of the test of 15.1.2.

2002/01 - Subclause 19.13

**Brussels, November 2002, CLC/TC 61(SEC)1403
CLC/TC 61(IT)258**

In general, creepage distances and clearances are not measured during and after the tests of Clause 19.

1997/01 - Subclause 22.33**Edinburgh, May 1997, CLC/TC 61(SEC)1127
CLC/TC 61(SE)393**

Add the following note:

NOTE 2 An air layer is not considered sufficient as one of the layers of double insulation, if it is likely that the air layer could be bridged by leaking liquid".

1996/04 - Subclause 22.42**Athens, November 1996, CLC/TC 61(SEC)1098
CLC/TC 61(AT)260**

Concerning Y2 capacitors used as protective impedance, the following applies for bridging insulations:

- | | |
|--|---|
| a) Two Y2 capacitors (voltage proof 1 500 V, peak impulse 5 kV); combination Y2 (basic insulation) + Y2 (supplementary insulation) | Not accepted.
Acceptance for two Y2 capacitors with voltage proof 2 500 V only |
| b) Combination Y1 (basic insulation) + Y2 (supplementary insulation) | Accepted for Y2 capacitors with voltage proof 2 500 V only |
| c) Combination Y2 (basic insulation) + Y1 (supplementary insulation) | Accepted (idem b) |
| d) Combination of three Y2 capacitors in series | Not accepted |

1995/02 - Subclause 24.1.1**Dublin, May 1995, CLC/TC 61(SEC)1027
CLC/TC 61(SEC)995**

Miniature fuses with other ratings or dimensions than those in EN 60127 can be accepted under the following conditions:

- It shall not be possible to change the fuse without removing a cover with the use of a tool.
- The fuse and the fuseholder shall be marked to ensure correct replacement.
- The fuse shall be checked in the appliance; 10 samples shall break reliably under fault conditions.

1994/01 - Subclause 24.1.2, note 2**Oslo, April 1994, CLC/TC 61(SEC)972**

The switching part of an automatic control (or programmer) with an off position is considered as a switch. An endurance test is only necessary if such a switch is required by the standard.

2001/01 - Subclause 25.7**Delft, May 2001, CLC/TC 61(SEC)1330**

The words « shall not be lighter than » means that any heavier standardized cord can be used.

2001/02 - Subclause 25.22**Paris, November 2001, CLC/TC 61(SEC)1349
CLC/TC 61(SEC)1334**

Replace the second dashed item by:

- be located so that the connector can be inserted into the correct engagement position without difficulty and that improper engagement is not readily possible;

1999/01 - Subclause 26.10

**Pamplona, June 1999, CLC/TC 61(SEC)1244
CLC/TC 61(DK)123**

This subclause does not apply to earth terminals.

1992/01 - Subclause 30.2

Pettenasco, September 1992, CLC/TC 61(SEC)869

"not likely to be ignited" belongs to decorative trims, knobs and other parts.

2000/03 - Annex ZD

**Kristiansand, June 2000, CLC/TC 61(SEC)1287
CLC/TC 61(SEC)1257**

Clause 29 has to be mentioned instead of 29.1 with regard to distances, because 29.2 (distance through insulation) is also involved.

**iTeh STANDARD PREVIEW
(standards.iteh.ai)**

SIST-TP CLC/TR 50417:2014

<https://standards.iteh.ai/catalog/standards/sist/26fdb62-913d-4cef-8e8e-a2bcd257525b/sist-tp-clc-tr-50417-2014>

2. EN 60335-1:2002, General requirements

NOTE: The interpretations for EN 60335-1:1994 and EN 60335-1:2002 will be withdrawn at the drow of EN 60335-1:2012, i.e. 2014-11-21

2004/01 - Subclause 15.1.2

Milan, November 2004, CLC/TC 61(SEC)1519

Addition:

Appliances with an automatic cord reel are tested with the cord in the most unfavourable position in such a way that the reeling of the wet cord may affect electrical insulation during operation. The cord shall not be dried before reeling.

2006/01 - Subclause 20.2

Málaga, June 2006, CLC/TC 61(SEC)1567

Replace note 1 by the following normative text:

For appliances having dangerous movable parts, due to their main function, e.g. the needle of a sewing machine, tools of kitchen machines or the blade of an electrical knife, a full protection is not suitable for intended use.

2002/05 - Clause 24

**Kista, May 2002, CLC/TC 61(SEC)1377
CLC/TC 61(FR)1351**

Add the following paragraph:

Plugs and socket-outlets and other connecting devices of interconnection cords shall not be interchangeable with plugs and socket-outlets listed in IEC 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1, if direct supply to these parts from the supply mains could give rise to a hazard.

2005/01 - Subclause 24.1

Brussels, November 2005, CLC/TC 61(SEC)1544

Plugs and connectors specified in IEC 60083, IEC 60320, IEC 60309 or IEC 60884-1 are not subjected to the tests of EN 60335-1.

2010/01 - Subclause 24.1

Brussels, June 2010, CLC/TC 61(DE)0615/INF

For motor-run capacitors (IEC 60252 type P2) with a metal housing having an overpressure fuse the flame testing of internal plastic parts as required in 30.2.2 and 30.2.3.1 is not necessary.

2004/02 - Subclause 24.1.3

Milan, November 2004, CLC/TC 61(SEC)1519

For the purpose of this test a thermostat or timer that is operating the relay or contactor is considered to be a switch.

2011/12 - Subclause 25.7

Malta, December 2011, CLC/TC 61(IT)0278/DC

Cable 03RNH2-F, not harmonized at CENELEC level but covered by a testing schedule developed by EU certification bodies, or a harmonized cable with similar characteristics, can be used for appliances for which 05RNH2-F is allowed.

2005/02 - Subclause 29.3**Brussels, November 2005, CLC/TC 61(SEC)1544**

If there is a risk of damaging the insulation during installation, the insulation has to withstand the scratch and penetration test of 21.2.

2005/03 - Clause 32**Brussels, November 2005, CLC/TC 61(SEC)1544
Málaga, June 2006, CLC/TC 61(SEC)1567**

For appliances incorporating UVC emitters no exposure to UVA, UVB or UVC is allowed during operation.

NOTE Examples of appliances that may incorporate UVC emitters are range hoods, water pumps, air cleaners.

The manufacturer declaration is considered as sufficient proof that the plastic material exposed to the radiation is UV resistant.

The instructions shall include the substance of the following:

WARNING This appliance contains a UV emitter. Do not stare at the light source.

During maintenance and service the UVC emitters shall be switched off completely by a plug or switch. If this does not switch off completely the UVC emitters, an interlock is needed. It shall not be possible to operate the interlock switch with the test finger.

2007/01 – Annex I, Subclause 19.101**Berlin, November 2007, CLC/TC 61(SEC)1613**

The appliance is operated under normal operation.

When any of the fault conditions are simulated, the duration of the test is as specified in Subclause 19.7.

DECISION SHEET				Date
Standard EN 60335-1:2002				1998-02-11
(Sub)clause	Meeting	Agenda item	Document	Exp. date
7.10	8	11.1		
7.10	20	6.3	(SE)01/06	
7.10	23	6.4.2	(SEC)05/09	

Subject

Marking

Problem

Marking of push-push mains switch

Decision

A push-push mains switch for stationary appliances needs a visual means e.g. according to IEC 60417 "Graphical symbols for use on equipment" or a lamp to indicate clearly whether the switch is in the on/off position. The marking should be on or near the switch.

When the visual mean according IEC 60417 is used, it shall be distinguished clearly the different switch positions using a lamp or a similar means.

Comment

CLC/TC 61 decision of April 1994.

This decision has been updated after the 20th and 23rd OSM/HA meetings.

NOTE: This will be withdrawn at the drow of EN 60335-1:2012, i.e. 2014-11-21

DECISION SHEET				Date 1998-02-24
Standard EN 60335-1:2002				OSM/HA 192
(Sub)clause	Meeting	Agenda item	Document	Exp. date
8	11	9.2	(NO)1/97	
20	11	9.2	(NO)1/97	
8 & 20	23	6.4.2	(SEC)05/09	

Subject

Protection against electric shock

Problem

Should the tests on for instance a portable fan heater with an enclosure of plastic material be carried out in cold condition or in steady state condition ?

Decision

Normal use means room temperature, not steady state condition.

Comment

CLC/TC 61 confirmed (May 1998).

This decision has been updated after the 23rd OSM/HA meeting.

DECISION SHEET				Date 2000-08-31
Standard EN 60335-1:2002				OSM/HA 249
(Sub)clause	Meeting	Agenda item	Document	Exp. date
8 & 20	14	9.2	(SI)1/00	
8 & 20	15	6.3	(Chair)1/01	
8 & 20	23	6.4.2	(SEC)05/09	

Subject

Interlock switches

Problem

For removing or opening a cover, a door, etc., mechanically operated interlock switches can be used for protection against electric shock and accessibility of moving parts.

Which are the requirements for interlock switches regarding distances contact gaps and reliability of cycling operations of switches for fixed appliances and appliances provided with plug which provide:

- 1) protection against electric shock and energy hazards, or
- 2) protection against dangerous moving parts ?

Decision

1) It is not acceptable to get access to live parts after operation of an interlock switch without a tool even if is at least 3 mm between the contact gaps and with all poles disconnection. In that situation it is still considered to be live. Only for certain Parts 2 (e.g. air cleaners and insect killers) this is allowed.

2) At least a micro switch (< 3 mm) and minimum one pole disconnection to obtain the protection against mechanical hazards.

The interlock switches are tested according to 24.1.3:

switched under load for 10 000 cycles, switched without load for 100 cycles.

Comment

CLC/TC 61 confirmed in May 2001.

This decision has been updated after the 23rd OSM/HA meeting.

DECISION SHEET				Date 2002-07-10
Standard EN 60335-1:2002				OSM/HA 304
(Sub)clause	Meeting	Agenda item	Document	Exp. date
26.5	15	9.15	(SI)01/01	
26.5	23	6.4.2	(SEC)05/09	

Subject

Terminals

Problem

Which of the two figures shows the correct way to carryout the test of stranded conductor ?

Decision

Figure 2 shows the correct way to carry out the test.

Comment

CLC/TC 61 confirmed (November 2001).

This decision has been updated after the 23rd OSM/HA meeting.

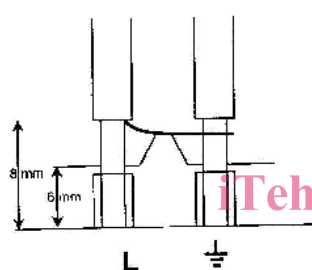


figure 1

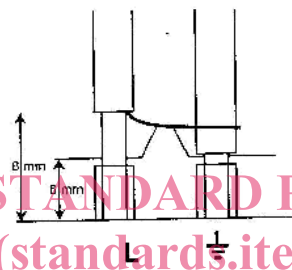


figure 2

SIST-TP CLC/TR 50417:2014

<https://standards.iteh.ai/catalog/standards/sist/26fdb62-913d-4cef-8e8e-a2bcd257525b/sist-tp-clc-tr-50417-2014>

DECISION SHEET				Date 2002-07-11
Standard EN 60335-1:2002				OSM/HA 305
(Sub)clause	Meeting	Agenda item	Document	Exp. date
29.1	15	9.19	(CH)04/01	
29.1	23	6.4.2	(SEC)05/09	

Subject

Creepage/clearance

Problem

What is the minimum value for creepage distances and clearances on the printed circuit between the printed conductor for live part and the printed conductor for SELV, considering that a printed earthing conductor there is between the two printed conductors ?

Decision

The value prescribed for basic insulation is required, depending on the protection against deposition of dirt, The printed earthing conductor shall fulfil the requirements of 27.6.

Comment

CLC/TC 61 confirmed (November 2001).

This decision has been updated after the 23rd OSM/HA meeting.

DECISION SHEET				Date 2005-07-27
Standard EN 60335-1:2002				OSM/HA 353
(Sub)clause	Meeting	Agenda item	Document	Exp. date
11	18	5.6	(NL)02/04	
11	19	4.3	CLCTC61(SEC)1519	
11	23	6.4.2	(SEC)05/09	

Subject

Heating

Problem

How to deal with appliances which may be used in accordance to the instructions at high temperatures (45 °C) ?

Decision

If a manufacturer declares an ambient temperature exceeding 25 °C, all the heating tests shall be done at an ambient temperature of (23 ± 2) °C but the limit should be reduced as the difference between the declared temperature and 25 °C. This decision is based on Note 2 of Table 3 of Clause 11 of Part 1.

Comment

CLC/TC 61 confirmed (November 2004).

This decision has been updated after the 23rd OSM/HA meeting.

DECISION SHEET				Date 2005-07-27
Standard EN 60335-1:2002				OSM/HA 354
(Sub)clause	Meeting	Agenda item	Document	Exp. date
15.1.2	18	5.11	(SI)04/04	
15.1.2	19	4.3	CLCTC61(SEC)1519	
15.1.2	23	6.4.2	(SEC)05/09	

Subject

Moisture resistance

Problem

The testing of appliances with (automatic) cord reels is performed in the most unfavourable positions of the cord reel, in position of an appliance as defined in 15.1.2.

As the standard does not taking into account influence of water entrance during the reeling of wet cord, shall the cable be dried during the high voltage test ?

Decision

The cable shall not be dried during the test.

Comment

CLC/TC 61 confirmed (November 2004).

This decision has been updated after the 23rd OSM/HA meeting.

DECISION SHEET				Date 2006-07-07
Standard EN 60335-1:2002				OSM/HA 376
(Sub)clause	Meeting	Agenda item	Document	Exp. date
29.3	20	5.3	(GB)01/05	
29.3	23	6.4.2	(SEC)05/09	

Subject

Distance

Problem

Subclause 29.3 states the requirements for the thickness of solid insulation do not apply to inaccessible insulation providing the other requirements stated within the subclause are met.

The question is about a product where a thin insulation sheet used within the product met the requirements of the standard for inaccessible insulation once the product had been installed. However, during installation the inaccessible insulation is accessible and, although electrically the insulation meets the requirements, mechanically we found it could be easily damaged.

The product is an instantaneous water heater that is permanently plumbed into the water supply and electrically connected to fixed wiring. A professional competent person normally installs the product.

The question is if this insulation is adequate even if it can easily be accidentally damaged but meets the requirements of the standard if it is not considered an accessible part.

Decision

Taking into account the definition of accessible part (3.6.3) and the test of 21.2, if there is a risk of insulation damage, the scratch test shall be performed on the insulation which is accessible during installation.

Comment

CLC/TC 61 confirmed in November 2005.

This decision has been updated after the 23rd OSM/HA meeting.

ITEH STANDARD PREVIEW
(standards.iteh.ai)

DECISION SHEET				Date 2006-07-07
Standard EN 60335-1:2002				OSM/HA 378
(Sub)clause	Meeting	Agenda item	Document	Exp. date
30.2	20	5.3	(ES)05/05	
30.2	23	6.4.2	(SEC)05/09	

Subject

Glow-wire

Problem

Considering 30.2 of Part 1, including A2, how shall the glow wire test on motor capacitors and in which parts be performed ?

The photo 1 shows a resin embedded motor capacitors where the internal connection between the wire and the plate is a soldered one.

The photos 2 and 3 show the points of connection on the upper and lower part.

In all the figures the connections are within 3 mm from the external plastic case of the capacitor.

Decision

The glow wire test has to be performed over the shielding and shielded materials joint together, where the connection is made, at 750 °C, from the inside to outside as normal testing, allowing the tip to penetrate in the shielded material. In this case, the shielded material is the external plastic case because is within 3 mm from the connection (as in the figures).

Comment

CLC/TC 61 confirmed in November 2005 and June 2006.

This decision has been updated after the 23rd OSM/HA meeting.

Photograph 1:
Sample before the test showing the different parts



connection point

inter-phase between connection and
external case (resin)

Photo1



Photo 2: connection on the upper part of
the capacitor



Photo 3: connection on the lower part of the
capacitor

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST-TP CLC/TR 50417:2014](https://standards.iteh.ai/catalog/standards/sist/26fdb62-913d-4cef-8e8e-a2bed257525b/sist-tp-clc-tr-50417-2014)

<https://standards.iteh.ai/catalog/standards/sist/26fdb62-913d-4cef-8e8e-a2bed257525b/sist-tp-clc-tr-50417-2014>