


<b>Prüfbericht-Nr.:</b> Test Report No.:	<b>50294132 009</b>	<b>Auftrags-Nr.:</b> Order No.:	180190511	Seite 1 von 42 Page 1 of 42	
<b>Kunden-Referenz-Nr.:</b> Client Reference No.:	N/A	<b>Auftragsdatum:</b> Order date:	20.08.2020		
<b>Auftraggeber:</b> Client:	efco creative GmbH GROSSE AHLMUEHLE 10 76865 ROHRBACH / PFALZ GERMANY				
<b>Prüfgegenstand:</b> Test item:	Glue Gun				
<b>Bezeichnung / Typ-Nr.:</b> Identification / Type No.:	See page 3				
<b>Auftrags-Inhalt:</b> Order content:	Type Test				
<b>Prüfgrundlage:</b> Test specification:	EN 60335-1:2012+A11+A13+A1+A14+A2 EN 60335-2-45:2002+A1+A2 EN 62233:2008 AfPS GS 2019:01 PAK				
<b>Wareneingangsdatum:</b> Date of receipt:	20.08.2020				
<b>Prüfmuster-Nr.:</b> Test sample No.:	A002875086				
<b>Prüfzeitraum:</b> Testing period:	21.08.2020 – 21.08.2020				
<b>Ort der Prüfung:</b> Place of testing:	TÜV Rheinland /CCIC (Ningbo) Co., Ltd.				
<b>Prüflaboratorium:</b> Testing laboratory:	TÜV Rheinland /CCIC (Ningbo) Co., Ltd.				
<b>Prüfergebnis*:</b> Test result*:	Pass				
<b>geprüft von / tested by:</b>	<b>kontrolliert von / reviewed by:</b>				
29.09.2020	Huafeng Gong/PE	29.09.2020	Liwei Lang/TC		
<b>Datum</b> Date	<b>Name / Stellung</b> Name / Position	<b>Unterschrift</b> Signature	<b>Datum</b> Date	<b>Name / Stellung</b> Name / Position	<b>Unterschrift</b> Signature
<b>Sonstiges / Other:</b>					
This amended test report was to add new models and update standard Annex 1: PAHs risk analysis filled by manufacturer (1 page) Annex 2: PAHs risk analysis filled by GS test center (1 page)					
<b>Zustand des Prüfgegenstandes bei Anlieferung:</b> Condition of the test item at delivery:			Prüfmuster vollständig und unbeschädigt Test item complete and undamaged		
* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested					
<b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b> This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.					

Test Report issued under the responsibility of:

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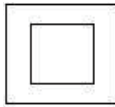



Report No. 50294132 009

<b>TEST REPORT</b> <b>IEC 60335-2-45</b> <b>Safety of household and similar electrical appliances</b> <b>Part 2: Particular requirements for portable heating tools</b>	
<b>Report Number</b> .....	50294132 009
<b>Date of issue</b> .....	See cover page
<b>Total number of pages</b> .....	See cover page
<b>Name of Testing Laboratory preparing the Report</b> .....	TÜV Rheinland /CCIC (Ningbo) Co., Ltd. 3F Building C13, R&D Park, No.32 , Lane 299 Guanghua Road, National Hi-Tech Zone, Ningbo, 315048, P. R. China
<b>Applicant's name</b> .....	efco creative GmbH
<b>Address</b> .....	GROSSE AHLMUEHLE 10 76865 ROHRBACH / PFALZ GERMANY
<b>Test specification:</b>	
<b>Standard</b> .....	IEC 60335-2-45:2002, AMD1:2008, AMD2:2011 used in conjunction with IEC 60335-1:2010, COR1:2010, COR2:2011, AMD1:2013, COR1:2014, AMD2:2016, COR1:2016
<b>Test procedure</b> .....	GS mark approval & CE LVD
<b>Non-standard test method</b> .....	N/A
<b>Test Report Form No.</b> .....	IEC60335_2_45J
<b>Test Report Form(s) Originator</b> ....	LCIE
<b>Master TRF</b> .....	Dated 2018-10-04
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<b>General disclaimer:</b> The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.	

<b>Test item description</b> .....	: Glue Gun
<b>Trade Mark</b> .....	: N/A
<b>Manufacturer</b> .....	: Same as applicant
<b>Model/Type reference</b> .....	: FL-005, FL-138, FL-138AA, FL-138A, FL-138B, FL-007, FL-666, FL-158, FL-158B, FL-158F, FL-158F(F), FL-158E, FL-166, FL-188, FL-188A(A), FL-188AA(A), FL-168, FL-288, FL-555, FL-118, FL-155, FL-166A, FL-155D
<b>Ratings</b> .....	: 220-240V~ 50Hz 10W(Max. 60W): FL-005, FL-138; 10W: FL-138A, FL-138B; 12W(Max.55W): FL-138AA; 15W(Max.40W): FL-158B; 15W(Max.80W): FL-188A(A), FL-188AA(A); 20W(Max.60W): FL-118, FL-155, FL-155D; 20W(Max.78W): FL-158F(F), FL-555; 28W(Max.180W): FL-288; 25W(Max.70W): FL-168, FL-666, FL-007; 25W(Max.78W): FL-158E; 25W(Max.80W): FL-158, FL-188; 25W(Max.50W): FL-158F; 25W(Max.60W): FL-166, FL-166A

<b>Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):</b>		
<input checked="" type="checkbox"/>	<b>Testing Laboratory:</b>	TÜV Rheinland /CCIC (Ningbo) Co., Ltd.
	<b>Testing location/ address.....:</b>	3F Building C13, R&D Park, No.32 , Lane 299 Guanghua Road, National Hi-Tech Zone, Ningbo, 315048, P. R. China
	<b>Tested by (name, function, signature).....:</b>	See cover page
	<b>Approved by (name, function, signature)....:</b>	See cover page
<hr/>		
<input type="checkbox"/>	<b>Testing procedure: CTF Stage 1:</b>	
	<b>Testing location/ address.....:</b>	
	<b>Tested by (name, function, signature).....:</b>	
	<b>Approved by (name, function, signature)....:</b>	
<hr/>		
<input type="checkbox"/>	<b>Testing procedure: CTF Stage 2:</b>	
	<b>Testing location/ address.....:</b>	
	<b>Tested by (name + signature).....:</b>	
	<b>Witnessed by (name, function, signature) .:</b>	
	<b>Approved by (name, function, signature)....:</b>	
<hr/>		
<input type="checkbox"/>	<b>Testing procedure: CTF Stage 3:</b>	
<input type="checkbox"/>	<b>Testing procedure: CTF Stage 4:</b>	
	<b>Testing location/ address.....:</b>	
	<b>Tested by (name, function, signature).....:</b>	
	<b>Witnessed by (name, function, signature) .:</b>	
	<b>Approved by (name, function, signature)....:</b>	
	<b>Supervised by (name, function, signature) :</b>	
<hr/>		



<p><b>List of Attachments (including a total number of pages in each attachment):</b> See cover page</p>	
<p><b>Summary of testing:</b></p> <ol style="list-style-type: none"> <li>1. FL-155D was subject to tests of clause 10 and clause 29.</li> <li>2. Test result: Pass</li> </ol> <p><b>Currently neither a safeguard clause procedure has been invoked nor is an increase in accidents known for this / these product (s).</b></p>	
<p><b>Tests performed (name of test and test clause):</b> All clauses above</p>	<p><b>Testing location:</b></p> <p><b>TÜV Rheinland /CCIC (Ningbo) Co., Ltd.</b> 3F Building C13, R&amp;D Park, No.32 , Lane 299 Guanghua Road, National Hi-Tech Zone, Ningbo, 315048, P. R. China</p>
<p><b>Summary of compliance with National Differences (List of countries addressed):</b> DE(DE=Germany)</p> <p><input checked="" type="checkbox"/> <b>The product fulfils the requirements of EN 60335-1:2012+A11+A13+A1+A14+A2, EN 60335-2-45:2002+A1+A2, EN 62233:2008 and AfPS GS 2019:01 PAK</b></p>	
<p><b>Copy of marking plate:</b></p> <div style="border: 1px solid black; padding: 5px;"> <p>FL-005</p> <p>AC220-240V 50Hz 10W(Max.60W)</p> <p>efco creative GmbH</p> <p>GROSSE AHLMUEHLE 10 76865 ROHRBACH / PFALZ GERMANY</p> <div style="display: flex; justify-content: center; align-items: center; gap: 10px;">      </div> <p style="font-size: small; text-align: center;">www.tuv.com ID 1419074326</p> </div>	
<p><b>Remark:</b></p> <ol style="list-style-type: none"> <li>1. For other models, except designations and input power they are same as above marking plate.</li> <li>2. For designations and input power of other models, refer to page 3.</li> <li>3. Manufacture or/and his importer shall ensure product bears label requirements in article 6 and article 8 of the 2014/35/EU relate to name, batch number, post address prior place the product into EU market.</li> </ol>	

<b>Test item particulars</b> .....:	
<b>Classification of installation and use</b> .....: Handheld appliance	
<b>Supply Connection</b> .....: Type Y attachment(power cord fitted with a plug) .....:	
<b>Possible test case verdicts:</b>	
- test case does not apply to the test object.....: N/A	
- test object does meet the requirement.....: P (Pass)	
- test object does not meet the requirement.....: F (Fail)	
<b>Testing</b> .....:	
<b>Date of receipt of test item</b> .....: 20.08.2020	
<b>Date (s) of performance of tests</b> .....: 21.08.2020	
<b>General remarks:</b>	
"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.	
Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.	
<b>Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60335-1:</b>	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided .....	<input type="checkbox"/> <b>Yes</b> <input checked="" type="checkbox"/> <b>Not applicable</b>
<b>When differences exist; they shall be identified in the General product information section.</b>	
<b>Name and address of factory (ies)</b> .....: Same as applicant	
<b>General product information and other remarks:</b>	
<ol style="list-style-type: none"> <li>1. For all the models, they are hand-held appliance.</li> <li>2. For all models other than FL-166 and FL-288, they have only a PTC heating element inside. For FL-166 and FL-288, they have PTC heating element and power switch inside.</li> <li>3. For FL-118, FL-005, FL-138, FL-138AA, FL-138A, FL-138B and FL-155, they have same dimension of PTC heating element. As FL-118 has the largest rated power input, it was selected for heating tests. However as FL-005 has smaller enclosure, it was also selected for heating tests. For both models, they tested lying horizontally.</li> <li>4. For FL-007, FL-158, FL-158B, FL-158F, FL-158F(F), FL-166 and FL-555, they have same dimension of PTC heating element. As FL-166, FL-158, FL-158F and FL-007 have same max. rated power input and similar enclosure, FL-158F and FL-007 were selected for heating tests. However as FL-555 a little smaller enclosure, it was also selected for heating tests. For all the three models, they tested lying horizontally.</li> <li>5. For FL-168, FL-666, FL-188, FL-158E, FL-188A(A), FL-188AA(A), they have same dimension of heating element. As they have similar enclosure, FL-168 was selected for the heating tests.</li> <li>6. For FL-288, it has two pieces of PTC heating elements and largest rated power input among all the models, so it was selected for the heating tests.</li> <li>7. All the models are only for the household indoor use.</li> </ol>	
<b>Amendment 1 report:</b>	
The original Test Report Ref. No.50294132 001, dated 11.11.2019 was additionally modified on 26.11.2019 to issue Co-license.	
<b>Amendment 2 report:</b>	
The original Test Report Ref. No.50294132 001, dated 11.11.2019 was additionally modified on 03.01.2020 to issue Co-license.	

**Amendment 3 report:**

The original Test Report Ref. No.50294132 001, dated 11.11.2019 was additionally modified on 03.03.2020 to issue Co-license.

**Amendment 4 report:**

The original Test Report Ref. No.50294132 001, dated 11.11.2019 was additionally modified on 16.04.2020 to issue Co-license.

**Amendment 5 report:**

The original Test Report Ref. No.50294132 001, dated 11.11.2019 was additionally modified on 28.06.2020 to issue Co-license.

**Amendment 6 report:**

The original Test Report Ref. No.50294132 001, dated 11.11.2019 was additionally modified on 29.06.2020 to add alternative plug, power cords and internal wire to all the models. For details see the bold in table 24.1. CDF of all models was updated.

**Amendment 7 report:**

The original Test Report Ref. No.50294132 001, dated 11.11.2019 was additionally modified on 02.09.2020 to issue Co-license.

**Amendment 8 report:**

The original Test Report Ref. No.50294132 001, dated 11.11.2019 was additionally modified on 29.09.2020 to make following modifications:

1. Add new models: FL-166A and FL-155D.
  - FL-166A is same as previous certified model FL-166 except that for FL-166A, it has no power switch. After assessment, no additional tests needed.
  - FL-155D is same as previous certified model FL-155 except that for FL-155D, it is additionally equipped with a switch and has two pieces of heating element while for FL-155, it has only one piece of heating element. However for both FL-155D and FL-155, they have same rated power input, after assessment, no additional heating tests needed.
2. Update standard from EN 60335-1:2012+A11+A13, EN 60335-2-45:2002+A1+A2, EN 62233:2008 and AfPS GS 2019:01 PAK to EN 60335-1:2012+A11+A13+A1+A14+A2, EN 60335-2-45:2002+A1+A2, EN 62233:2008 and AfPS GS 2019:01 PAK.

<b>IEC 60335-2-45</b>			
Clause	Requirement - Test	Result - Remark	Verdict
<b>7</b>	<b>MARKING AND INSTRUCTIONS</b>		<b>P</b>
7.1	Rated voltage or voltage range (V) .....	220-240V	P
	Symbol for nature of supply, or .....		N/A
	Rated frequency (Hz) .....	50Hz	P
	Rated power input (W), or .....	See page 3	P
	Rated current (A) .....		N/A
	Manufacturer's or responsible vendor's name, trademark or identification mark .....	efco creative GmbH	P
	Model or type reference .....	FL-166A, FL-155D	P
	Symbol IEC 60417-5172, for class II appliances		P
	IP number, other than IPX0 .....		N/A
	Symbol IEC 60417-5180, for class III appliances, unless		N/A
	the appliance is operated by batteries only, or		N/A
	for appliances powered by rechargeable batteries recharged in the appliance		N/A
	Symbol IEC 60417-5018, for class II and class III appliances incorporating a functional earth		N/A
	Symbol IEC 60417-5036, for the enclosure of electrically-operated water valves in external hose-sets for connection of an appliance to the water mains, if the working voltage exceeds extra-low voltage		N/A
	Contact fire lighters shall be marked with the limit of insertion into the fuel (IEC 60335-2-45)		N/A
	Contact fire lighters which are not at least IP X4 shall be marked with (IEC 60335-2-45): Do not expose to rain or moisture		N/A
	Thermoplastic conduit-welding tools shall be marked with the types of fittings with which they are to be used and with the corresponding settings. Each fitting shall be marked with the type of appliance with which it is to be used and with its own type reference (IEC 60335-2-45)		N/A
7.2	Warning for stationary appliances for multiple supply		N/A
	Warning placed in vicinity of terminal cover		N/A
7.3	Range of rated values marked with the lower and upper limits separated by a hyphen		P
	Different rated values marked with the values separated by an oblique stroke		N/A
7.4	Appliances adjustable for different rated voltages or rated frequencies, the voltage or the frequency setting is clearly discernible		N/A

IEC 60335-2-45			
Clause	Requirement - Test	Result - Remark	Verdict
	Requirement met if frequent changes are not required and the rated voltage or rated frequency to which the appliance is to be adjusted is determined from a wiring diagram		N/A
7.5	Appliances with more than one rated voltage or one or more rated voltage ranges, marked with rated input or rated current for each rated voltage or range, unless		N/A
	the power input is related to the arithmetic mean value of the rated voltage range		P
	Relation between marking for upper and lower limits of rated power input or rated current and voltage is clear		N/A
7.6	Correct symbols used		P
	Symbol for nature of supply placed next to rated voltage		N/A
	Symbol for class II appliances placed unlikely to be confused with other marking		P
	Units of physical quantities and their symbols according to international standardized system		P
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply, unless		N/A
	correct mode of connection is obvious		N/A
7.8	Except for type Z attachment, terminals for connection to the supply mains indicated as follows:		N/A
	- marking of terminals exclusively for the neutral conductor (letter N)		N/A
	- marking of protective earthing terminals (symbol IEC 60417-5019)		N/A
	- marking of functional earthing terminals (symbol IEC 60417-5018)		N/A
	- marking not placed on removable parts		N/A
7.9	Marking or placing of switches which may cause a hazard	For FL-155D	P
7.10	Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means .....		P
	This applies also to switches which are part of a control		N/A
	If figures are used, the off position indicated by the figure 0		N/A
	The figure 0 indicates only OFF position, unless no confusion with the OFF position		N/A
7.11	Indication for direction of adjustment of controls		N/A
7.12	Instructions for safe use provided		P

IEC 60335-2-45			
Clause	Requirement - Test	Result - Remark	Verdict
	Details concerning precautions during user maintenance		P
	The instructions state that:		P
	- the appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction	Replaced by EN 60335-1	N/A
	- children being supervised not to play with the appliance	Replaced by EN 60335-1	N/A
	For a part of class III construction supplied from a detachable power supply unit, the instructions state that the appliance is only to be used with the unit provided		N/A
	Instructions for class III appliances state that it must only be supplied at SELV, unless		N/A
	it is a battery-operated appliance, the battery being charged outside the appliance		N/A
	For appliances for altitudes exceeding 2000 m, the maximum altitude is stated :		N/A
	The instructions for appliances incorporating a functional earth states that the appliance incorporates an earth connection for functional purposes only		N/A
	The instructions for use for appliances having a separate stand and not incorporating a biased-off switch shall include the substance of the following warning (IEC 60335-2-45): WARNING - This tool must be placed on its stand when not in use		N/A
	The instructions for use for class III dehorning tools shall include the substance of the following warning (IEC 60335-2-45): WARNING - Only use the transformer provided		N/A
	The instructions for use for heat guns and hand-held paint strippers shall include the substance of the following (IEC 60335-2-45):		N/A
	A fire may result if the appliance is not used with care, therefore:		N/A
	- be careful when using the appliance in places where there are combustible materials. Do not apply to the same place for a long time		N/A
	- do not use in presence of an explosive atmosphere		N/A
	- heat may be conducted to combustible materials which are out of sight		N/A
	- place on its stand after use and follow to cool before storage		N/A
	The instructions for use for fire lighters shall include the substance of the following (IEC 60335-2-45):		N/A
	- ensure that the fire lighter is properly positioned		N/A



<b>IEC 60335-2-45</b>			
Clause	Requirement - Test	Result - Remark	Verdict
	- unplug before removal from the fire		N/A
	- allow to cool before storage		N/A
	- do not allow the hot parts of the fire lighter to touch the cord or other flammable materials		N/A
	The instructions for thermoplastic conduit-welding tools shall state that a welding operation must not be repeated on a fitting since this can result in live parts becoming accessible (IEC 60335-2-45)		N/A
7.12.1	Sufficient details for installation supplied		N/A
	For an appliance intended to be permanently connected to the water mains and not connected by a hose-set, this is stated		N/A
	If different rated voltages or different rated frequencies are marked, the instructions state what action to be taken to adjust the appliance		N/A
7.12.2	Stationary appliances not fitted with means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under overvoltage category III, the instructions state that means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules		N/A
7.12.3	Insulation of the fixed wiring in contact with parts exceeding 50 K during clause 11; instructions state that the fixed wiring must be protected		N/A
7.12.4	Instructions for built-in appliances:		N/A
	- dimensions of space		N/A
	- dimensions and position of supporting and fixing		N/A
	- minimum distances between parts and surrounding structure		N/A
	- minimum dimensions of ventilating openings and arrangement		N/A
	- connection to supply mains and interconnection of separate components		N/A
	- allow disconnection of the appliance after installation, by accessible plug or a switch in the fixed wiring, unless		N/A
	a switch complying with 24.3		N/A
7.12.5	Replacement cord instructions, type X attachment with a specially prepared cord		N/A
	Replacement cord instructions, type Y attachment		P
	Replacement cord instructions, type Z attachment		N/A
7.12.6	Caution in the instructions for appliances incorporating a non-self-resetting thermal cut-out that is reset by disconnection of the supply mains, if this cut-out is required to comply with the standard		N/A



IEC 60335-2-45			
Clause	Requirement - Test	Result - Remark	Verdict
7.12.7	Instructions for fixed appliances stating how the appliance is to be fixed		N/A
7.12.8	Instructions for appliances connected to the water mains:		N/A
	- max. inlet water pressure (Pa) .....		N/A
	- min. inlet water pressure, if necessary (Pa) .....		N/A
	Instructions concerning new and old hose-sets for appliances connected to the water mains by detachable hose-sets		N/A
7.12.9	Instructions specified in 7.12 and from 7.12.1 to 7.12.8 appear together before any other instructions supplied with the appliance		P
	These instructions may be supplied with the appliance separately from any functional use booklet		N/A
	They may follow the description of the appliance that identifies parts, or follow the drawings/sketches		N/A
	In addition, instructions are also available in an alternative format such as on a website or on request from the user in a format such as a DVD		P
	In addition, instructions are also available in an alternative format such as on a website or in a format such as a DVD .....		P
7.13	Instructions and other texts in an official language	English and German	P
7.14	Marking clearly legible and durable, rubbing test as specified		P
	Signal words WARNING, CAUTION, DANGER in uppercase having a height as specified .....		N/A
	Uppercase letter of the text explaining the signal word not smaller than 1,6 mm .....		N/A
	Moulded in, engraved, or stamped markings either raised above or have a depth below the surface of at least 0,25 mm, unless		N/A
	contrasting colours are used		N/A
	Markings checked by inspection, measurement and rubbing test as specified		P
7.15	Markings on a main part		P
	Marking clearly discernible from the outside, if necessary after removal of a cover		P
	For portable appliances, cover can be removed or opened without a tool		N/A
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation		N/A
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions		N/A

<b>IEC 60335-2-45</b>			
Clause	Requirement - Test	Result - Remark	Verdict
	Indications for switches and controls placed on or near the components. Marking not on parts which can be positioned or repositioned in such a way that the marking is misleading		P
	The symbol IEC 60417-5018 placed next to the symbol IEC 60417-5172 or IEC 60417-5180		N/A
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		N/A
<b>10</b>	<b>POWER INPUT AND CURRENT</b>		<b>P</b>
10.1	Power input at normal operating temperature, rated voltage and normal operation not deviating from rated power input by more than shown in table 1 .:	(see appended table)	P
	If the power input varies throughout the operating cycle and the maximum value of the power input exceeds, by a factor greater than two, the arithmetic mean value of the power input occurring during a representative period, the power input is the maximum value that is exceeded for more than 10 % of the representative period		N/A
	Otherwise the power input is the arithmetic mean value		P
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		N/A
	the rated power input is related to the arithmetic mean value		P
10.2	Current at normal operating temperature, rated voltage and normal operation not deviating from rated current by more than shown in table 2.....:	(see appended table)	N/A
	If the current varies throughout the operating cycle and the maximum value of the current exceeds, by a factor greater than two, the arithmetic mean value of the current occurring during a representative period, the current is the maximum value that is exceeded for more than 10 % of the representative period		N/A
	Otherwise the current is the arithmetic mean value		N/A
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		N/A
	the rated current is related to the arithmetic mean value of the range		N/A
<b>24</b>	<b>COMPONENTS</b>		<b>P</b>
24.1	Components comply with safety requirements in relevant IEC standards		P
	List of components .....	(see appended table)	P
<b>29</b>	<b>CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION</b>		<b>P</b>

<b>IEC 60335-2-45</b>			
Clause	Requirement - Test	Result - Remark	Verdict
	Clearances, creepage distances and solid insulation withstand electrical stress		P
	For coatings used on printed circuits boards to protect the microenvironment (Type 1) or to provide basic insulation (Type 2), Annex J applies.....:		N/A
	The microenvironment is pollution degree 1 under type 1 protection		N/A
	For type 2 protection, the spacing between the conductors before the protection is applied is not less than the values specified in Table 1 of IEC 60664-3		N/A
	These values apply to functional, basic, supplementary and reinforced insulation .....		N/A
29.1	Clearances not less than the values specified in table 16, taking into account the rated impulse voltage for the overvoltage categories of table 15, unless .....	(see appended table)	P
	for basic insulation and functional insulation they comply with the impulse voltage test of clause 14		N/A
	However, if the distances are affected by wear, distortion, movement of the parts or during assembly, the clearances for rated impulse voltages of 1500V and above are increased by 0,5 mm and the impulse voltage test is not applicable		P
	For appliances intended for use at altitudes exceeding 2 000 m, the clearances in Table 16 is increased according to the relevant multiplier values in Table A.2 of IEC 60664-1		N/A
	Impulse voltage test is not applicable:		N/A
	- when the microenvironment is pollution degree 3, or		N/A
	- for basic insulation of class 0 and class 01 appliances		N/A
	- to appliances intended for use at altitudes exceeding 2 000 m		N/A
	Appliances are in overvoltage category II		P
	A force of 2 N is applied to bare conductors, other than heating elements		N/A
	A force of 30 N is applied to accessible surfaces		P
29.1.1	Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage		N/A
	The values of table 16 or the impulse voltage test of clause 14 are applicable.....:	(see appended table)	N/A
	Clearance at the terminals of tubular sheathed heating elements may be reduced to 1,0 mm if the microenvironment is pollution degree 1		N/A

<b>IEC 60335-2-45</b>			
Clause	Requirement - Test	Result - Remark	Verdict
	Lacquered conductors of windings considered to be bare conductors		N/A
29.1.2	Clearances of supplementary insulation not less than those specified for basic insulation in table 16 .....	(see appended table)	P
29.1.3	Clearances of reinforced insulation not less than those specified for basic insulation in table 16, using the next higher step for rated impulse voltage .....	(see appended table)	P
	For double insulation, with no intermediate conductive part between basic and supplementary insulation, clearances are measured between live parts and the accessible surface, and the insulation system is treated as reinforced insulation		P
29.1.4	Clearances for functional insulation are the largest values determined from:		P
	- table 16 based on the rated impulse voltage .....	(see appended table)	P
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		P
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N/A
	If values of table 16 are largest, the impulse voltage test of clause 14 may be applied instead, unless		N/A
	the microenvironment is pollution degree 3, or		N/A
	the distances can be affected by wear, distortion, movement of the parts or during assembly		P
	However, clearances are not specified if the appliance complies with clause 19 with the functional insulation short-circuited		N/A
	Lacquered conductors of windings considered to be bare conductors		N/A
	However, clearances at crossover points are not measured		N/A
	Clearance between surfaces of PTC heating elements may be reduced to 1mm		N/A
29.1.5	Appliances having higher working voltages than rated voltage, clearances for basic insulation are the largest values determined from:		N/A
	- table 16 based on the rated impulse voltage .....		N/A
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N/A
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N/A
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1 or Clause 4 of IEC 60664-4, the clearances of supplementary insulation are not less than those specified for basic insulation		N/A

IEC 60335-2-45			
Clause	Requirement - Test	Result - Remark	Verdict
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1, the clearances of reinforced insulation dimensioned as specified in Table F.7a are to withstand 160% of the withstand voltage required for basic insulation		N/A
	If clearances for basic insulation are selected from Clause 4 of IEC 60664-4, the clearances of reinforced insulation are twice the value required for basic insulation		N/A
	If the secondary winding of a step-down transformer is earthed, or if there is an earthed screen between the primary and secondary windings, clearances of basic insulation on the secondary side not less than those specified in table 16, but using the next lower step for rated impulse voltage		N/A
	Circuits supplied with a voltage lower than rated voltage, clearances of functional insulation are based on the working voltage used as the rated voltage in table 15		N/A
29.2	Creepage distances not less than those appropriate for the working voltage, taking into account the material group and the pollution degree.....:	(see appended table)	P
	Pollution degree 2 applies, unless		P
	- precautions taken to protect the insulation; pollution degree 1		N/A
	- insulation subjected to conductive pollution; pollution degree 3		N/A
	A force of 2 N is applied to bare conductors, other than heating elements		N/A
	A force of 30 N is applied to accessible surfaces		P
	In a double insulation system, the working voltage for both the basic and supplementary insulation is taken as the working voltage across the complete double insulation system		P
29.2.1	Creepage distances of basic insulation not less than specified in table 17.....:	(see appended table)	N/A
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 17 .....		N/A
	Except for pollution degree 1, corresponding creepage distance not less than the minimum specified for the clearance in table 16, if the clearance has been checked according to the test of clause 14 .....		N/A
29.2.2	Creepage distances of supplementary insulation at least those specified for basic insulation in table 17, or .....	(see appended table)	P

<b>IEC 60335-2-45</b>			
Clause	Requirement - Test	Result - Remark	Verdict
	Table 2 of IEC 60664-4, as applicable .....		N/A
29.2.3	Creepage distances of reinforced insulation at least double those specified for basic insulation in table 17, or .....	(see appended table)	P
	Table 2 of IEC 60664-4, as applicable .....		N/A
29.2.4	Creepage distances of functional insulation not less than specified in table 18.....	(see appended table)	P
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 18 .....		N/A
	Creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited		N/A
29.3	Supplementary and reinforced insulation have adequate thickness, or a sufficient number of layers, to withstand the electrical stresses		P
	Compliance checked:		P
	- by measurement, in accordance with 29.3.1, or		P
	- by an electric strength test in accordance with 29.3.2, if the insulation consists of more than one separate layer, other than flakey material similar to natural mica, or (IEC 60335-2-45)		P
	- for insulation, other than single layer internal wiring insulation, by an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3, and		N/A
	for accessible parts of reinforced insulation consisting of a single layer, by measurement in accordance with 29.3.4, or		N/A
	- by an assessment of the thermal quality of the material according to 29.3.3 combined with an electric strength test in accordance with 23.5, for each single layer internal wiring insulation touching each other, or		N/A
	- as specified in subclause 6.3 of IEC 60664-4 for insulation that is subjected to any periodic voltage having a frequency exceeding 30 kHz		N/A
29.3.1	Supplementary insulation have a thickness of at least 1 mm		P
	Reinforced insulation have a thickness of at least 2 mm		P
29.3.2	Each layer of material withstand the electric strength test of 16.3 for supplementary insulation		P
	Supplementary insulation consist of at least 2 layers		N/A

<b>IEC 60335-2-45</b>			
Clause	Requirement - Test	Result - Remark	Verdict
	Reinforced insulation consist of at least 3 layers	PTC heating element was protected by 3 layers of insulation film	P
29.3.3	The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by		N/A
	the electric strength test of 16.3		N/A
	If the temperature rise during the tests of clause 19 does not exceed the value specified in table 3, the test of IEC 60068-2-2 is not carried out		N/A
	If natural mica in thin sheet form is used	(IEC 60335-2-45)	N/A
	-for supplementary insulation, there shall be at least six layers, and any three layers together shall withstand the electric strength test of 16.3 for supplementary insulation.		N/A
	-for reinforced insulation, there shall be at least ten layers, and any five layers together shall withstand the electric strength test of 16.3 for reinforced insulation.		N/A
29.3.4	Thickness of accessible parts of reinforced insulation consisting of a single layer not less than specified in table 19.....:		N/A



10.1	TABLE: Power input deviation					P
Input deviation of/at:	P rated (W)	P measured (W)	dP (W, %)	Required dP (W, %)	Remark	
FL-155D	20	8.6	-57.0%	+20%	230V	
Supplementary information:						

24.1	TABLE: Components information for FL-166A, FL-155D					P
Object / part No.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity	
Plug	1.Anhui Dinatong Wire Co.,Ltd.	DNT-11	AC250V;2.5A	DIN VDE 0620 Teil 101	VDE 40024367	
	2.Yuyao Zhongjian Electric Appliance Co.,Ltd.	ZJ-01	AC250V;2.5A	DIN VDE 0620 Teil 101	VDE 40037387	
	3.Ningbo JinTing Nuclear Cable Co., Ltd	FY001	AC250V;2.5A	DIN VDE 0620 Teil 101	VDE 40036482	
	4.Ningbo Haode Electric Co.,Ltd.	HDV-01	AC250V;2.5A	DIN VDE 0620 Teil 101	VDE 40052153	
Plug for all models(only for UK market)	Cixi Lujie Electric Appliances Co.Limited	LJ01	AC250V;13A	BS 1363	BSI KM 69196	
Power cord	1.Anhui Dinatong Wire Co.,Ltd.	H03VVH2-F	2X0.5mm <sup>2</sup> (<2m); 2X0.75mm <sup>2</sup>	EN 50525-2-11	VDE 40021216	
	2.Yuyao Zhongjian Electric Appliance Co.,Ltd.	H03VVH2-F	2X0.5mm <sup>2</sup> (<2m); 2X0.75mm <sup>2</sup>	EN 50525-2-11	VDE 40033849	
	3. Zhejiang Jinting Nuclear Cable Co., Ltd	H03VVH2-F	2X0.5mm <sup>2</sup> (<2m); 2X0.75mm <sup>2</sup>	EN 50525-2-11	VDE 40013419	
	4.Ningbo Haode Electric Co.,Ltd.	H03VVH2-F	2X0.5mm <sup>2</sup> (<2m); 2X0.75mm <sup>2</sup>	EN 50525-2-11	VDE 40051629	
Internal wire	1.Wenzhou Yage Hi-temp Cable Co.,Ltd	1332	24AWG;300V; 200°C	EN 60335-1 EN 60335-2-45	UL E316271*	
	2.Guangzhou Jin-Ying Special Wire Factory	10362	600V;250°C; 24AWG	EN 60335-1 EN 60335-2-45	UL E192725*	
Switch for FL-155D	Suzhou IE-TECH Co.,Ltd.	SSD-2213	AC250V;10A; 1E4;T85	EN 61058-1	TUV R 50147134	
Insulation film	Changshu Changjiang Tape Co.,Ltd.	K-CJ01-25	Polyimide film; Rated 260°C	EN 60335-1 EN 60335-2-45	UL E300797*	
Heat-shrinkable tube	1.Shenzhen Woer Heat-shrinkable Material Co.,Ltd.	RSFR-H	600V;125°C	EN 60335-1 EN 60335-2-45	UL E203950*	
	2.Dongguan Salipt Co., Ltd	SALIPT S-HPT-600	600V;125°C	EN 60335-1 EN 60335-2-45	UL E209436	
Plastic enclosure	1.Shanghai Hua Yi Group Hua Yuan Chemical Industry Co.,Ltd.	FR-101	PA6;V-0	EN 60335-1 EN 60335-2-45	UL E176060*	
	2.Shanghai Hua Yi Group Hua Yuan Chemical Industry Co.,Ltd.	PA66 FR-102	PA66;V-0	EN 60335-1 EN 60335-2-45	UL E176060*	
PTC heating element for FL-155D	Shanghai Xinpa Thermistor Ceramics Co.,Ltd.	--	AC220-240V; 50Hz;15W+5W	EN 60335-1 EN 60335-2-45	Test with appliance	
PTC heating element for FL-166A	Shanghai Xinpa Thermistor Ceramics Co.,Ltd.	--	AC220-240V; 50Hz;25W	EN 60335-1 EN 60335-2-45	Test with appliance	
For the mark of conformity with *, it means the components also tested with appliance accordingly BS plug must be fitted with approved fuse-links having a rating appropriate to the cord fitted in accordance with table 2 of BS 1363-1.						

<b>29.1</b>	<b>TABLE: Clearances</b>					P
	Overvoltage category .....	:	II			—
		Type of insulation:				
Rated impulse voltage (V):	Min. cl (mm)	Basic (mm)	Supplementary (mm)	Reinforced (mm)	Functional (mm)	Verdict / Remark
330	0,2* / 0,5 / 0,8**					N/A
500	0,2* / 0,5 / 0,8**					N/A
800	0,2* / 0,5 / 0,8**					N/A
1 500	0,5 / 0,8** / 1,0***					N/A
2 500	1,5 / 2,0***		(>2.0)	(>3.5)	(>2.0)	P
4 000	3,0 / 3,5***					N/A
6 000	5,5 / 6,0***					N/A
8 000	8,0 / 8,5***					N/A
10 000	11,0 / 11,5***					N/A
<p>Supplementary information:</p> <p>*) For tracks on printed circuit boards if pollution degree 1 and 2</p> <p>**) For pollution degree 3</p> <p>***) If the construction is affected by wear, distortion, movement of the parts or during assembly</p> <p>Supplementary: Internal wire – metal tube: Cl. = 2.7mm &gt; 2.0mm</p> <p>Reinforced: live parts of PTC heating element – metal tube: Cl. =6.0mm &gt;3.5mm</p> <p>Functional: L-N of PTC heating element: Cl. =2.4mm &gt;1.0mm</p>						

29.2	TABLE: Creepage distances, basic, supplementary and reinforced insulation										P		
Working voltage (V)	Creepage distance (mm)							Pollution degree				Type of insulation	Verdict
	1	2			3			Type of insulation					
	Material group				Material group			Type of insulation					
		I	II	IIIa/IIIb	I	II	IIIa/IIIb*)	B**)	S**)	R**)	Verdict		
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9		—	—	N/A		
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9	—		—	N/A		
≤50	0,36	1,2	1,7	2,4	3,0	3,4	3,8	—	—		N/A		
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4		—	—	N/A		
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4	—		—	N/A		
125	0,56	1,5	2,1	3,0	3,8	4,2	4,8	—	—		N/A		
250	0,56	1,25	1,8	2,5	3,2	3,6	4,0		—	—	N/A		
250	0,56	1,25	1,8	<b>2,5</b>	3,2	3,6	4,0	—		—	P		
250	1,12	2,5	3,6	<b>5,0</b>	6,4	7,2	8,0	—	—		P		
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3		—	—	N/A		
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3	—		—	N/A		
400	2,0	4,0	5,6	8,0	10,0	11,2	12,6	—	—		N/A		
500	1,3	2,5	3,6	5,0	6,3	7,1	8,0		—	—	N/A		
500	1,3	2,5	3,6	5,0	6,3	7,1	8,0	—		—	N/A		
500	2,6	5,0	7,2	10,0	12,6	14,2	16,0	—	—		N/A		
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0		—	—	N/A		
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	—		—	N/A		
>630 and ≤800	3,6	6,4	9,0	12,6	16,0	18,0	20,0	—	—		N/A		
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5		—	—	N/A		
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	—		—	N/A		
>800 and ≤1000	4,8	8,0	11,2	16,0	20,0	22,0	25,0	—	—		N/A		
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0		—	—	N/A		
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	—		—	N/A		
>1000 and ≤1250	6,4	10,0	14,2	20,0	25,0	28,0	32,0	—	—		N/A		
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0		—	—	N/A		
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	—		—	N/A		
>1250 and ≤1600	8,4	12,6	18,0	25,0	32,0	36,0	40,0	—	—		N/A		
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0		—	—	N/A		
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	—		—	N/A		
>1600 and ≤2000	11,2	16,0	22,0	32,0	40,0	44,0	50,0	—	—		N/A		
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0		—	—	N/A		
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	—		—	N/A		
>2000 and ≤2500	15,0	20,0	28,0	40,0	50,0	56,0	64,0	—	—		N/A		

>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0		—	—	N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	—		—	N/A
>2500 and ≤3200	20,0	25,0	36,0	50,0	64,0	72,0	80,0	—	—		N/A
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0		—	—	N/A
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	—		—	N/A
>3200 and ≤4000	25,0	32,0	44,0	64,0	80,0	90,0	100,0	—	—		N/A
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0		—	—	N/A
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	—		—	N/A
>4000 and ≤5000	32,0	40,0	56,0	80,0	100,0	112,0	126,0	—	—		N/A
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0		—	—	N/A
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	—		—	N/A
>5000 and ≤6300	40,0	50,0	72,0	100,0	126,0	142,0	160,0	—	—		N/A
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0		—	—	N/A
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	—		—	N/A
>6300 and ≤8000	50,0	64,0	90,0	126,0	160,0	180,0	200,0	—	—		N/A
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0		—	—	N/A
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	—		—	N/A
>8000 and ≤10000	64,0	80,0	112,0	160,0	200,0	220,0	250,0	—	—		N/A
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0		—	—	N/A
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	—		—	N/A
>10000 and ≤12500	80,0	100,0	142,0	200,0	250,0	280,0	320,0	—	—		N/A

Supplementary information:

\*) Material group IIIb is allowed if the working voltage does not exceed 50 V

\*\*) B = Basic insulation, S = Supplementary insulation, R = Reinforced insulation

Supplementary: Internal wire – metal tube: Cr. = 2.7mm > 2.5mm

Reinforced: live parts of PTC heating element – metal tube: Cr. = 6.0mm > 5.0mm

29.2	TABLE: Creepage distances, functional insulation							P
Working voltage (V)	Creepage distance (mm) Pollution degree							Verdict / Remark
	1	2			3			
	Material group			Material group				
	I	II	IIIa/IIIb	I	II	IIIa/IIIb*)		
≤10	0,08	0,4	0,4	0,4	1,0	1,0	1,0	N/A
50	0,16	0,56	0,8	1,0	1,4	1,6	1,8	N/A
125	0,25	0,71	1,0	1,4	1,8	2,0	2,2	N/A
250	0,42	1,0	1,4	<b>2,0</b>	2,5	2,8	3,2	P
400	0,75	1,6	2,2	3,2	4,0	4,5	5,0	N/A
500	1,0	2,0	2,8	4,0	5,0	5,6	6,3	N/A
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	N/A
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	N/A
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	N/A
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	N/A
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	N/A
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	N/A
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	N/A
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	N/A
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	N/A
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	N/A
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	N/A
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	N/A

Supplementary information:  
 \*) Material group IIIb is allowed if the working voltage does not exceed 50 V  
 Functional: L-N of PTC heating element: Cr. =2.4mm >2.0mm

**ATTACHMENT TO TEST REPORT IEC 60335-2-45 EUROPEAN GROUP  
DIFFERENCES AND NATIONAL DIFFERENCES**

(Household and similar electrical appliances – Safety –

**Part 2: Particular requirements for portable heating tools)**

**Differences according to** : EN 60335-2-45:2002 + A1:2008+A2:2012 used in conjunction with  
EN 60335-1:2012 + AC:2014 + A11:2014+A13:2017  
EN 62233:2008

**Attachment Form No.** : EU\_GD\_IEC60335\_2\_45I

**Attachment Originator** : LCIE

**Master Attachment** : 2015-07

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IEC60335_2_45I - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
	<b>CENELEC COMMON MODIFICATIONS</b>		
6.1	Delete "class 0" and "class 01"		P
7.1	Single-phase appliances to be connected to the supply mains: 230 V covered		P
	Multi-phase appliances to be connected to the supply mains: 400 V covered		N/A
7.10	Devices used to start/stop operational functions of the appliance distinguished from other manual devices by means of shape, size, surface texture, position, etc.		N/A
	An indication that the device has been operated is given by:		N/A
	<ul style="list-style-type: none"> <li>a tactile feedback, or</li> </ul>		N/A
	<ul style="list-style-type: none"> <li>an audible and visual feedback</li> </ul>		N/A
7.12	The instructions include the substance of the following:		P
	- this appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved		P
	- children shall not play with the appliance		P
	- cleaning and user maintenance shall not be made by children without supervision		P
7.12.Z1	The specific instructions related to the safe operation of this appliance is collated together in the front section of the user instructions		P
	The height of the characters, measured on the capital letters, is at least 3 mm		P
	These instructions are also available in an alternative format, e.g. on a website		P



Differences from EN 60335-1:2012+A11+A13 to EN 60335-1:2012+ A11+ A13+ A1+A14+A2			
Clause	Requirement - Test	Result - Remark	Verdict
	<b>GENELEC COMMON MODIFICATIONS (EN)</b>		
6.1	For a class III construction with a detachable power supply part the appliance is classified according to the detachable power supply part		N/A
7.1	Symbol IEC 60417-5018, for class II and class III appliances incorporating a functional earth		N/A
	Symbol IEC 60417-5180, for class III appliances, unless		N/A
	the appliance is operated by batteries only, or		N/A
	for appliances powered by rechargeable batteries recharged in the appliance		N/A
7.4	Appliances adjustable for different rated voltages or rated frequencies, the voltage or the frequency setting is clearly discernible		N/A
	Requirement met if frequent changes are not required and the rated voltage or rated frequency to which the appliance is to be adjusted is determined from a wiring diagram		N/A
7.6	Correct symbols used		P
7.8	Marking of functional earthing terminals (symbol IEC 60417-5018)		N/A
7.10	A push-push button switch used for start and stop the operation shall not be used for other functions such as changing the motor speed.		N/A
	For hand-held appliances with rated power input 50 W or lower it is acceptable to have a push-push button for different functions including on / off if there is an immediate feedback to the user e.g. by tactile feedback or audible and visible feedback.		N/A
	Where a push button can cycle through various modes during a prolonged push this is allowed as long as the appliance will switch off with a single short push action.		N/A
	Audible feedback is any audible response got immediately after the operation of the switch.		N/A
	The click of a switch can be accepted as an audible feedback provided that it is originated inside the switch that is operated and can be heard at a distance of 77 cm from the switch.		N/A
	The sound of the motor is regarded as an audible feedback.		N/A
	Add the following text after the third paragraph of the addition: Constructions with switches that have two different stable positions (meaning that it can be seen or felt when they have been pressed or rotated) are considered to have a tactile feedback		P
7.12	For appliances for altitudes exceeding 2000 m, the maximum altitude is stated.....:		N/A
	The instructions for appliances incorporating a functional earth states that the appliance incorporates an earth connection for functional purposes only		N/A

Differences from EN 60335-1:2012+A11+A13 to EN 60335-1:2012+ A11+ A13+ A1+A14+A2			
Clause	Requirement - Test	Result - Remark	Verdict
7.12.1	If different rated voltages or different rated frequencies are marked, the instructions state what action to be taken to adjust the appliance		N/A
7.12.9	Instructions specified in 7.12 and from 7.12.1 to 7.12.8 appear together before any other instructions supplied with the appliance		P
	These instructions may be supplied with the appliance separately from any functional use booklet		N/A
	They may follow the description of the appliance that identifies parts, or follow the drawings/sketches		N/A
	In addition, instructions are also available in an alternative format such as on a website or on request from the user in a format such as a DVD		P
7.14	Markings clearly legible and durable:		P
	Signal words WARNING, CAUTION, DANGER in uppercase having a height as specified ..... : ..... :		N/A
	Uppercase letter of the text explaining the signal word not smaller than 1,6 mm ..... : ..... :		N/A
	Moulded in, engraved, or stamped markings either raised above or have a depth below the surface of at least 0,25 mm, unless		N/A
	contrasting colours are used		N/A
	Markings checked by inspection, measurement and rubbing test as specified		P
7.15	The symbol IEC 60417-5018 placed next to the symbol IEC 60417-5172 or IEC 60417-5180		N/A
8.1.1	Also test probe 18 of EN 61032 is applied		P
	The appliance being in every possible position during the test, except that		P
8.1.3	Instead of test probe B, test probe 18 and test probe 13, for appliances other than those of class II, test probe 41 of IEC 61032 is applied with a force not exceeding 1 N to live parts of visibly glowing heating elements, all poles of which can be disconnected by a single switching action		N/A
	For a single switching action obtained by a switching device, requirements as specified		N/A
	For appliances with a supply cord and without a switching device, the single switching action may be obtained by the withdrawal of the plug		N/A
10.1	If the power input varies throughout the operating cycle and the maximum value of the power input exceeds, by a factor greater than two, the arithmetic mean value of the power input occurring during a representative period, the power input is the maximum value that is exceeded for more than 10 % of the representative period		N/A

Differences from EN 60335-1:2012+A11+A13 to EN 60335-1:2012+ A11+ A13+ A1+A14+A2			
Clause	Requirement - Test	Result - Remark	Verdict
	Otherwise the power input is the arithmetic mean value		P
10.2	If the current varies throughout the operating cycle and the maximum value of the current exceeds, by a factor greater than two, the arithmetic mean value of the current occurring during a representative period, the current is the maximum value that is exceeded for more than 10 % of the representative period		N/A
	Otherwise the current is the arithmetic mean value		N/A
11.8	Temperature rises monitored continuously and not exceeding the values in table 3		P
13.2	The leakage current including Class II construction is measured by means of the circuit described in Figure 4 of IEC 60990:1999		P
	For class 0I appliances and class I appliances, except parts of class II construction, C may be replaced by a low impedance ammeter		N/A
	Leakage current measurements .....		P
15.2	Spillage of liquid does not affect the electrical insulation		N/A
	Spillage solution comprising water containing approximately 1 % NaCl and 0,6 % rinsing agent		N/A
	Appliances with type X attachment fitted with a flexible cord as described		N/A
	Appliances incorporating an appliance inlet tested with or without an connector, whichever is most unfavourable		N/A
	Detachable parts are removed		N/A
	Overfilling test with additional amount of the solution, over a period of 1 min (l) .....		N/A
	The appliance withstands the electric strength test of 16.3		N/A
	No trace of water on insulation that can result in a reduction of clearances or creepage distances below values specified in clause 29		N/A
16.2	Single-phase appliances: test voltage 1.06 times rated voltage (V).....		P
	Three-phase appliances: test voltage 1.06 times rated voltage divided by $\sqrt{3}$ (V) .....		N/A
	Leakage current measurements including Class II Construction		P
19.1	If the control performs more than one function, only that aspect of the control under consideration is rendered inoperative.		N/A
	Other functions of the control may continue to operate normally.		N/A
19.7	Test repeated with capacitors short-circuited one at a time, unless		N/A

Differences from EN 60335-1:2012+A11+A13 to EN 60335-1:2012+ A11+ A13+ A1+A14+A2			
Clause	Requirement - Test	Result - Remark	Verdict
	the capacitor is of class S2 or S3 of IEC 60252-1		N/A
	An electronic timer or programmer that operates to ensure compliance with the test before the maximum period under the conditions of Clause 11 is reached, is a protective electronic circuit		N/A
19.11.3	If the appliance incorporates a protective electronic circuit that operates to ensure compliance with clause 19, the appliance is tested as specified		N/A
19.11.4.2	The appliance is subjected to radiated fields in accordance with IEC 61000-4-3, at frequency ranges specified		N/A
19.11.4.4	The power supply terminals of the appliance subjected to voltage surges in accordance with IEC 61000-4-5, test level 3 or 4 as specified		N/A
	An open circuit test voltage of 2 kV is applicable for the line-to-line coupling mode		N/A
	An open circuit test voltage of 4 kV is applicable for the line-to-earth coupling		N/A
	Earthed heating elements in class I appliances disconnected		N/A
20.2	For appliances having dangerous moving parts, due to their working function, e.g. the needle of a sewing machine, tools of kitchen machines or the blade of an electrical knife, full protection is not possible for performing their intended use		N/A
22.5	No risk of electric shock when touching pins, for appliances having a capacitor with rated capacitance equal to or greater than 0,1 $\mu$ F, the appliance being disconnected from the supply at the instant of voltage peak		N/A
	Voltage not exceeding 34 V (V) .....		N/A
	If compliance relies on the operation of an electronic circuit, the electromagnetic phenomena tests of 19.11.4.3 and 19.11.4.4 are applied		N/A
	The discharge test is then repeated three times, voltage not exceeding 34 V (V).....		N/A
22.12	Handles, knobs etc. fixed in a reliable manner, if loosening result in a hazard		P
	Removing or fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible, if resulting in a hazard		P
	A choking hazard does not apply to appliances for commercial use		N/A
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		P
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		P

Differences from EN 60335-1:2012+A11+A13 to EN 60335-1:2012+ A11+ A13+ A1+A14+A2			
Clause	Requirement - Test	Result - Remark	Verdict
	If the part is removed and can be contained within the small parts cylinder, it is considered to be a choking hazard		N/A
	Other parts intended to be detached during use, maintenance or cleaning (e.g. batteries, battery covers, lids, attachments, steam nozzles) are not considered as parts providing a similar function as handles, knobs, grips, levers		N/A
22.17	The requirement is not applicable to built-in appliances		N/A
22.32	Ceramic and similar porous material in which heating conductors are embedded is considered to be basic insulation, not reinforced insulation		N/A
22.33	Conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed accessible metal parts are not in direct contact with live parts, or		N/A
	unearthed metal parts separated from live parts by basic insulation only		N/A
22.35	This requirement does not apply to handles, levers and knobs on stationary appliances and cordless appliances, other than those of electrical components, provided they are reliably connected to an earthing terminal or earthing contact, or separated from live parts by earthed metal		N/A
22.53	Class II appliances and class III appliances that incorporate functionally earthed parts have at least double insulation or reinforced insulation between live parts and the functionally earthed parts		N/A
22.54	Button cells and batteries designated R1 not accessible without the aid of a tool, unless		N/A
	the cover of their compartment can only be opened after at least two independent movements have been applied simultaneously		N/A
22.55	Devices operated to stop the intended function of the appliance, if any, are distinguished from other manual devices by means of shape, size, surface texture or position .....		P
	The requirement concerning position does not preclude use of a push on push off switch		N/A
	An indication when the device has been operated is given by:		P
	– tactile feedback from the actuator or from the appliance, or		P
	– reduction in heat output; or		N/A
	– audible and visible feedback		N/A
22.56	Detachable power supply part provided with the part of class III construction		N/A
22.57	The properties of non-metallic materials do not degrade from exposure to UV-C radiation, as specified in Annex T		N/A

Differences from EN 60335-1:2012+A11+A13 to EN 60335-1:2012+ A11+ A13+ A1+A14+A2			
Clause	Requirement - Test	Result - Remark	Verdict
	This requirement does not apply to glass, ceramics or similar materials		N/A
23.5	A single layer of internal wiring insulation does not provide reinforced insulation		P
24.1	Components comply with the safety requirements specified in the relevant EN standards as far as they reasonably apply		P
	Motors are not required to comply with EN 60034-1, but tested as part of the appliance according to this standard		N/A
	Relays are tested as part of the appliance according to this standard		N/A
	Relays may be alternatively tested to EN 60730-1 and the additional requirements in EN 60335-1		N/A
	The requirements of Clause 29 of this standard apply between live parts of components and accessible parts of the appliance		P
	Components may comply with the requirements for clearances and creepage distances for functional insulation as specified in the relevant component standard		P
	The requirements of 30.2 of this standard apply to parts of non-metallic material in components including parts of non-metallic material supporting current-carrying connections inside components		P
	Components that have not been tested and shown to comply with the EN standard for the relevant component are tested according to the requirements of 30.2 of this standard		P
	Components that have been tested and shown to comply with the resistance to fire requirements in the EN standard for the relevant component need not be retested provided that:		P
	- the severity specified in the component standard is not less than the severity specified in 30.2, and		P
	- the test report for the component states the values of $t_e$ and $t_i$ acc. to EN 60695-2-11		P
	If the above two conditions are not satisfied, the component is tested as part of the appliance		P
	Power electronic converter circuits are not required to comply with EN 62477-1, but tested as part of the appliance according to this standard		N/A
	Unless components have been tested and found to comply with the relevant EN standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9		P
	For components mentioned in 24.1.1 to 24.1.9, no additional tests specified in the relevant EN standard for the component are necessary other than those specified in 24.1.1 to 24.1.9		P



Differences from EN 60335-1:2012+A11+A13 to EN 60335-1:2012+ A11+ A13+ A1+A14+A2			
Clause	Requirement - Test	Result - Remark	Verdict
	Components that have not been tested and found to comply with the relevant EN standard, and		P
	components that are not marked or not used in accordance with their marking,		P
	are tested in accordance with the conditions occurring in the appliance, the number of samples being that required by the relevant standard		P
	Lamp-holders and starter-holders that have not been tested and found to comply with the relevant EN standard are tested as a part of the appliance and additionally comply with the gauging and interchangeability requirements of the relevant EN standard under the conditions occurring in the appliance		N/A
	Where the relevant EN standard specifies these gauging and interchangeability requirements at elevated temperatures, the temperatures measured during the tests of Clause 11 are used		N/A
	There are no additional tests specified for nationally standardized plugs such as those detailed in IEC/TR 60083 or connectors complying with the standard sheets of EN 60320-1 and EN 60309, unless they are specifically mentioned in the text of this standard		P
	Plugs and socket-outlets and other connecting devices of interconnection cords are not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1, or		N/A
	with connectors and appliance inlets complying with the standard sheets of EN 60320-1, if		N/A
	direct supply to these parts from the supply mains gives rise to a hazard		N/A
	For plugs used in CENELEC countries Annex ZH applies		P
24.1.2	Transformers in associated switch mode power supplies comply with Annex BB of IEC 61558-2-16. Clause 26 of IEC 61558-1 and Annex H of IEC 61558-1 are not applicable.		N/A
24.1.4	Thermal cut-outs of the capillary type comply with the requirements for type 2.K controls in IEC 60730-2-9		N/A
24.1.5	However, for class II appliances classified higher than IPX0, the appliance couplers comply with IEC 60320-2-3		N/A
24.8	The requirement is considered to be met - the capacitors are of class S2 or S3 according to IEC 60252-1.		N/A
24.Z1	Type S2 and S3 capacitors according to EN 60252-1 are not required to undergo the testing as required by 30.2.2 and 30.2.3.1		N/A
25.1	supply cord fitted with a plug, the current rating and voltage rating of the plug being not less than the corresponding ratings of its associated appliance		P



Differences from EN 60335-1:2012+A11+A13 to EN 60335-1:2012+ A11+ A13+ A1+A14+A2			
Clause	Requirement - Test	Result - Remark	Verdict
	Plugs and pins for insertion into socket outlets follow the relevant standards sheets in Annex ZH		P
25.7	Supply cords, other than for class III appliances, being one of the following types:		P
	- rubber sheathed (at least 60245 IEC 53)		N/A
	Rubber sheathed cords (60245 IEC 53) are not suitable for appliances intended to be used outdoors, or		N/A
	when they are liable to be exposed to significant amount of ultraviolet radiation		N/A
	- polychloroprene sheathed (at least 60245 IEC 57)		N/A
	- polyvinyl chloride sheathed. Not used if they are likely to touch metal parts having a temperature rise exceeding 75 K during the test of clause 11		N/A
	<ul style="list-style-type: none"> <li>light polyvinyl chloride sheathed cord (60227 IEC 52), for appliances not exceeding 3 kg</li> </ul>		P
	<ul style="list-style-type: none"> <li>ordinary polyvinyl chloride sheathed cord (60227 IEC 53), for other appliances</li> </ul>		P
	- heat resistant polyvinyl chloride sheathed. Not used for type X attachment other than specially prepared cords		N/A
	<ul style="list-style-type: none"> <li>heat-resistant light polyvinyl chloride sheathed cord (60227 IEC 56), for appliances not exceeding 3 kg</li> </ul>		N/A
	<ul style="list-style-type: none"> <li>heat-resistant polyvinyl chloride sheathed cord (60227 IEC 57), for other appliances</li> </ul>		N/A
	- halogen-free, low smoke, thermoplastic insulated and sheathed		N/A
	<ul style="list-style-type: none"> <li>light duty halogen-free low smoke flexible cable (62821 IEC 101) for circular cable and (62821 IEC 101f) for flat cable</li> </ul>		N/A
	<ul style="list-style-type: none"> <li>Ordinary duty halogen-free low smoke flexible cable (62821 IEC 102) for circular cable and (62821 IEC 102f) for flat cable</li> </ul>		N/A
	Supply cords for class III appliances adequately insulated		N/A
	Test with 500 V for 2 min for supply cords of class III appliances that contain live parts		N/A
25.10	In multi-phase appliances, the colour of the neutral conductor of the supply cord is blue		N/A
	Where additional neutral conductors are provided in the supply cord:		N/A
	– other colours may be used for these additional neutral conductors;		N/A
	– all of the neutral conductors and line conductors are identified by marking using the alpha numeric notation specified in IEC 60445		N/A

Differences from EN 60335-1:2012+A11+A13 to EN 60335-1:2012+ A11+ A13+ A1+A14+A2			
Clause	Requirement - Test	Result - Remark	Verdict
	– the supply cord is fitted to the appliance		
25.13	If it is not evident that the supply cord can be introduced without risk of damage, a non-detachable lining or bushing complying with 29.3 for supplementary insulation provided		N/A
25.15	Pull and torque test of supply cord:		P
	- fixed appliances: pull 100 N; torque (not on automatic cord reel) (Nm) .....		N/A
	- other appliances: values shown in table 12: mass (kg); pull (N); torque (not on automatic cord reel) (Nm) .....		P
	Cord not damaged and max. 2 mm displacement of the cord		P
25.20	The conductors of the supply cord for type Y and Z attachment insulated from accessible metal parts		P
25.23	for class I or class II appliance with class III construction, the cross sectional areas of the conductors need not comply with 25.8 if specified conditions are met		N/A
25.25	Instead of IEC/TR 60083, dimensions of the pins and engagement face of plugs of appliances that are inserted into socket-outlets are in accordance with the dimensions of the relevant plug standard		N/A
	Common plugs and socket-outlets types in CENELEC countries as shown in Annex ZH		N/A
27.1	Class 0, II and III appliances have no provision for protective earthing		N/A
	Class II appliances and class III appliances can incorporate an earth for functional purposes		N/A
27.2	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
27.3	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
27.4	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
27.5	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
27.6	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
29.1	For appliances intended for use at altitudes exceeding 2 000 m, the clearances in Table 16 is increased according to the relevant multiplier values in Table A.2 of IEC 60664-1		N/A

Differences from EN 60335-1:2012+A11+A13 to EN 60335-1:2012+ A11+ A13+ A1+A14+A2			
Clause	Requirement - Test	Result - Remark	Verdict
	Impulse voltage test is not applicable: to appliances intended for use at altitudes exceeding 2 000 m		N/A
29.3	Compliance checked:		N/A
	- for insulation, other than single layer internal wiring insulation, by an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3, and		N/A
	- by an assessment of the thermal quality of the material according to 29.3.3 combined with an electric strength test in accordance with 23.5, for each single layer internal wiring insulation touching each other, or		N/A
32	Compliance regarding electromagnetic fields is checked according to EN 62233		P
<b>B</b>	<b>ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES THAT ARE RECHARGED IN THE APPLIANCE</b>		<b>N/A</b>
	The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance		N/A
	Three forms of construction covered:		N/A
	a) Appliance supplied directly from the supply mains or a renewable energy source, the battery charging circuitry and other supply unit circuitry incorporated within the appliance		N/A
	b) The part of the appliance incorporating the battery is supplied from the supply mains or a renewable energy source, via a detachable supply unit. The battery charging circuitry is incorporated within the part of the appliance containing the battery		N/A
	c) The part of the appliance incorporating the battery is supplied from the supply mains or a renewable energy source, via a detachable supply unit. The battery charging circuitry is incorporated within the detachable supply unit		N/A
3.1.9	Appliance operated under the following conditions:		N/A
	- the appliance, supplied by its fully charged battery, operated as specified in relevant part 2		N/A
	- the battery is charged, the battery being initially discharged to such an extent that the appliance cannot operate		N/A
	-if possible, the appliance is supplied from the supply mains through its battery charger, the battery being initially discharged to such an extent that the appliance cannot operate. The appliance is operated as specified in relevant part 2		N/A

Differences from EN 60335-1:2012+A11+A13 to EN 60335-1:2012+ A11+ A13+ A1+A14+A2			
Clause	Requirement - Test	Result - Remark	Verdict
	- if the appliance incorporates inductive coupling between two parts that are detachable from each other, the appliance is supplied from the supply mains with the detachable part removed		N/A
3.6.2	Part to be removed in order to discard the battery is not considered to be detachable		N/A
5.B.101	Appliances supplied from the supply mains tested as specified for motor-operated appliances		N/A
7.1	Battery compartment for batteries intended to be replaced by the user, marked with battery voltage (V) and polarity of the terminals .....		N/A
	The positive terminal indicated by symbol IEC 60417-5005 and the negative terminal by symbol IEC 60417-5006		N/A
	Appliances intending to be supplied from a detachable supply unit marked with symbol IEC 60417-6181 and its type reference along with symbol ISO 7000-0790 (2004-01), or		N/A
	use only with <model designation> supply unit ....		N/A
7.6	Additional symbols		N/A
7.12	The instructions give information regarding charging		N/A
	Instructions for appliances incorporating batteries intended to be replaced by the user include required information		N/A
	Instructions for appliances containing non user-replaceable batteries state the substance of the following:		N/A
	This appliance contains batteries that are only replaceable by skilled persons		N/A
	Instructions for appliances containing non-replaceable batteries shall state the substance of the following:		N/A
	This appliance contains batteries that are non-replaceable		N/A
	For appliances intending to be supplied from a detachable supply unit for the purposes of recharging the battery, the type reference of the detachable supply unit is stated along with the following:		N/A
	WARNING: For the purposes of recharging the battery, only use the detachable supply unit provided with this appliance		N/A
	If the symbol for detachable supply unit is used, its meaning is explained		N/A
7.15	Markings placed on the part of the appliance connected to the supply mains		N/A
	The type reference of the detachable supply unit is placed in close proximity to the symbol		N/A
8.2	Appliances having batteries that according to the instruction may be replaced by the user need only have basic insulation between live parts and the inner surface of the battery compartment		N/A

Differences from EN 60335-1:2012+A11+A13 to EN 60335-1:2012+ A11+ A13+ A1+A14+A2			
Clause	Requirement - Test	Result - Remark	Verdict
	If the appliance can be operated without batteries, double or reinforced insulation required		N/A
11.7	The battery is charged for the period stated in the instructions or 24 h.....:		N/A
11.8	Temperature rise of the battery surface does not exceed the limit in the battery manufacturer's specification; measured (K); limit (K) .....		N/A
	If no limit specified, the temperature rise does not exceed 20 K; measured (K) .....		N/A
19.1	Appliances subjected to tests of 19.B.101, 19.B.102 and 19.B.103		N/A
19.10	Not applicable		N/A
19.B.101	Appliances supplied at rated voltage for 168 h, the battery being continually charged		N/A
19.B.102	For appliances having batteries that can be removed without the aid of a tool, short-circuit of the terminals of the battery, the battery being fully charged,		N/A
19.B.103	Appliances having batteries replaceable by the user supplied at rated voltage under normal operation with the battery removed or in any position allowed by the construction		N/A
19.13	The battery does not rupture or ignite		N/A
21.B.101	Appliances having pins for insertion into socket-outlets have adequate mechanical strength		N/A
	Part of the appliance incorporating the pins subjected to the free fall test, procedure 2, of IEC 60068-2-31, the number of falls being:		N/A
	- 100, if the mass of the part does not exceed 250 g (g).....:		N/A
	- 50, if the mass of the part exceeds 250 g.....:		N/A
	After the test, the requirements of 8.1, 15.1.1, 16.3 and clause 29 are met		N/A
22.3	Appliances having pins for insertion into socket-outlets tested as fully assembled as possible		N/A
25.13	An additional lining or bushing not required for interconnection cords in class III appliances or class III constructions operating at safety extra-low voltage not containing live parts		N/A
30.2	For parts of the appliance connected to the supply mains during the charging period, 30.2.3 applies		N/A
	For other parts, 30.2.2 applies		N/A
<b>H</b>	<b>ANNEX H (NORMATIVE) SWITCHES</b>		N/A
20	Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies		N/A
	Clause 20 is applicable to clearances across full disconnection and micro-disconnection		N/A

Differences from EN 60335-1:2012+A11+A13 to EN 60335-1:2012+ A11+ A13+ A1+A14+A2			
Clause	Requirement - Test	Result - Remark	Verdict
	It is also applicable to creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in Table 24		N/A
<b>P</b>	<b>ANNEX P (INFORMATIVE) GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN TROPICAL CLIMATES</b>		N/A
	Modifications applicable for class 0 and 01 appliances having a rated voltage exceeding 150V, intended to be used in countries having a tropical climate and that are marked with symbol IEC 60417-6332		N/A
	Modifications may also be applied to class 1 appliances having a rated voltage exceeding 150V, intended to be used in countries having a tropical climate and that are marked with symbol IEC 60417-6332, if liable to be connected to a supply mains that excludes the protective earthing conductor		N/A
5.7	The ambient temperature for the tests of clauses 11 and 13 is 40 +3/0 °C		N/A
7.1	The appliance marked with symbol IEC 60417-6332		N/A
7.12	The instructions state that the appliance is to be supplied through a residual current device (RCD) having a rated residual operating current not exceeding 30 mA		N/A
	The instructions state that the appliance is considered to be suitable for use in countries having a tropical climate, but may also be used in other countries		N/A
	If symbol IEC 60417-6332 is used, its meaning is explained		N/A
<b>S</b>	<b>ANNEX S (NORMATIVE) BATTERY OPERATED APPLIANCES POWERED BY BATTERIES THAT ARE NON-RECHARGEABLE OR NOT RECHARGED IN THE APPLIANCE</b>		N/A
	The following modifications to this standard are applicable for battery-operated appliances where the batteries are either non-rechargeable (primary batteries), or		N/A
	rechargeable batteries (secondary batteries) that are not recharged in the appliance		N/A
5.8.1	If the supply terminals for the connection of the battery have no indication of polarity, the more unfavourable polarity is applied		N/A
5.S.101	Appliances intended for use with a battery box are tested with the battery box supplied with the appliance or with the battery box recommended in the instructions		N/A
5.S.102	Appliances are tested as motor-operated appliances.		N/A



Differences from EN 60335-1:2012+A11+A13 to EN 60335-1:2012+ A11+ A13+ A1+A14+A2			
Clause	Requirement - Test	Result - Remark	Verdict
7.1	Appliances marked with the battery voltage (V) and the polarity of the terminals, unless .....		N/A
	the polarity is irrelevant		N/A
	Appliances also marked with:		N/A
	– name, trade mark or identification mark of the manufacturer or responsible vendor .....		N/A
	– model or type reference .....		N/A
	– IP number according to degree of protection against ingress of water, other than IPX0 ..		N/A
	– type reference of battery or batteries .....		N/A
	If relevant, the positive terminal is indicated by the symbol IEC 60417-5005 and the negative terminal by the symbol IEC 60417-5006		N/A
	If appliances use more than one battery, they are marked to indicate correct polarity connection of the batteries		N/A
7.6	Additional symbols		N/A
7.12	The instructions contain the following, as applicable:		N/A
	– the types of batteries that may be used ..		N/A
	– how to remove and insert the batteries		N/A
	– non-rechargeable batteries are not to be recharged		N/A
	– rechargeable batteries are to be removed from the appliance before being charged		N/A
	– different types of batteries or new and used batteries are not to be mixed		N/A
	– batteries are to be inserted with the correct polarity		N/A
	– exhausted batteries are to be removed from the appliance and safely disposed of		N/A
	– if the appliance is to be stored unused for a long period, the batteries are removed		N/A
	– the supply terminals are not to be short-circuited		N/A
11.5	Appliances are supplied with the most unfavourable supply voltage between		N/A
	– 0,55 and 1,0 times the battery voltage, if the appliance can be used with non-rechargeable batteries		N/A
	– 0,75 and 1,0 times battery voltage, if the appliance is designed for use with rechargeable batteries only		N/A
	The values specified in Table S.101 for the internal resistance per cell of the battery is taken into account		N/A
19.1	The tests are carried out with the battery fully charged unless otherwise specified		N/A
19.13	The battery does not rupture or ignite		N/A
19.S.101	Appliances are supplied with the voltage specified in 11.5. The supply terminals having an indication of polarity are connected to the opposite polarity, unless		N/A



Differences from EN 60335-1:2012+A11+A13 to EN 60335-1:2012+ A11+ A13+ A1+A14+A2			
Clause	Requirement - Test	Result - Remark	Verdict
	such a connection is unlikely to occur due to the construction of the appliance		N/A
19.S.102	For appliances with provision for multiple batteries, one or more of the batteries are reversed and the appliance is operated, if reversal of batteries is allowed by the construction		N/A
25.5	The flexible leads or flexible cord used to connect an external battery or battery box in is connected to the appliance by a type X attachment		N/A
25.13	This requirement is not applicable to the flexible leads or flexible cord connecting external batteries or a battery box with an appliance		N/A
25.S.101	Appliances have suitable means for connection of the battery. If the type of battery is marked on the appliance, the means of connection is suitable for this type of battery		N/A
26.5	Terminal devices in an appliance for the connection of the flexible leads or flexible cord connecting an external battery or battery box are so located or shielded that there is no risk of accidental connection between supply terminals		N/A
30.2.3.2	There is no battery in the area of the vertical cylinder used for the consequential needle flame test, unless		N/A
	the battery is shielded by a barrier that meets the needle flame test of Annex E, or		N/A
	that comprises material classified as V-0 or V-1 according to IEC 60695-11-10		N/A
<b>T</b>	<b>ANNEX T (NORMATIVE) UV-C RADIATION EFFECT ON NON-METALLIC MATERIALS</b>		<b>N/A</b>
	Requirements for non-metallic materials subject to direct or reflected UV-C radiation exposure and whose mechanical and electrical properties are relied upon for compliance with the		N/A
	Does not apply to glass, ceramic and similar materials		N/A
	Tested as specified in ISO 4892-1 and ISO 4892-2, with the following modifications:		N/A
	Modifications to ISO 4892-1:		N/A
5.1.6	The UV-C emitter is a low pressure mercury lamp with a quartz envelope having a continuous spectral irradiance of 10 W/m <sup>2</sup> at 254 nm		N/A
	Subclause 5.1.6.1 and Table 1 are not applicable		N/A
5.2.4	The black-panel temperature shall be 63 °C +/- 3 °C		N/A
5.3.1	Humidification of the chamber air is specified in part 2 when necessary		N/A
9	This clause is not applicable		N/A
	Modifications to ISO 4892-2:		N/A
7.1	At least three test specimens are tested		N/A

Differences from EN 60335-1:2012+A11+A13 to EN 60335-1:2012+ A11+ A13+ A1+A14+A2			
Clause	Requirement - Test	Result - Remark	Verdict
	Ten samples of internal wiring is tested		N/A
7.2	The specimens are attached to the specimen holders such that they are not subject to any stress		N/A
7.3	Apparatus prepared as specified		N/A
	The test specimens and, if used, the irradiance-measuring instrument are exposed for 1 000 h		N/A
7.4	If used, a radiometer is mounted and calibrated such that it measures the irradiance at the exposed surface of the test specimen		N/A
7.5	Material properties and test methods for parts providing mechanical support or impact resistance as specified in Table T.1		N/A
	Material properties and test method for electrical insulation of internal wiring as specified in Table T.2		N/A
8	This clause is not applicable		N/A

<b>A</b>	<b>ANNEX ZA (NORMATIVE) SPECIAL NATIONAL CONDITIONS (EN)</b>		<b>P</b>
	<b>Denmark, Sweden, Norway and Finland</b>		N/A
7.12.8	The maximum inlet water pressure is at least 1,0 MPa .....		N/A
	<b>Denmark</b>		N/A
22.47	The maximum inlet water pressure is at least 1,0 MPa .....		N/A
	<b>Ireland and United Kingdom</b>		N/A
25.8	In the table, the line >10 A and ≤16 A is replaced with:		N/A
	> 10 and ≤ 13 1,25 (1,0) <sup>b</sup>		N/A
	> 13 and ≤ 16 1,5 (1,0) <sup>b</sup>		N/A
<b>ZB</b>	<b>ANNEX ZB (INFORMATIVE) A-DEVIATIONS</b>		<b>P</b>
	<b>Ireland</b>		N/A
25.1 and 25.25	These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and in general allow only plugs complying with I.S. 401:1997, or equivalent, to be fitted to domestic appliances		N/A
	<b>United Kingdom</b>		N/A

Differences from EN 60335-1:2012+A11+A13 to EN 60335-1:2012+ A11+ A13+ A1+A14+A2			
Clause	Requirement - Test	Result - Remark	Verdict
25.1 and 25.25	These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and in general allow only plugs to BS 1363 to be fitted to domestic appliances.		N/A
	It also allows plugs to BS 4573 and EN 50075 to be fitted to shavers and toothbrushes		N/A
<b>ZC</b>	<b>ANNEX ZC (NORMATIVE) NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS</b>		<b>P</b>
	A list of documents referred to in the text of this standard in such a way that some or all of their content constitutes requirements of this document		P
<b>ZD</b>	<b>ANNEX ZD (INFORMATIVE) IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS</b>		<b>P</b>
	List of IEC and CENELEC code designations for flexible cords		P
<b>ZF</b>	<b>ANNEX ZF (INFORMATIVE) CRITERIA APPLIED FOR THE ALLOCATION OF PRODUCTS COVERED BY STANDARDS IN THE EN 60335 SERIES UNDER LVD OR MD</b>		<b>P</b>
	List of standards under CENELEC/TC61 with the allocation under the LVD (Low Voltage Directive) or the MD (Machinery Directive).....:	LVD	P
<b>ZH</b>	<b>ANNEX ZH (INFORMATIVE) Common plug and socket-outlet types in CENELEC countries</b>		<b>P</b>
	In general, supply cords of single-phase appliances having a rated current not exceeding 16 A are fitted with a plug complying with the following standard sheets:		P
	- for class I appliances or class II appliances with functional earth, standard sheet EU2, EU3 or EU4 .....		N/A
	- for class II appliances, standard sheet EU5, EU6 or EU7 .....		P
	There are exemptions or differences in certain CENELEC countries		P
<b>ZI</b>	<b>ANNEX ZI (INFORMATIVE) Information on the application of A11:2014 to EN 60335-1:2012 CENELEC CLC/TC 61(SEC)2096A</b>		<b>P</b>
	Clarification of the application of parts 2 in conjunction with the 2002 or 2012 version of EN 60335-1		P