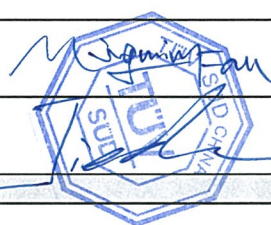


	Test Report issued under the responsibility of: NCB TÜV SÜD PSB 1 Science Park Drive, 118221 Singapore Singapore	
TEST REPORT IEC 60335-2-31 Safety of household and similar electrical appliances Part II : particular requirements for range hoods		
Report Number.....: 083-1840802-000 Date of issue 2018-09-17 Total number of pages 90 + 12		
Applicant's name Hangzhou DE&E Appliances Co.,Ltd Address No.98 Hongxing Road Qiaonan Block, Xiaoshan Economic and Technological, Development Zone, Xiaoshan District, 311231 Hangzhou, PEOPLE'S REPUBLIC OF CHINA		
Test specification: Standard IEC 60335-2-31: 2012 (Fifth Edition) in conjunction with IEC 60335-1:2010 (Fifth Edition) Test procedure.....: CB Scheme Non-standard test method.....: N/A		
Test Report Form No.: IEC60335_2_31H Test Report Form(s) Originator....: Dekra Certification B.V. Master TRF Dated 2013-11		
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Test item description.....: Range Hoods Trade Mark N/A Manufacturer Hangzhou DE&E Appliances Co.,Ltd Model/Type reference HA9088, HA9085, HA9086 Ratings 220-240V~, 50-60Hz, 184W, Class I, ordinary		

Testing procedure and testing location:		
☒	CB Testing Laboratory:	TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch No.151, Heng Tong Road, Shanghai 200070, P. R. China
Testing location/ address		No. 1999, Duhui Road, Shanghai, 201108, P. R. China
☐	Associated CB Testing Laboratory:	N/A
Testing location/ address		N/A
Tested by (name + signature).....:		Mingmin FAN
Approved by (name + signature)		Jie CHEN
		
☐	Testing procedure: TMP	
Testing location/ address		N/A
Tested by (name + signature).....:		N/A
Approved by (name + signature)		N/A
☐	Testing procedure: WMT	
Testing location/ address		N/A
Tested by (name + signature).....:		N/A
Witnessed by (name + signature)		N/A
Approved by (name + signature)		N/A
☐	Testing procedure: SMT	
Testing location/ address		N/A
Tested by (name + signature).....:		N/A
Approved by (name + signature)		N/A
Supervised by (name + signature) ..		N/A

List of Attachments (including a total number of pages in each attachment):

- Attachment 1: Test report IEC 60335-1:2010/AMD1:2013 (12 pages)
- Appendix 1: Photo documentation

Summary of testing:**Tests performed (name of test and test clause):**

Complete tests were performed on model HA9088.
 Additional tests of cl. 10 and 11 were performed on model HA9085.
 Construction checks were performed on all models.
 LED lamp was additionally tested according to IEC 62471:2006 and complied.
 The test results complied with the requirements.

Testing location:

TÜV SÜD Certification and Testing (China) Co.,
 Ltd. Shanghai Branch
 No. 1999, Duhui Road, Shanghai, 201108, P. R.
 China

Summary of compliance with National Differences

List of countries addressed: N/A

The product fulfils the requirements of IEC 60335-2-31:2012 in conjunction with IEC 60335-1:2010 + AMD1:2013

Copy of marking plate

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBS that own these marks.

The name of the manufacturer "Hangzhou DE&E Appliances Co.,Ltd" will be marked on each marking plate.

Range Hood

Product Name	Range Hood	Caution
Model No.	HA9088	
Rated Pressure	220-240V~	1. Do not light up fire directly under the range hood in case of destroying the product. 2. Clean the hood regularly. 3. Please put on protection glove during cleaning. 4. Prevent water from getting into the motor, switch control and other electric parts. 5. Clockwise is the loose direction of wheel cap. Please do take off the plug before cleaning!
Rated Frequency	50-60Hz	
Insulation Grade	B	
Input Power	184W	



MXNAA18062940162

Range Hood

Product Name	Range Hood	Caution
Model No.	HA9085	
Rated Pressure	220-240V~	1. Do not light up fire directly under the range hood in case of destroying the product. 2. Clean the hood regularly. 3. Please put on protection glove during cleaning. 4. Prevent water from getting into the motor, switch control and other electric parts. 5. Clockwise is the loose direction of wheel cap. Please do take off the plug before cleaning!
Rated Frequency	50-60Hz	
Insulation Grade	B	
Input Power	184W	



MXPAA18062940162

Range Hood

Product Name	Range Hood	Caution
Model No.	HA9086	
Rated Pressure	220-240V~	1. Do not light up fire directly under the range hood in case of destroying the product. 2. Clean the hood regularly. 3. Please put on protection glove during cleaning. 4. Prevent water from getting into the motor, switch control and other electric parts. 5. Clockwise is the loose direction of wheel cap. Please do take off the plug before cleaning!
Rated Frequency	50-60Hz	
Insulation Grade	B	
Input Power	184W	



MXQAA18062940162

Test item particulars	Range hoods
Classification of installation and use	Fixed appliance
Supply Connection	Type Y with plug
Possible test case verdicts:	
- 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)
Testing	
Date of receipt of test item	2018-05-22
Date (s) of performance of tests	2018-05-22 to 2018-09-17
General remarks:	
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 testing laboratory. "(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 ☒ comma / ☐ point is used as the decimal separator.	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60335-2-1:	
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..... ☐ Yes ☒ Not applicable	
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies): Hangzhou DE&E Appliances Co.,Ltd No.98 Hongxing Road Qiaonan Block, Xiaoshan Economic and Technological, Development Zone, Xiaoshan District, 311231 Hangzhou, PEOPLE'S REPUBLIC OF CHINA	
General product information:	
Range hoods for indoor household use only. All models have same construction, only have different product appearances and control panels. Model HA9088 has an additional fan motor speed mode and has smoke-sensing function.	

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
5	GENERAL CONDITIONS FOR THE TESTS		
	Tests performed according to clause 5, e.g. nature of supply, sequence of testing, etc.		P
5.7	For down-draft systems, the tests specified in Clauses 11 and 13 are carried out at an ambient temperature of $40\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$. (IEC 60335-2-31)		N/A
5.10	Modification: Unless otherwise stated, appliances are not connected to a duct. (IEC 60335-2-31)		P
5.101	Down-draft systems intended to be installed above the cooking surface are tested as specified for range hoods. (IEC 60335-2-31)		N/A
6	CLASSIFICATION		
6.1	Protection against electric shock: Class 0, 0I, I, II, III	Class I	P
6.2	Protection against harmful ingress of water	Ordinary	N/A
7	MARKING AND INSTRUCTIONS		
7.1	Rated voltage or voltage range (V)	See copy of marking plate	P
	Symbol for nature of supply, or	See copy of marking plate	P
	Rated frequency (Hz).....	See copy of marking plate	P
	Rated power input (W), or	See copy of marking plate	P
	Rated current (A)		N/A
	Manufacturer's or responsible vendor's name, trademark or identification mark.....	See copy of marking plate	P
	Model or type reference	See copy of marking plate	P
	Symbol IEC 60417-5172, for class II appliances		N/A
	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		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
	Appliances shall be marked on or near the lampholder as follows: lamp max W (IEC 60335-2-31)	2W	P
	The word "lamp" may be replaced by symbol IEC 60417-5012. (IEC 60335-2-31)		N/A
7.2	Warning for stationary appliances for multiple supply		N/A

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
	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, the voltage setting is clearly discernible		N/A
	Requirement met if frequent changes are not required and the rated voltage 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		P
	Symbol for class II appliances placed unlikely to be confused with other marking		N/A
	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:		
	- marking of terminals exclusively for the neutral conductor (letter N)		N/A
	- marking of protective earthing terminals (symbol IEC 60417-5019)		P
	- marking not placed on removable parts		P
7.9	Marking or placing of switches which may cause a hazard		N/A
7.10	Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means..... :	By figures and visual means	P

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
	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		P
7.12	Instructions for safe use provided		P
	Details concerning precautions during user maintenance		P
	The instructions state that:		
	- 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		P
	- children being supervised not to play with the appliance		P
	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
	Addition: The instructions shall state the substance of the following: (IEC 60335-2-31)		
	- there shall be adequate ventilation of the room when the range hood is used at the same time as appliances burning gas or other fuels (not applicable to appliances that only discharge the air back into the room);		P
	- the details concerning the method and frequency of cleaning;		P
	- there is a fire risk if cleaning is not carried out in accordance with the instructions;		P
	- do not flame under the range hood;		P
	- CAUTION: Accessible parts may become hot when used with cooking appliances.		P
7.12.1	Sufficient details for installation supplied		P
	For an appliance intended to be permanently connected to the water mains and not connected by a hose-set, this is stated		N/A

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
	The installation instructions shall include the substance of the following: (IEC 60335-2-31)		
	- The air must not be discharged into a flue that is used for exhausting fumes from appliances burning gas or other fuels;		P
	- The minimum distance between the supporting surface for the cooking vessels on the hob and the lowest part of the range hood.		
	When the range hood is located above a gas appliance, this distance shall be at least 65 cm. Or		N/A
	The gas hob specify a greater distance, this has to be taken into account. The distance of 65 cm can be reduced for:		N/A
	• non-combustible parts of range hoods, and		P
	• parts operating at safety extra low voltage,		P
	Provided these parts do not give access to live parts if deformed;		P
	- Regulations concerning the discharge of air have to be fulfilled.		P
	The installation instructions for range hoods with accessible metallic enclosures of class II construction shall include details that indicate the location and maximum permitted lengths for any fixing or mounting screw or other fixing device that penetrates into the range hood to attach an accessory such as a fascia or duct fitting. (IEC 60335-2-31)		N/A
	Where fixing or mounting screws, or other fixing devices are used, that penetrate into the range hood with an accessible metallic enclosure of class II construction, to attach an accessory, the instructions shall indicate: (IEC 60335-2-31)		
	Warning: Failure to install the screws or fixing device in accordance with these instructions may result in electrical hazards.		N/A
	The warning shall be in the same part of the instructions that include details of how to mount the equipment. (IEC 60335-2-31)		N/A
	The installation instructions for down-draft systems shall also include the substance of the following: (IEC 60335-2-31)		
	- The following warning (for down-draft systems not intended to be used with gas hobs): CAUTION: This appliance is not intended to be used with gas hobs.		N/A
	- Details of the gas appliance (for down-draft systems intended to be used together with gas hobs).		N/A

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
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:		
	- 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
7.12.7	Instructions for fixed appliances stating how the appliance is to be fixed		P
7.12.8	Instructions for appliances connected to the water mains:		
	- 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
7.13	Instructions and other texts in an official language		P

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
7.14	Marking clearly legible and durable, 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		P
	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 marking for maximum power input of a replaceable lamp shall be visible during replacement of the lamp. (IEC 60335-2-31)		P
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		N/A
8	PROTECTION AGAINST ACCESS TO LIVE PARTS		
8.1	Adequate protection against accidental contact with live parts		P
8.1.1	Requirement applies for all positions, detachable parts removed		P
	Lamps behind a detachable cover not removed, if conditions met		N/A
	Insertion or removal of lamps, protection against contact with live parts of the lamp cap		N/A
	Use of test probe B of IEC 61032, with a force not exceeding 1 N: no contact with live parts		P
	Use of test probe B of IEC 61032 through openings, with a force of 20N: no contact with live parts		P
8.1.2	Use of test probe 13 of IEC 61032, with a force not exceeding 1 N, through openings in class 0 appliances and class II appliances/constructions: no contact with live parts		P

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
	Test probe 13 also applied through openings in earthed metal enclosures having a non-conductive coating: no contact with live parts		P
8.1.3	For appliances other than class II, use of test probe 41 of IEC 61032, with a force not exceeding 1 N: no contact with live parts of visible glowing heating elements		N/A
8.1.4	Accessible part not considered live if:		
	- safety extra-low a.c. voltage: peak value not exceeding 42.4 V		N/A
	- safety extra-low d.c. voltage: not exceeding 42.4 V		P
	- or separated from live parts by protective impedance		N/A
	If protective impedance: d.c. current not exceeding 2 mA, and		N/A
	a.c. peak value not exceeding 0.7 mA		N/A
	- for peak values over 42.4 V up to and including 450 V, capacitance not exceeding 0,1 μ F		N/A
	- for peak values over 450 V up to and including 15 kV, discharge not exceeding 45 μ C		N/A
	- for peak values over 15kV, the energy in the discharge not exceeding 350 mJ		N/A
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		
	- built-in appliances		N/A
	- fixed appliances		P
	- appliances delivered in separate units		N/A
8.2	Class II appliances and constructions constructed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only		P
	Only possible to touch parts separated from live parts by double or reinforced insulation		P
	After removal of detachable parts the basic insulation of the internal wiring may be touch during user maintenance provided it is electrically equivalent of the insulation of cords complying with IEC 60227 or IEC 60245. (IEC 60335-2-31)		N/A
9	STARTING OF MOTOR-OPERATED APPLIANCES		
	Requirements and tests are specified in part 2 when necessary		N/A

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
10	POWER INPUT AND CURRENT		
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
	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
	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
11	HEATING		
11.1	No excessive temperatures in normal use		P
11.2	Replacement: (IEC 60335-2-31)		
	Built-in appliances are installed in accordance with the instructions.		N/A
	Other appliances are fixed to a vertical support.		P
	The appliance is located above a hob so that the distance between its lowest point and the hob surface is the minimum distance specified in the instructions.		P
	A vertical side wall extending to the top of the range hood is placed at right angles to the vertical support, 100 mm from one side of the range hood. Dull black-painted plywood approximately 20 mm thick is used for the vertical support, the side wall and for the installation of built-in range appliances.		P
	If the range hood is intended to be installed over a hob having four hob elements, the hob shall have two 2 kW electric elements at the back and two 1,5 kW electric elements at the front.		P
	If the range hood is intended to be installed over a hob having six hob elements, the hob shall have three 2 kW electric elements at the back and three 1,5 kW electric elements at the front.		N/A
	The layout of the hobs used in the tests is shown in Figure 101. The hobs are centrally situated with respect to the range hood.		P

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
	Vessels with water and no lids are placed on the hob elements, the hob elements are operated to maintain vigorous boiling.		P
	The appliance is also tested without the hob elements in operation.		P
	For appliances delivered for installation with the control and filter boxes separate from the fan, the duct length on input and output shall be 4 times fan diameter.		N/A
	However, if the fan is intended to be mounted on the external structure of a building, the fan is not ducted on the output side.		N/A
11.3	Temperature rises, other than of windings, determined by thermocouples		P
	Temperature rises of windings determined by resistance method, unless		P
	the windings are non-uniform or it is difficult to make the necessary connections		P
11.4	Heating appliances operated under normal operation at 1.15 times rated power input (W) :		N/A
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage (V) :	206,8V and 254,4V	P
11.6	Combined appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage (V) :		N/A
11.7	Appliances are operated until steady conditions are established. (IEC 60335-2-31)		P
11.8	Temperature rises monitored continuously and not exceeding the values in table 3 :	(see appended table)	P
	If the temperature rise of a motor winding exceeds the value of table 3, or		P
	if there is doubt with regard to classification of insulation,		N/A
	tests of Annex C are carried out		N/A
	Sealing compound does not flow out		P
	Protective devices do not operate, except		P
	components in protective electronic circuits tested for the number of cycles specified in 24.1.4		N/A
	The temperature rise limit for external enclosures and wood does not apply when the hob elements are in operation. (IEC 60335-2-31)		P

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
	Without the hob elements in operation and only the temperature rise of the external enclosure and wood are measured, the temperature rise limit for wood is 65K. (IEC 60335-2-31)		P
	Temperature rises are determined with the fan motor switched off, especially those of lampholders. (IEC 60335-2-31)		P
	For down-draft systems, the temperature rises shall not exceed the values given in Table 3 reduced by 15 K. (IEC 60335-2-31)		N/A
13	LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE		
13.1	Leakage current not excessive and electric strength adequate		P
	Heating appliances operated at 1.15 times the rated power input (W)		N/A
	Motor-operated appliances and combined appliances supplied at 1.06 times the rated voltage (V)	254,4V	P
	Protective impedance and radio interference filters disconnected before carrying out the tests		N/A
13.2	For class 0, class II and class III appliances, leakage current measured by means of the circuit described in figure 4 of IEC 60990		N/A
	For other appliances, a low impedance ammeter may be used		P
	Leakage current measurements.....	(see appended table)	P
13.3	The appliance is disconnected from the supply		P
	Electric strength tests according to table 4	(see appended table)	P
	No breakdown during the tests		P
14	TRANSIENT OVERVOLTAGES		
	Appliances withstand the transient over-voltages to which they may be subjected		N/A
	Clearances having a value less than specified in table 16 subjected to an impulse voltage test, the test voltage specified in table 6	(see appended table)	N/A
	No flashover during the test, unless		N/A
	of functional insulation if the appliance complies with clause 19 with the clearance short-circuited		N/A
15	MOISTURE RESISTANCE		

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
15.1	Enclosure provides the degree of moisture protection according to classification of the appliance		N/A
	Compliance checked as specified in 15.1.1, taking into account 15.1.2, followed by the electric strength test of 16.3		N/A
	No trace of water on insulation which can result in a reduction of clearances or creepage distances below values specified in clause 29		N/A
15.1.1	Appliances, other than IPX0, subjected to tests as specified in IEC 60529..... :		N/A
	Water valves containing live parts in external hoses for connection of an appliance to the water mains tested as specified for IPX7 appliances		N/A
	The outer part of fans intended to be installed in the external structure of a building is subjected to the test of Subclause 14.2.4 a) of IEC 60529. (IEC 60335-2-31)		N/A
	The part of the fan not mounted on the outside surface being protected against spray from the oscillating tube. (IEC 60335-2-31)		N/A
	The test is carried out with the appliance in the rest position and then in operation while supplied at rated voltage, shutters or similar devices being in the open position. (IEC 60335-2-31)		N/A
15.1.2	Hand-held appliance turned continuously through the most unfavourable positions during the test		N/A
	Built-in appliances installed according to the instructions		N/A
	Appliances placed or used on the floor or table placed on a horizontal unperforated support		N/A
	Appliances normally fixed to a wall and appliances with pins for insertion into socket-outlets are mounted on a wooden board		N/A
	For IPX3 appliances, the base of wall mounted appliances is placed at the same level as the pivot axis of the oscillating tube		N/A
	For IPX4 appliances, the horizontal centre line of the appliance is aligned with the pivot axis of the oscillating tube, and		N/A
	for appliances normally used on the floor or table, the movement is limited to two times 90° for a period of 5 min, the support being placed at the level of the pivot axis of the oscillating tube		N/A
	Wall-mounted appliances, take into account the distance to the floor stated in the instructions		N/A

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
	Appliances normally fixed to a ceiling are mounted underneath a horizontal unperforated support, the pivot axis of the oscillating tube located at the level of the underside of the support, and		N/A
	for IPX4 appliances, the movement of the tube is limited to two times 90° from the vertical for a period of 5 min		N/A
	Appliances with type X attachment fitted with a flexible cord as described		N/A
	Detachable parts subjected to the relevant treatment with the main part		N/A
	However, if a part has to be removed for user maintenance and a tool is needed, this part is not removed		N/A
15.2	Spillage of liquid does not affect the electrical insulation		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 water, over a period of 1 min (I) :		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
	A vessel with 0,5 l water containing approximately 1 % NaCl is poured steadily over a period of 15 s over critical parts of a down-draft system. (IEC 60335-2-31)		N/A
15.3	Appliances proof against humid conditions		P
	Checked by test Cab: Damp heat steady state in IEC 60068-2-78		P
	Detachable parts removed and subjected, if necessary, to the humidity test with the main part		P
	Humidity test for 48 h in a humidity cabinet		P
	Reassembly of those parts that may have been removed		P
	The appliance withstands the tests of clause 16		P
16	LEAKAGE CURRENT AND ELECTRIC STRENGTH		

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
16.1	Leakage current not excessive and electric strength adequate		P
	Protective impedance disconnected from live parts before carrying out the tests		N/A
	Tests carried out at room temperature and not connected to the supply		P
16.2	Single-phase appliances: test voltage 1.06 times rated voltage (V)	254,4V	P
	Three-phase appliances: test voltage 1.06 times rated voltage divided by $\sqrt{3}$ (V)		N/A
	Leakage current measurements	(see appended table)	P
	Limit values doubled if:		
	- all controls have an off position in all poles, or		N/A
	- the appliance has no control other than a thermal cut-out, or		N/A
	- all thermostats, temperature limiters and energy regulators do not have an off position, or		N/A
	- the appliance has radio interference filters		N/A
	With the radio interference filters disconnected, the leakage current do not exceed limits specified	(see appended table)	P
16.3	Electric strength tests according to table 7	(see appended table)	P
	Test voltage applied between the supply cord and inlet bushing and cord guard and cord anchorage as specified	(see appended table)	P
	No breakdown during the tests		P
17	OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS		
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use	(see appended table)	P
	Appliance supplied with 1.06 or 0.94 times rated voltage under the most unfavourable short-circuit or overload likely to occur in normal use (V)	254,4V	P
	Basic insulation is not short-circuited		P
	Temperature rise of insulation of the conductors of safety extra-low voltage circuits not exceeding the relevant value specified in table 3 by more than 15 K		N/A
	Temperature of the winding not exceeding the value specified in table 8		P

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
	However, limits do not apply to fail-safe transformers complying with sub-clause 15.5 of IEC 61558-1		N/A
18	ENDURANCE		
	Requirements and tests are specified in part 2 when necessary		N/A
19	ABNORMAL OPERATION		
19.1	The risk of fire, mechanical damage or electric shock under abnormal or careless operation obviated		P
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe	(see appended table)	P
	Appliances incorporating heating elements subjected to the tests of 19.2 and 19.3, and		N/A
	if the appliance also has a control that limit the temperature during clause 11 it is subjected to the test of 19.4, and		N/A
	if applicable, to the test of 19.5		N/A
	Appliances incorporating PTC heating elements are also subjected to the test of 19.6		N/A
	Appliances incorporating motors subjected to the tests of 19.7 to 19.10, as applicable		P
	Appliances incorporating electronic circuits subjected to the tests of 19.11 and 19.12, as applicable		P
	Appliances incorporating contactors or relays subjected to the test of 19.14, being carried out before the tests of 19.11		P
	Appliances incorporating voltage selector switches subjected to the test of 19.15		N/A
	Unless otherwise specified, the tests are continued until a non-self-resetting thermal cut-out operates, or		N/A
	until steady conditions are established		P
	If a heating element or intentionally weak part becomes open-circuited, the relevant test is repeated on a second sample		N/A
	Appliances are also subjected to the test of 19.101. (IEC 60335-2-31)		P
19.2	Test of appliances with heating elements with restricted heat dissipation; test voltage (V), power input of 0.85 times rated power input (W)		N/A

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
19.3	Test of 19.2 repeated; test voltage (V), power input of 1.24 times rated power input (W)		N/A
19.4	Test conditions as in clause 11, any control limiting the temperature during tests of clause 11 short-circuited		N/A
19.5	Test of 19.4 repeated on Class 0I and I appliances with tubular sheathed or embedded heating elements. No short-circuiting, but one end of the element connected to the sheath		N/A
	The test repeated with reversed polarity and the other end of the heating element connected to the sheath		N/A
	The test is not carried out on appliances intended to be permanently connected to fixed wiring and on appliances where an all-pole disconnection occurs during the test of 19.4		N/A
19.6	Appliances with PTC heating elements tested at rated voltage, establishing steady conditions		N/A
	The working voltage of the PTC heating element is increased by 5% and the appliance is operated until steady conditions are re-established. The voltage is then increased in similar steps until 1.5 times working voltage or until the PTC heating element ruptures (V)		N/A
19.7	Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque, or		P
	locking moving parts of other appliances		N/A
	Locked rotor, capacitors open-circuited one at a time		P
	Test repeated with capacitors short-circuited one at a time, unless		N/A
	capacitor is of class P2 of IEC 60252-1		P
	Appliances with timer or programmer supplied with rated voltage for each of the tests, for a period equal to the maximum period allowed.....		N/A
	Other appliances supplied with rated voltage for a period as specified.....	Until steady conditions	P
	Winding temperatures not exceeding values specified in table 8.....	(see appended table)	P
19.8	Multi-phase motors operated at rated voltage with one phase disconnected		N/A
19.9	Running overload test on appliances incorporating motors intended to be remotely or automatically controlled or liable to be operated continuously		N/A

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
	Motor-operated and combined appliances for which 30.2.3 is applicable and that use overload protective devices relying on electronic circuits to protect the motor windings, are also subjected to the test		N/A
	Winding temperatures not exceeding values as specified	(see appended table)	N/A
19.10	Series motor operated at 1.3 times rated voltage for 1 min (V)		N/A
	During the test, parts not being ejected from the appliance		N/A
19.11	Electronic circuits, compliance checked by evaluation of the fault conditions specified in 19.11.2 for all circuits or parts of circuits, unless		P
	they comply with the conditions specified in 19.11.1		N/A
	Appliances incorporating an electronic circuit that relies upon a programmable component to function correctly, subjected to the test of 19.11.4.8, unless		N/A
	restarting does not result in a hazard		N/A
	Appliances having a device with an off position obtained by electronic disconnection, or a device placing the appliance in a stand-by mode, subjected to the tests of 19.11.4	Not possible unsafe operation	N/A
	If the safety of the appliance under any of the fault conditions depends on the operation of a miniature fuse-link complying with IEC 60127, the test of 19.12 is carried out		N/A
	During and after each test the following is checked:		
	- the temperature of the windings do not exceed the values specified in table 8		P
	- the appliance complies with the conditions specified in 19.13		P
	- any current flowing through protective impedance not exceeding the limits specified in 8.1.4		N/A
	If a conductor of a printed board becomes open-circuited, the appliance is considered to have withstood the particular test, provided both of the following conditions are met:		
	- the base material of the printed circuit board withstands the test of Annex E		N/A
	- any loosened conductor does not reduce clearance or creepage distances between live parts and accessible metal parts below the values specified in clause 29		N/A

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
19.11.1	Fault conditions a) to g) in 19.11.2 are not applied to circuits or parts of circuits meeting both of the following conditions:		
	- the electronic circuit is a low-power circuit, that is, the maximum power at low-power points does not exceed 15 W according to the tests specified		N/A
	- the protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction of other parts of the appliance does not rely on the correct functioning of the electronic circuit		P
19.11.2	Fault conditions applied one at a time, the appliance operating under conditions specified in clause 11, but supplied at rated voltage, duration of the tests as specified:		
	a) short circuit of functional insulation if clearances or creepage distances are less than the values specified in clause 29		N/A
	b) open circuit at the terminals of any component	R6, D1, C6	P
	c) short circuit of capacitors, unless	C6	P
	they comply with IEC 60384-14		N/A
	d) short circuit of any two terminals of an electronic component, other than integrated circuits	R25, R6, D1	P
	This fault condition is not applied between the two circuits of an optocoupler		N/A
	e) failure of triacs in the diode mode		N/A
	f) failure of microprocessors and integrated circuits		N/A
	g) failure of an electronic power switching device		N/A
	Each low power circuit is short-circuited by connecting the low-power point to the pole of the supply source from which the measurements were made		N/A
19.11.3	If the appliance incorporates a protective electronic circuit which operates to ensure compliance with clause 19, the relevant test is repeated with a single fault simulated, as indicated in a) to g) of 19.11.2		N/A
19.11.4	Appliances having a device with an off position obtained by electronic disconnection, or	Not possible unsafe operation	N/A
	a device that can be placed in the stand-by mode,		N/A
	subjected to the tests of 19.11.4.1 to 19.11.4.7, the device being set in the off position or in the stand-by mode		N/A

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
	Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.4.1 to 19.11.4.7, the tests being carried out after the protective electronic circuit has operated, except that		N/A
	appliances operated for 30 s or 5 min during the test of 19.7 are not subjected to the tests for electromagnetic phenomena.		N/A
	Surge protective devices disconnected, unless		N/A
	They incorporate spark gaps		N/A
19.11.4.1	The appliance is subjected to electrostatic discharges in accordance with IEC 61000-4-2, test level 4		N/A
19.11.4.2	The appliance is subjected to radiated fields in accordance with IEC 61000-4-3, test level 3		N/A
19.11.4.3	The appliance is subjected to fast transient bursts in accordance with IEC 61000-4-4, test level 3 or 4 as 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
	Earthed heating elements in class I appliances disconnected		N/A
19.11.4.5	The appliance is subjected to injected currents in accordance with IEC 61000-4-6, test level 3		N/A
19.11.4.6	Appliances having a rated current not exceeding 16 A are subjected to the Class 3 voltage dips and interruptions in accordance with IEC 61000-4-11		N/A
	Appliances having a rated current exceeding 16 A are subjected to the Class 3 voltage dips and interruptions in accordance with IEC 61000-4-34		N/A
19.11.4.7	The appliance is subjected to mains signals in accordance with IEC 61000-4-13, test level class 2		N/A
19.11.4.8	The appliance is supplied at rated voltage and operated under normal operation. After 60s the power supply is reduced to a level such that the appliance ceases to respond or parts controlled by the programmable component cease to operate		N/A
	The appliance continues to operate normally, or		N/A
	requires a manual operation to restart		N/A

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
19.12	If the safety of the appliance for any of the fault conditions specified in 19.11.2 depends on the operation of a miniature fuse-link complying with IEC 60127, the test is repeated, measuring the current flowing through the fuse-link; measured current (A); rated current of the fuse-link (A)	Measured current: >15A; Rated current: 5A	P
19.13	During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts		P
	Temperature rises not exceeding the values shown in table 9.....	(see appended table)	P
	Compliance with clause 8 not impaired		P
	If the appliance can still be operated it complies with 20.2		P
	Insulation, other than of class III appliances or class III constructions that do not contain live parts, withstands the electric strength test of 16.3, the test voltage as specified in table 4:		
	- basic insulation (V)	1000V	P
	- supplementary insulation (V)		N/A
	- reinforced insulation (V).....	3000V	P
	After operation or interruption of a control, clearances and creepage distances across the functional insulation withstand the electric strength test of 16.3, the test voltage being twice the working voltage		N/A
	The appliance does not undergo a dangerous malfunction, and		P
	no failure of protective electronic circuits, if the appliance is still operable		N/A
	Appliances tested with an electronic switch in the off position, or in the stand-by mode:		
	- do not become operational, or		N/A
	- if they become operational, do not result in a dangerous malfunction during or after the tests of 19.11.4		N/A
	If the appliance contains lids or doors that are controlled by one or more interlocks, one of the interlocks may be released provided that:		
	- the lid or door does not move automatically to an open position when the interlock is released, and		N/A
	- the appliance does not start after the cycle in which the interlock was released		N/A

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
	Addition: During the test of 19.101, the temperature of the motor windings shall not exceed the values specified in Table 8. (IEC 60335-2-31)		P
	The appliance shall not deform to such an extent that parts fall from it. (IEC 60335-2-31)		P
19.14	Appliances operated under the conditions of clause 11, any contactor or relay contact operating under the conditions of clause 11 being short-circuited		P
	For a relay or contactor with more than one contact, all contacts are short-circuited at the same time		N/A
	A relay or contactor operating only to ensure the appliance is energized for normal use is not short-circuited		N/A
	If more than one relay or contactor operates in clause 11, they are short-circuited in turn		N/A
19.15	For appliances with a mains voltage selector switch, the switch is set to the lowest rated voltage position and the highest value of rated voltage is applied		N/A
19.101	Appliances are operated above a hob as specified in Clause 11, but without vessels and with only the two outer hob elements at the back being energized. (IEC 60335-2-31)		P
20	STABILITY AND MECHANICAL HAZARDS		
20.1	Appliances having adequate stability		N/A
	Tilting test through an angle of 10°, appliance placed on an inclined plane/horizontal support, not connected to the supply mains; appliance does not overturn		N/A
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°		N/A
	Possible heating test in overturned position; temperature rise does not exceed values shown in table 9		N/A
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury		P
	Protective enclosures, guards and similar parts are non-detachable, and		P
	have adequate mechanical strength		P
	Enclosures that can be opened by overriding an interlock are considered to be detachable parts		P

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard by unexpected closure		P
	Not possible to touch dangerous moving parts with the test probe described		P
	Addition: Filters are considered to be detachable parts. (IEC 60335-2-31)		P
20.101	If a part of a range hood or down-draft system can be moved automatically, there shall be no risk of entrapment or injury. (IEC 60335-2-31)		N/A
	Compliance is checked by the following test.		
	The appliance is operated at rated voltage and is operated to open and close the driven part.		N/A
	The driven part shall:		
	a) decelerate to a speed lower than 15 mm/s in the last 50 mm of the movement, as it approaches any position in which entrapment may occur; or		N/A
	b) when IEC 61032 probe 32 is placed at any potential entrapment point across the width and height of the opening;		N/A
	– stop and reverse direction before contacting the probe; or		N/A
	– if the probe is touched by the driven part;		N/A
	• not exert a force on the probe exceeding a value of 100 N; or		N/A
	• not subject the probe to a shear force.		N/A
	If compliance relies on the operation of an electronic circuit, the test is repeated under the following conditions applied separately:		
	– the fault conditions in a) to g) of 19.11.2, are applied one at a time to the electronic circuit;		N/A
	– the electromagnetic phenomena tests of 19.11.4.2 and 19.11.4.5 are applied in turn to the appliance.		N/A
	The driven part shall:		
	a) decelerate to a speed lower than 15 mm/s in the last 50 mm of the movement, as it approaches any position in which entrapment may occur; or		N/A
	b) when IEC 61032 probe 32 is placed at any potential entrapment point across the width and height of the opening;		N/A
	– stop and reverse direction before contacting the probe; or		N/A
	– if the probe is touched by the driven part;		N/A
	• not exert a force on the probe exceeding a value of 100 N; or		N/A
	• not subject the probe to a shear force.		N/A

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
21	MECHANICAL STRENGTH		
21.1	Appliance has adequate mechanical strength and is constructed as to withstand rough handling		P
	Checked by applying 3 blows to every point of the enclosure like to be weak, in accordance with test Ehb of IEC 60068-2-75, spring hammer test, with an impact energy of 0,5 J	(see appended table)	P
	The appliance shows no damage impairing compliance with this standard, and		P
	compliance with 8.1, 15.1 and clause 29 not impaired		P
	If doubt, supplementary or reinforced insulation subjected to the electric strength test of 16.3		N/A
	If necessary, repetition of groups of three blows on a new sample		N/A
21.2	Accessible parts of solid insulation having strength to prevent penetration by sharp implements		P
	Test not applicable if the thickness of supplementary insulation is at least 1 mm and reinforced insulation at least 2 mm		P
	The insulation is tested as specified, and does withstand the electric strength test of 16.3		N/A
22	CONSTRUCTION		
22.1	Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60529 are fulfilled		N/A
22.2	Stationary appliance: means to ensure all-pole disconnection from the supply being provided:		
	- a supply cord fitted with a plug, or		P
	- a switch complying with 24.3, or		N/A
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided, or		N/A
	- an appliance inlet		N/A
	Singe-pole switches and single-pole protective devices for the disconnection of heating elements in single-phase, permanently connected class 01 and class I appliances, connected to the phase conductor		N/A
22.3	Appliance provided with pins: no undue strain on socket-outlets		N/A
	Applied torque not exceeding 0.25 Nm		N/A

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
	Pull force of 50N to each pin after the appliance has being placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1mm		N/A
	Each pin subjected to a torque of 0.4Nm; the pins are not rotating, unless		N/A
	rotating does not impair compliance with this standard		N/A
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets		N/A
22.5	No risk of electric shock when touching the pins of the plug, for appliances having a capacitor with rated capacitance exceeding 0,1 μ F, the appliance being disconnected from the supply at the instant of voltage peak		P
	Voltage not exceeding 34 V (V)	Max. measured: 16V	P
22.6	Electrical insulation not affected by condensing water or leaking liquid		P
	Electrical insulation of Class II appliances not affected if a hose ruptures or seal leaks		N/A
	In case of doubt, test as described		N/A
22.7	Adequate safeguards against the risk of excessive pressure in appliances containing liquid or gases or having steam-producing devices		N/A
22.8	For appliances having compartments to which access is gained during user maintenance, the electrical connections shall be arranged so that they are not subjected to pulling during cleaning or other user maintenance. (IEC 60335-2-31)		P
	Compliance is checked by inspection and by the following test. (IEC 60335-2-31)		P
	Detachable parts are removed. It shall not be possible to grasp wiring likely to be touched in such a way that the connections are subjected to undue stress. (IEC 60335-2-31)		P
	In case of doubt, the wiring is subjected to a pull of 10 N, applied without jerks three times in succession, in the most unfavourable direction likely to occur during user maintenance. (IEC 60335-2-31)		P
	There shall be no appreciable displacement of the connections. (IEC 60335-2-31)		P
	NOTE 101 Interconnection cords intended to be disconnected before cleaning or user maintenance are not subjected to the test. (IEC 60335-2-31)		P

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances, unless		P
	the substance has adequate insulating properties		N/A
22.10	Not possible to reset voltage-maintained non-self-resetting thermal cut-outs by the operation of an automatic switching device incorporated within the appliance, if:		N/A
	- a non-self-resetting thermal cut-out is required by the standard, and		N/A
	- a voltage maintained non-self-resetting thermal cut-out is used to meet it		N/A
	Non-self-resetting thermal motor protectors have a trip-free action, unless		N/A
	they are voltage maintained		N/A
	Reset buttons of non-self-resetting controls so located or protected that accidental resetting is unlikely		N/A
22.11	Reliable fixing of non-detachable parts that provide the necessary degree of protection against electric shock, moisture or contact with moving parts		P
	Obvious locked position of snap-in devices used for fixing such parts		P
	No deterioration of the fixing properties of snap-in devices used in parts that are likely to be removed during installation or servicing		P
	Tests as described		P
22.12	Handles, knobs etc. fixed in a reliable manner		N/A
	Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible		N/A
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		N/A
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		N/A
22.13	Unlikely that handles, when gripped as in normal use, make the operator's hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only		P
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance		P

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
	No exposed pointed ends of self-tapping screws or other fasteners, likely to be touched by the user in normal use or during user maintenance		P
22.15	Storage hooks and the like for flexible cords smooth and well rounded		N/A
22.16	Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands and no undue wear of contacts		N/A
	Cord reel tested with 6000 operations, as specified		N/A
	Electric strength test of 16.3, voltage of 1000 V applied		N/A
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner		P
22.18	Current-carrying parts and other metal parts resistant to corrosion		P
22.19	Driving belts not relied upon to provide the required level of insulation, unless		N/A
	constructed to prevent inappropriate replacement		N/A
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless		N/A
	material used is non-corrosive, non-hygroscopic and non-combustible		N/A
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless		P
	impregnated		N/A
	This requirement does not apply to magnesium oxide and mineral ceramic fibres used for the electrical insulation of heating elements		N/A
22.22	Appliances not containing asbestos		P
22.23	Oils containing polychlorinated biphenyl (PCB) not used		P
22.24	Bare heating elements, except in class III appliances or class III constructions that do not contain live parts, adequately supported		N/A
	In case of rupture, the heating conductor is unlikely to come in contact with accessible metal parts		N/A
22.25	Sagging heating conductors, except in class III appliances or class III constructions that do not contain live parts, cannot come into contact with accessible metal parts		N/A

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
22.26	For class III constructions the insulation between parts operating at safety extra-low voltage and other live parts complies with the requirements for double or reinforced insulation		P
22.27	Parts connected by protective impedance separated by double or reinforced insulation		N/A
22.28	Metal parts of Class II appliances conductively connected to gas pipes or in contact with water, separated from live parts by double or reinforced insulation		N/A
22.29	Class II appliances permanently connected to fixed wiring so constructed that the required degree of access to live parts is maintained after installation		N/A
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		P
	so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete		P
22.31	Neither clearances nor creepage distances over supplementary and reinforced insulation reduced below values specified in clause 29 as a result of wear		P
	Neither clearances nor creepage distances between live parts and accessible parts reduced below values for supplementary insulation if wires, screws etc. become loose		P
22.32	Supplementary and reinforced insulation constructed or protected against pollution so that clearances or creepage distances are not reduced below the values in clause 29		P
	Supplementary insulation of natural or synthetic rubber resistant to ageing, or arranged and dimensioned so that creepage distances are not reduced below values specified in 29.2		N/A
	Ceramic material not tightly sintered, similar materials or beads alone not used as supplementary or reinforced insulation		N/A
	Insulating material in which heating conductors are embedded is considered to be basic insulation, not reinforced insulation		N/A
	Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature		N/A

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
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		N/A
	Electrodes not used for heating liquids		N/A
	For class II constructions, conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed accessible metal parts, not in direct contact with basic or reinforced insulation, unless		N/A
	the reinforced insulation consists of at least 3 layers		N/A
	For class II constructions, conductive liquids which are in contact with live parts, not in direct contact with reinforced insulation, unless		N/A
	the reinforced insulation consists of at least 3 layers		N/A
	An air layer not used as basic or supplementary insulation in a double insulation system if likely to be bridged by leaking liquid		N/A
22.34	Shafts of operating knobs, handles, levers etc. not live, unless		N/A
	the shaft is not accessible when the part is removed		N/A
22.35	For other than class III constructions, handles, levers and knobs, held or actuated in normal use, not becoming live in the event of a failure of basic insulation		N/A
	Such parts being of metal, and their shafts or fixings are likely to become live in the event of a failure of basic insulation, are either adequately covered by insulation material or their accessible parts are separated from their shafts or fixings by supplementary insulation		N/A
	This requirement does not apply to handles, levers and knobs on stationary 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
	Insulating material covering metal handles, levers and knobs withstand the electric strength test of 16.3 for supplementary insulation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
22.36	For appliances other than class III, handles continuously held in the hand in normal use so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts, unless		N/A
	they are separated from live parts by double or reinforced insulation		N/A
22.37	Capacitors in Class II appliances not connected to accessible metal parts and their casings, if of metal, separated from accessible metal parts by supplementary insulation, unless		N/A
	the capacitors comply with 22.42		N/A
22.38	Capacitors not connected between the contacts of a thermal cut-out		P
22.39	Lamp holders used only for the connection of lamps		P
22.40	Motor-operated appliances and combined appliances intended to be moved while in operation, or having accessible moving parts, fitted with a switch to control the motor. The actuating member of the switch being easily visible and accessible		N/A
	If the appliance cannot operate continuously, automatically or remotely without giving rise to a hazard, appliances for remote operation being fitted with a switch for stopping the operation. The actuating member of the switch being easily visible and accessible		N/A
22.41	No components, other than lamps, containing mercury		P
22.42	Protective impedance consisting of at least two separate components		N/A
	Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited		N/A
	Resistors checked by the test of 14.1 a) in IEC 60065		N/A
	Capacitors checked by the tests for class Y capacitors in IEC 60384-14		N/A
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		N/A
22.44	Appliances not having an enclosure that is shaped or decorated like a toy		P

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Clause	Requirement + Test	Result - Remark	Verdict
22.45	When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.3 due to deformation as a result of an external force applied to the enclosure		N/A
22.46	For programmable protective electronic circuits used to ensure compliance with the standard, the software contains measures to control the fault/error conditions in table R.1		N/A
	Software that contains measures to control the fault/error conditions specified in table R.2 is to be specified in parts 2 for particular constructions or to address specific hazards		N/A
	These requirements are not applicable to software used for functional purpose or compliance with clause 11		N/A
22.47	Appliances connected to the water mains withstand the water pressure expected in normal use		N/A
	No leakage from any part, including any inlet water hose		N/A
22.48	Appliances connected to the water mains constructed to prevent backsiphonage of non-potable water		N/A
22.49	For remote operation, the duration of operation is to be set before the appliance can be started, unless		N/A
	the appliance switches off automatically or can operate continuously without hazard		P
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation		P
22.51	There is a control on the appliance manually adjusted to the setting for remote operation before the appliance can be operated in this mode		N/A
	There is a visual indication showing that the appliance is adjusted for remote operation		N/A
	These requirements not necessary on appliances that can operate as follows, without giving rise to a hazard:		
	- continuously, or		P
	- automatically, or		N/A
	- remotely		N/A
22.52	Socket-outlets on appliances accessible to the user in accordance with the socket-outlet system used in the country in which the appliance is sold		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
22.101	Appliances shall be constructed so that they can be fixed securely to a wall or other support. Brackets and similar means shall be of metal that shall not be liable to creep or deform. (IEC 60335-2-31)		P
	Compliance is checked by inspection. (IEC 60335-2-31)		P
22.102	Appliances shall be constructed so that parts liable to accumulate deposits of grease can be cleaned without moving adjacent cooking appliances. (IEC 60335-2-31)		P
22.103	Where fixing or mounting screws or other fixing devices that penetrate into the range hood with an accessible metallic enclosure of class II construction are used to attach an accessory to the range hood, there shall be: (IEC 60335-2-31)		
	– pre-formed holes in the range hood enclosure and accessory if it is supplied by the range hood manufacturer, or		N/A
	– markings on the range hood enclosure and accessory if it is supplied by the range hood manufacturer to indicate the correct location for the screws or fixing devices.		N/A
	Where markings are used, the markings shall be clearly visible and legible during installation		N/A
	Where the fixing or mounting screw or other fixing device penetrates into the range hood enclosure in areas where live parts are present, there shall be no hazard.		N/A
	Live parts not separated from the fixing or mounting screw or other fixing device by an earthed metal barrier shall not be in an area behind the screw or other fixing device location within the envelope of a cylinder having a diameter of 10 mm and a length of 50 mm.		N/A
	Compliance is checked by inspection and the following test, if applicable.		N/A
	Directly behind the entry point into the range hood enclosure of any fixing or mounting screw, or other fixing device, an area encompassed by a 10 mm diameter cylinder of 50 mm length is determined.		N/A
	The axis of the cylinder being aligned with the axis of the entry point that is normal to the surface of the range hood enclosure. There shall be no live parts within the envelope of the cylinder.		N/A
	Additionally, live parts that may encroach on the envelope of the cylinder shall have a force of 5 N applied in the direction towards the cylinder.		N/A
	The live parts shall not enter the envelope of the cylinder.		N/A
23	INTERNAL WIRING		
23.1	Wireways smooth and free from sharp edges		P
	Wires protected against contact with burrs, cooling fins etc.		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Wire holes in metal well-rounded or provided with bushings		P
	Wiring effectively prevented from coming into contact with moving parts		P
23.2	Beads etc. on live wires cannot change their position, and are not resting on sharp edges		N/A
	Beads inside flexible metal conduits contained within an insulating sleeve		N/A
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress		P
	Flexible metallic tubes not causing damage to insulation of conductors		N/A
	Open-coil springs not used		P
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N/A
	No damage after 10 000 flexings for conductors flexed during normal use, or		P
	100 flexings for conductors flexed during user maintenance		N/A
	Electric strength test of 16.3, 1000 V between live parts and accessible metal parts		P
	Not more than 10% of the strands of any conductor broken, and		N/A
	not more than 30% for wiring supplying circuits that consume no more than 15W		P
23.4	Bare internal wiring sufficiently rigid and fixed		N/A
23.5	The insulation of internal wiring subjected to the supply mains voltage withstanding the electrical stress likely to occur in normal use		P
	Basic insulation electrically equivalent to the basic insulation of cords complying with IEC 60227 or IEC 60245, or		N/A
	no breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation		P
23.6	Sleeving used as supplementary insulation on internal wiring retained in position by clamping at both ends, or		P
	be such that it can only be removed by breaking or cutting		P
23.7	The colour combination green/yellow only used for earthing conductors		P

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Clause	Requirement + Test	Result - Remark	Verdict
23.8	Aluminium wires not used for internal wiring		P
23.9	Stranded conductors not consolidated by soldering where they are subjected to contact pressure, unless		P
	the contact pressure is provided by spring terminals		N/A
23.10	The insulation and sheath of internal wiring, incorporated in external hoses for the connection of an appliance to the water mains, at least equivalent to that of light polyvinyl chloride sheathed flexible cord (60227 IEC 52)		N/A
24	COMPONENTS		
24.1	Components comply with safety requirements in relevant IEC standards		P
	List of components..... :	(see appended table)	P
	If components have not been tested and found to comply with relevant IEC 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 component standard are necessary other than those specified in 24.1.1 to 24.1.9		P
	Components not tested and found to comply with relevant IEC standard and components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance		P
	Lampholders and starterholders that have not being tested and found to comply with the relevant IEC standard, tested as a part of the appliance and additionally according to the gauging and interchangeability requirements of the relevant IEC standard		N/A
	No additional tests specified for nationally standardized plugs such as those detailed in IEC/TR 60083 or connectors complying with the standard sheets of IEC 60320-1 and IEC 60309		P
24.1.1	Capacitors likely to be permanently subjected to the supply voltage and used for radio interference suppression or for voltage dividing, complying with IEC 60384-14		P
	If the capacitors have to be tested, they are tested according to Annex F		N/A
24.1.2	Safety isolating transformers complying with IEC 61558-2-6		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	If they have to be tested, they are tested according to Annex G		P
24.1.3	Switches complying with IEC 61058-1, the number of cycles of operation being at least 10 000		N/A
	If they have to be tested, they are tested according to Annex H		N/A
	If the switch operates a relay or contactor, the complete switching system is subjected to the test		N/A
	If the switch only operates a motor starting relay complying with IEC 60730-2-10 with the number of cycles of a least 10 000 as specified, the complete switching system need not be tested		N/A
24.1.4	Automatic controls complying with IEC 60730-1 with the relevant part 2. The number of cycles of operation being at least:		
	- thermostats: 10 000		N/A
	- temperature limiters: 1 000		N/A
	- self-resetting thermal cut-outs: 300		P
	- voltage maintained non-self-resetting thermal cut-outs: 1 000		N/A
	- other non-self-resetting thermal cut-outs: 30		N/A
	- timers: 3 000		N/A
	- energy regulators: 10 000		N/A
	The number of cycles for controls operating during clause 11 need not be declared, if the appliance meets the requirements of this standard when they are short-circuited		N/A
	Thermal motor protectors are tested in combination with their motor under the conditions specified in Annex D		P
	For water valves containing live parts and that are incorporated in external hoses for connection of an appliance to the water mains, the degree of protection declared for subclause 6.5.2 of IEC 60730-2-8 is IPX7		N/A
24.1.5	Appliance couplers complying with IEC 60320-1		N/A
	However, for appliances classified higher than IPX0, the appliance couplers complying with IEC 60320-2-3		N/A
	Interconnection couplers complying with IEC 60320-2-2		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
24.1.6	Small lamp holders similar to E10 lampholders complying with IEC 60238, the requirements for E10 lampholders being applicable		N/A
24.1.7	For remote operation of the appliance via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is IEC 62151		N/A
24.1.8	The relevant standard for thermal links is IEC 60691		N/A
	Thermal links not complying with IEC 60691 are considered to be an intentionally weak part for the purposes of Clause 19		N/A
24.1.9	Contactors and relays, other than motor starting relays, tested as part of the appliance		P
	They are also tested in accordance with Clause 17 of IEC 60730-1, the number of cycles of operations in 24.1.4 selected according to the contactor or relay function in the appliance		N/A
24.2	Appliances not fitted with:		
	- switches or automatic controls in flexible cords		P
	- devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance		P
	- thermal cut-outs that can be reset by soldering, unless		P
	the solder has a melting point of at least 230 °C		N/A
24.3	Switches intended for all-pole disconnection of stationary appliances are directly connected to the supply terminals and have a contact separation in all poles, providing full disconnection under overvoltage category III conditions		N/A
24.4	Plugs and socket-outlets for extra-low voltage circuits and heating elements, not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1		N/A
24.5	Capacitors in auxiliary windings of motors marked with their rated voltage and capacitance, and used accordingly		P
	Voltage across capacitors in series with a motor winding does not exceed 1,1 times rated voltage, when the appliance is supplied at 1,1 times rated voltage under minimum load		P

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Clause	Requirement + Test	Result - Remark	Verdict
24.6	Working voltage of motors connected to the supply mains and having basic insulation that is inadequate for the rated voltage of the appliance, not exceeding 42 V		N/A
	In addition, the motors comply with the requirements of Annex I		N/A
24.7	Detachable hose-sets for connection of appliances to the water mains comply with IEC 61770		N/A
	They are supplied with the appliance		N/A
	Appliances intended to be permanently connected to the water mains not connected by a detachable hose-set		N/A
24.8	Motor running capacitors in appliances for which 30.2.3 is applicable and that are permanently connected in series with a motor winding, not causing a hazard in event of a failure		P
	One or more of the following conditions are to be met:		
	- the capacitors are of class P2 according to IEC 60252-1		P
	- the capacitors are housed within a metallic or ceramic enclosure		N/A
	- the distance of separation of the outer surface to adjacent non-metallic parts exceeds 50 mm		N/A
	- adjacent non-metallic parts within 50 mm withstand the needle-flame test of Annex E		N/A
	- adjacent non-metallic parts within 50 mm classified as at least V-1 according to IEC 60695-11-10		N/A
25	SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS		
25.1	Appliance not intended for permanent connection to fixed wiring, means for connection to the supply:		
	- supply cord fitted with a plug,		P
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance, or		N/A
	- pins for insertion into socket-outlets		N/A
25.2	Appliance not provided with more than one means of connection to the supply mains		P
	Stationary appliance for multiple supply may be provided with more than one means of connection, provided electric strength test of 1250 V for 1 min between each means of connection causes no breakdown		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
25.3	Appliance intended to be permanently connected to fixed wiring provided with one of the following means for connection to the supply mains:		
	- a set of terminals allowing the connection of a flexible cord		N/A
	- a fitted supply cord		N/A
	- a set of supply leads accommodated in a suitable compartment		N/A
	- a set of terminals for the connection of cables of fixed wiring, cross-sectional areas specified in 26.6, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support		N/A
	- a set of terminals and cable entries, conduit entries, knock-outs or glands, allowing connection of appropriate types of cable or conduit, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support		N/A
	For a fixed appliance constructed so that parts can be removed to facilitate easy installation, this requirement is met if it is possible to connect the fixed wiring without difficulty after a part of the appliance has been fixed to its support		N/A
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimension according to table 10 (mm) :		N/A
	Introduction of conduit or cable does not reduce clearances or creepage distances below values specified in clause 29		N/A
25.5	Method for assembling the supply cord to the appliance:		
	- type X attachment		N/A
	- type Y attachment		P
	- type Z attachment, if allowed in relevant part 2		N/A
	Type X attachment, other than those with a specially prepared cord, not used for flat twin tinsel cords		N/A
	For multi-phase appliances supplied with a supply cord and that are intended to be permanently connected to fixed wiring, the supply cord is assembled to the appliance by type Y attachment		N/A
25.6	Plugs fitted with only one flexible cord		P
25.7	Supply cords, other than for class III appliances, being one of the following types:		
	- rubber sheathed (at least 60245 IEC 53)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- polychloroprene sheathed (at least 60245 IEC 57)		N/A
	- cross-linked polyvinyl chloride sheathed (at least 60245 IEC 88)		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		
	light polyvinyl chloride sheathed cord (60227 IEC 52), for appliances not exceeding 3 kg		N/A
	ordinary polyvinyl chloride sheathed cord (60227 IEC 53), for other appliances	H05VV-F	P
	- heat resistant polyvinyl chloride sheathed. Not used for type X attachment other than specially prepared cords		
	heat-resistant light polyvinyl chloride sheathed cord (60227 IEC 56), for appliances not exceeding 3 kg		N/A
	heat-resistant polyvinyl chloride sheathed cord (60227 IEC 57), for other appliances		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
25.8	Nominal cross-sectional area of supply cords not less than table 11; rated current (A); cross-sectional area (mm ²)..... :	Rated current: <3A; 3G0,75mm ²	P
25.9	Supply cords not in contact with sharp points or edges		P
25.10	Supply cord of class I appliances have a green/yellow core for earthing		P
25.11	Conductors of supply cords not consolidated by soldering where they are subject to contact pressure, unless		P
	the contact pressure is provided by spring terminals		N/A
25.12	Insulation of the supply cord not damaged when moulding the cord to part of the enclosure		N/A
25.13	Inlet openings so constructed as to prevent damage to the supply cord		P
	If the enclosure at the inlet opening is not of insulating material, a non-detachable lining or bushing complying with 29.3 for supplementary insulation provided		P

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Clause	Requirement + Test	Result - Remark	Verdict
	If unsheathed supply cord, a similar additional bushing or lining is required, unless the appliance is		N/A
	class 0, or		N/A
	a class III appliance not containing live parts		N/A
25.14	Supply cords moved while in operation adequately protected against excessive flexing		N/A
	Flexing test, as described:		
	- applied force (N)..... :		N/A
	- number of flexings..... :		N/A
	The test does not result in:		
	- short-circuit between the conductors, such that the current exceeds a value of twice the rated current		N/A
	- breakage of more than 10% of the strands of any conductor		N/A
	- separation of the conductor from its terminal		N/A
	- loosening of any cord guard		N/A
	- damage to the cord or the cord guard		N/A
	- broken strands piercing the insulation and becoming accessible		N/A
25.15	For appliances with supply cord and appliances to be permanently connected to fixed wiring by a flexible cord, conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorage		P
	The cord cannot be pushed into the appliance to such an extent that the cord or internal parts of the appliance can be damaged		P
	Pull and torque test of supply cord, values shown in table 12: mass (kg); pull (N); torque (not on automatic cord reel) (Nm) :	100N; 0,35Nm	P
	Cord not damaged and max. 2 mm displacement of the cord		P
25.16	Cord anchorages for type X attachments constructed and located so that:		
	- replacement of the cord is easily possible		N/A
	- it is clear how the relief from strain and the prevention of twisting are obtained		N/A
	- they are suitable for different types of supply cord		N/A
	- cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	they are separated from accessible metal parts by supplementary insulation		N/A
	- the cord is not clamped by a metal screw which bears directly on the cord		N/A
	- at least one part of the cord anchorage securely fixed to the appliance, unless		N/A
	it is part of a specially prepared cord		N/A
	- screws which have to be operated when replacing the cord do not fix any other component, unless		N/A
	the appliance becomes inoperative or incomplete or the parts cannot be removed without a tool		N/A
	- if labyrinths can be bypassed the test of 25.15 is nevertheless withstood		N/A
	- for class 0, 0I and I appliances they are of insulating material or are provided with an insulating lining, unless		N/A
	failure of the insulation of the cord does not make accessible metal parts live		N/A
	- for class II appliances they are of insulating material, or		N/A
	if of metal, they are insulated from accessible metal parts by supplementary insulation		N/A
	After the test of 25.15, under the conditions specified, the conductors have not moved by more than 1 mm in the terminals		N/A
25.17	Adequate cord anchorages for type Y and Z attachment, test with the cord supplied with the appliance		P
25.18	Cord anchorages only accessible with the aid of a tool, or		P
	Constructed so that the cord can only be fitted with the aid of a tool		P
25.19	Type X attachment, glands not used as cord anchorage in portable appliances		N/A
	Tying the cord into a knot or tying the cord with string not used		N/A
25.20	The insulated conductors of the supply cord for type Y and Z attachment additionally insulated from accessible metal parts		P
25.21	Space for supply cord for type X attachment or for connection of fixed wiring constructed:		

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Clause	Requirement + Test	Result - Remark	Verdict
	- to permit checking of conductors with respect to correct positioning and connection before fitting any cover		N/A
	- so there is no risk of damage to the conductors or their insulation when fitting the cover		N/A
	- for portable appliances, so that the uninsulated end of a conductor, if it becomes free from the terminal, prevented from contact with accessible metal parts		N/A
	2 N test to the conductor for portable appliances; no contact with accessible metal parts		N/A
25.22	Appliance inlets:		
	- live parts not accessible during insertion or removal		N/A
	Requirement not applicable to appliance inlets complying with IEC 60320-1		N/A
	- connector can be inserted without difficulty		N/A
	- the appliance is not supported by the connector		N/A
	- not for cold conditions if temp. rise of external metal parts exceeds 75 K during clause 11, unless		N/A
	the supply cord is unlikely to touch such metal parts		N/A
25.23	Interconnection cords comply with the requirements for the supply cord, except that:		N/A
	- the cross-sectional area of the conductors is determined on the basis of the maximum current during clause 11		N/A
	- the thickness of the insulation may be reduced		N/A
	If necessary, electric strength test of 16.3		N/A
25.24	Interconnection cords not detachable without the aid of a tool if compliance with this standard is impaired when they are disconnected		N/A
25.25	Dimensions of pins that are inserted into socket-outlets compatible with the dimensions of the relevant socket-outlet.		N/A
	Dimensions of pins and engagement face in accordance with the dimensions of the relevant plug in IEC/TR 60083		N/A
26	TERMINALS FOR EXTERNAL CONDUCTORS		
26.1	Appliances provided with terminals or equally effective devices for connection of external conductors		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Terminals only accessible after removal of a non-detachable cover, except		P
	for class III appliances that do not contain live parts		N/A
	Earthing terminals may be accessible if a tool is required to make the connections and means are provided to clamp the wire independently from its connection		N/A
26.2	Appliances with type X attachment and appliances for the connection of cables to fixed wiring provided with terminals in which connections are made by means of screws, nuts or similar devices, unless		N/A
	the connections are soldered		N/A
	Screws and nuts not used to fix any other component, except		N/A
	internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N/A
	If soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone, unless		N/A
	barriers provided so that neither clearances nor creepage distances between live parts and other metal parts reduced below the values for supplementary insulation if the conductor becomes free at the soldered joint		N/A
26.3	Terminals for type X attachment and for connection of cables of fixed wiring so constructed that the conductor is clamped between metal surfaces with sufficient contact pressure but without damaging the conductor		N/A
	Terminals fixed so that when the clamping means is tightened or loosened:		
	- the terminal does not become loose		N/A
	- internal wiring is not subjected to stress		N/A
	- neither clearances nor creepage distances are reduced below the values in clause 29		N/A
	Compliance checked by inspection and by the test of subclause 9.6 of IEC 60999-1, the torque applied being equal to two-thirds of the torque specified (Nm)		N/A
	No deep or sharp indentations of the conductors		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
26.4	Terminals for type X attachment, except those having a specially prepared cord and those for the connection of cables of fixed wiring, no special preparation of conductors such as by soldering, use of cable lugs, eyelets or similar, and		N/A
	so constructed or placed that conductors prevented from slipping out when clamping screws or nuts are tightened		N/A
26.5	Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection to other parts that result in a hazard		N/A
	Stranded conductor test, 8 mm insulation removed		N/A
	No contact between live parts and accessible metal parts and,		N/A
	for class II constructions, between live parts and metal parts separated from accessible metal parts by supplementary insulation only		N/A
26.6	Terminals for type X attachment and for connection of cables of fixed wiring suitable for connection of conductors with cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm ²) :		N/A
	If a specially prepared cord is used, terminals need only be suitable for that cord		N/A
26.7	Terminals for type X attachment, except in class III appliances not containing live parts, accessible after removal of a cover or part of the enclosure		N/A
26.8	Terminals for the connection of fixed wiring, including the earthing terminal, located close to each other		N/A
26.9	Terminals of the pillar type constructed and located as specified		N/A
26.10	Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless		N/A
	conductors ends fitted with means suitable for screw terminals		N/A
	Pull test of 5 N to the connection		P
26.11	For type Y and Z attachment, soldered, welded, crimped or similar connections may be used		P
	For Class II appliances, the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	If soldering, welding or crimping alone used, barriers provided so that clearances and creepage distances between live parts and other metal parts are not reduced below the values for supplementary insulation if the conductor becomes free		N/A
27	PROVISION FOR EARTHING		
27.1	Accessible metal parts of Class 0I and I appliances permanently and reliably connected to an earthing terminal or earthing contact of the appliance inlet		P
	Earthing terminals and earthing contacts not connected to the neutral terminal		P
	Class 0, II and III appliances have no provision for earthing		N/A
	Safety extra-low voltage circuits not earthed, unless		P
	protective extra-low voltage circuits		N/A
	Metal parts that become accessible during user maintenance are considered to be accessible metal parts. (IEC 60335-2-31)		P
27.2	Clamping means of earthing terminals adequately secured against accidental loosening		P
	Terminals for the connection of external equipotential bonding conductors allow connection of conductors of 2.5 to 6 mm ² , and		N/A
	do not provide earthing continuity between different parts of the appliance, and		N/A
	conductors cannot be loosened without the aid of a tool		P
27.3	For a detachable part having an earth connection and being plugged into another part of the appliance, the earth connection is made before and separated after current-carrying connections when removing the part		P
	For appliances with supply cords, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		P
27.4	No risk of corrosion resulting from contact between parts of the earthing terminal and the copper of the earthing conductor or other metal		P
	Parts providing earthing continuity, other than parts of a metal frame or enclosure, have adequate resistance to corrosion		P
	If of steel, these parts provided with an electroplated coating with a thickness at least 5 µm		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		P
	In the body of the earthing terminal is a part of a frame or enclosure of aluminium or aluminium alloys, precautions taken to avoid risk of corrosion		N/A
27.5	Low resistance of connection between earthing terminal and earthed metal parts		P
	This requirement does not apply to connections providing earthing continuity in the protective extra-low voltage circuit, provided the clearances of basic insulation are based on the rated voltage of the appliance		P
	Resistance not exceeding 0,1 Ω at the specified low-resistance test (Ω)	0,013 Ω	P
27.6	The printed conductors of printed circuit boards not used to provide earthing continuity in hand-held appliances.		N/A
	They may be used to provide earthing continuity in other appliances if at least two tracks are used with independent soldering points and the appliance complies with 27.5 for each circuit		N/A
28	SCREWS AND CONNECTIONS		
28.1	Fixings, electrical connections and connections providing earthing continuity withstand mechanical stresses		P
	Screws not of soft metal liable to creep, such as zinc or aluminium		P
	Diameter of screws of insulating material min. 3 mm		N/A
	Screws of insulating material not used for any electrical connections or connections providing earthing continuity		N/A
	Screws used for electrical connections or connections providing earthing continuity screwed into metal		P
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		N/A
	For type X attachment, screws to be removed for replacement of supply cord or for user maintenance, not of insulating material if their replacement by a metal screw impairs basic insulation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	For screws and nuts; torque-test as specified in table 14	(see appended table)	P
28.2	Electrical connections and connections providing earthing continuity constructed so that contact pressure is not transmitted through non-ceramic insulating material liable to shrink or distort, unless		P
	there is resiliency in the metallic parts to compensate for shrinkage or distortion of the insulating material		N/A
	This requirement does not apply to electrical connections in circuits of appliances for which:		
	30.2.2 is applicable and that carry a current not exceeding 0,5 A		N/A
	30.2.3 is applicable and that carry a current not exceeding 0,2 A		N/A
28.3	Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together		N/A
	Thread-cutting (self-tapping) screws and thread rolling screws only used for electrical connections if they generate a full form standard machine screw thread		N/A
	Thread-cutting (self-tapping) screws not used if they are likely to be operated by the user or installer		N/A
	Thread-cutting, thread rolling and space threaded screws may be used in connections providing earthing continuity provided it is not necessary to disturb the connection:		
	- in normal use,		N/A
	- during user maintenance,		N/A
	- when replacing a supply cord having a type X attachment, or		N/A
	- during installation		N/A
	At least two screws being used for each connection providing earthing continuity, unless		P
	the screw forms a thread having a length of at least half the diameter of the screw		N/A
28.4	Screws and nuts that make mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity		P
	This requirement does not apply to screws in the earthing circuit if at least two screws are used, or		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	if an alternative earthing circuit is provided		N/A
	Rivets for electrical connections or connections providing earthing continuity secured against loosening if the connections are subjected to torsion		N/A
29	CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION		
	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		N/A
	Impulse voltage test is not applicable:		
	- when the microenvironment is pollution degree 3, or		N/A
	- for basic insulation of class 0 and class 01 appliances		N/A
	Appliances are in overvoltage category II		P
	A force of 2 N is applied to bare conductors, other than heating elements		P
	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		P

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Clause	Requirement + Test	Result - Remark	Verdict
	The values of table 16 or the impulse voltage test of clause 14 are applicable	(see appended table)	P
	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
	Lacquered conductors of windings considered to be bare conductors		P
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:		
	- table 16 based on the rated impulse voltage	(see appended table)	P
	- 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 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		N/A
	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		P
	However, clearances at crossover points are not measured		P
	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:		
	- table 16 based on the rated impulse voltage		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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
	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	Interior of PCB box	P
	- precautions taken to protect the insulation; pollution degree 1		N/A
	- insulation subjected to conductive pollution; pollution degree 3		P
	A force of 2 N is applied to bare conductors, other than heating elements		P
	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

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Clause	Requirement + Test	Result - Remark	Verdict
	The microenvironment is pollution degree 3 unless the insulation is enclosed or located so that it is unlikely to be exposed to pollution during normal use of the appliance. (IEC 60335-2-31)		P
29.2.1	Creepage distances of basic insulation not less than specified in table 17	(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 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
	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:		
	- by measurement, in accordance with 29.3.1, or		P
	- by an electric strength test in accordance with 29.3.2, or		N/A
	- 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

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Clause	Requirement + Test	Result - Remark	Verdict
	for accessible parts of reinforced insulation consisting of a single layer, by measurement in accordance with 29.3.4, 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		N/A
	Supplementary insulation consist of at least 2 layers		N/A
	Reinforced insulation consist of at least 3 layers		N/A
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
29.3.4	Thickness of accessible parts of reinforced insulation consisting of a single layer not less than specified in table 19..... :		N/A
30	RESISTANCE TO HEAT AND FIRE		
30.1	External parts of non-metallic material,		P
	parts supporting live parts, and		P
	parts of thermoplastic material providing supplementary or reinforced insulation		P
	sufficiently resistant to heat		P
	Ball-pressure test according to IEC 60695-10-2		P
	External parts tested at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 75 °C, whichever is the higher; temperature (°C)..... :	(see appended table)	P
	Parts supporting live parts tested at 40°C plus the maximum temperature rise determined during the test of clause 11, or at 125 °C, whichever is the higher; temperature (°C)..... :	(see appended table)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Parts of thermoplastic material providing supplementary or reinforced insulation tested at 25 °C plus the maximum temperature rise determined during clause 19, if higher; temperature (°C)..... :	(see appended table)	N/A
	The ball pressure test is carried out on the exposed parts of the underside of the appliance at a temperature of at least 105 °C. (IEC 60335-2-31)		P
30.2	Parts of non-metallic material resistant to ignition and spread of fire		P
	This requirement does not apply to:		
	parts having a mass not exceeding 0,5 g, provided the cumulative effect is unlikely to propagate flames that originate inside the appliance by propagating flames from one part to another, or		P
	decorative trims, knobs and other parts unlikely to be ignited or to propagate flames that originate inside the appliance		P
	Compliance checked by the test of 30.2.1, and in addition:		P
	- for attended appliances, 30.2.2 applies		N/A
	- for unattended appliances, 30.2.3 applies		P
	For appliances for remote operation, 30.2.3 applies		N/A
	For base material of printed circuit boards, 30.2.4 applies		P
30.2.1	Parts of non-metallic material subjected to the glow-wire test of IEC 60695-2-11 at 550 °C		P
	However, test not carried out if the material is classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 550 °C, or		N/A
	the material is classified at least HB40 according to IEC 60695-11-10		N/A
	Parts for which the glow-wire test cannot be carried out need to meet the requirements in ISO 9772 for material classified HBF		N/A
30.2.2	Not applicable. (IEC 60335-2-31)		N/A
30.2.3	Appliances operated while unattended, tested as specified in 30.2.3.1 and 30.2.3.2		P
	The tests are not applicable to conditions as specified :		N/A
30.2.3.1	Parts of non-metallic material supporting connections carrying a current exceeding 0,2 A during normal operation, and		P

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Clause	Requirement + Test	Result - Remark	Verdict
	parts of non-metallic material, other than small parts, within a distance of 3 mm,		P
	subjected to the glow-wire test of IEC 60695-2-11 with a test severity of 850 °C		P
	Glow-wire applied to an interposed shielding material, if relevant		N/A
	The glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 850 °C		N/A
30.2.3.2	Parts of non-metallic material supporting connections, and		P
	parts of non-metallic material within a distance of 3mm,		P
	subjected to glow-wire test of IEC 60695-2-11		P
	The test severity is:		
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		P
	- 650 °C, for other connections		N/A
	Glow-wire applied to an interposed shielding material, if relevant		N/A
	However, the glow-wire test of 750 °C or 650 °C as appropriate, is not carried out on parts of material fulfilling both or either of the following classifications:		
	- a glow-wire ignition temperature according to IEC 60695-2-13 of at least:		N/A
	775 °C, for connections carrying a current exceeding 0,2 A during normal operation		N/A
	675 °C, for other connections		N/A
	- a glow-wire flammability index according to IEC 60695-2-12 of at least:		N/A
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		N/A
	- 650 °C, for other connections		N/A
	The glow-wire test is also not carried out on small parts. These parts are to:		
	- comprise material having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N/A
	- comprise material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- comply with the needle-flame test of Annex E, or		N/A

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
	- comprise material classified as V-0 or V-1 according to IEC 60695-11-10		N/A
	The consequential needle-flame test of Annex E applied to non-metallic parts that encroach within the vertical cylinder placed above the centre of the connection zone and on top of the non-metallic parts supporting current-carrying connections, and parts of non-metallic material within a distance of 3 mm of such connections if these parts are those:		
	- parts that withstood the glow-wire test of IEC 60695-2-11 of 750 °C or 650 °C as appropriate, but produce a flame that persist longer than 2 s, or		N/A
	- parts that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- small parts, that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- small parts for which the needle-flame test of Annex E was applied, or		N/A
	- small parts for which a material classification of V-0 or V-1 was applied		N/A
	However, the consequential needle-flame test is not carried out on non-metallic parts, including small parts, within the cylinder that are:		
	- parts having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N/A
	- parts comprising material classified as V-0 or V-1 according to IEC 60695-11-10, or		N/A
	- parts shielded by a flame barrier that meets the needle-flame test of Annex E or that comprises material classified as V-0 or V-1 according to IEC 60695-11-10		N/A
30.2.4	Base material of printed circuit boards subjected to the needle-flame test of Annex E		P
	Test not applicable to conditions as specified.....:		N/A
30.101	Appliances shall not incorporate combustible material liable to appreciably propagate a fire originating underneath the hood. (IEC 60335-2-31)		P
	Compliance is checked as follows. (IEC 60335-2-31)		
	Filters of non-metallic material intended for the absorption of grease shall meet the requirements specified in ISO 9772 for category HBF material, except that the thickness of the specimen is that of the filter. It may be necessary to support the specimen during the test.		N/A

IEC 60335-2-31			
Clause	Requirement + Test	Result - Remark	Verdict
	Lamp diffusers and external air-guides having a total mass not exceeding 0,35 kg are subjected to the glow-wire test of IEC 60695-2-11 at a temperature of 550 °C. The glow-wire test is not carried out on parts of material classified at least HB40 according to IEC 60695-11-10, provided that the test sample was no thicker than the relevant part.		N/A
	Other accessible parts of the enclosure are subjected to the needle-flame test of Annex E.		P
	Internal air-ducts and parts within them, such as fans, are subjected to the needle-flame test of Annex E, droplets of material being ignored.		P
	Grease filters are not subjected to this test.		N/A
31	RESISTANCE TO RUSTING		
	Relevant ferrous parts adequately protected against rusting		P
	Tests specified in part 2 when necessary		N/A
32	RADIATION, TOXICITY AND SIMILAR HAZARDS		
	Appliance does not emit harmful radiation or present a toxic or similar hazard due to their operation in normal use		P
	Compliance is checked by the limits or tests specified in part 2, if relevant		N/A
A	ANNEX A (INFORMATIVE) ROUTINE TESTS		
	Description of routine tests to be carried out by the manufacturer		N/A
B	ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES		
	The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance		N/A
	This annex does not apply to battery chargers		N/A
3.1.9	Appliance operated under the following conditions:		
	- 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

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Clause	Requirement + Test	Result - Remark	Verdict
	-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
	- 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 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
7.6	Symbols 60417-5005 and IEC 60417-5006		N/A
7.12	The instructions give information regarding charging		N/A
	The instructions for appliances incorporating batteries intended to be replaced by the user includes required information		N/A
	Details about how to remove batteries containing materials hazardous to the environment given		N/A
7.15	Markings placed on the part of the appliance connected to the supply mains		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
	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
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

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Clause	Requirement + Test	Result - Remark	Verdict
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
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:		
	- 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
C	ANNEX C (NORMATIVE) AGEING TEST ON MOTORS		
	Tests, as described, carried out when doubt with regard to the temperature classification of the insulation of a motor winding		N/A
	Test conditions as specified		N/A
D	ANNEX D (NORMATIVE) THERMAL MOTOR PROTECTORS		
	Applicable to appliances having motors that incorporate thermal motor protectors necessary for compliance with the standard		P
	Test conditions as specified		P
E	ANNEX E (NORMATIVE) NEEDLE-FLAME TEST		
	Needle-flame test carried out in accordance with IEC 60695-11-5, with the following modifications:		
7	Severities		

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Clause	Requirement + Test	Result - Remark	Verdict
	The duration of application of the test flame is 30 s $\pm$ 1 s		P
9	Test procedure		
9.1	The specimen so arranged that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1		P
9.2	The first paragraph does not apply		P
	If possible, the flame is applied at least 10 mm from a corner		P
9.3	The test is carried out on one specimen		P
	If the specimen does not withstand the test, the test may be repeated on two additional specimens, both withstanding the test		N/A
11	Evaluation of test results		
	The duration of burning not exceeding 30 s		P
	However, for printed circuit boards, the duration of burning not exceeding 15 s		P
F	ANNEX F (NORMATIVE) CAPACITORS		
	Capacitors likely to be permanently subjected to the supply voltage, and used for radio interference suppression or voltage dividing, comply with the following clauses of IEC 60384-14, with the following modifications:		
1.5	Terms and definitions		
1.5.3	Class X capacitors tested according to subclass X2		N/A
1.5.4	This subclause is applicable		N/A
1.6	Marking		
	Items a) and b) are applicable		N/A
3.4	Approval testing		
3.4.3.2	Table 3 is applicable as described		N/A
4.1	Visual examination and check of dimensions		
	This subclause is applicable		N/A
4.2	Electrical tests		
4.2.1	This subclause is applicable		N/A
4.2.5	This subclause is applicable		N/A
4.2.5.2	Only table 11 is applicable		N/A
	Values for test A apply		N/A
	However, for capacitors in heating appliances the values for test B or C apply		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.12	Damp heat, steady state		
	This subclause is applicable		N/A
	Only insulation resistance and voltage proof are checked		N/A
4.13	Impulse voltage		
	This subclause is applicable		N/A
4.14	Endurance		
	Subclauses 4.14.1, 4.14.3, 4.14.4 and 4.14.7 are applicable		N/A
4.14.7	Only insulation resistance and voltage proof are checked		N/A
	No visible damage		N/A
4.17	Passive flammability test		
	This subclause is applicable		N/A
4.18	Active flammability test		
	This subclause is applicable		N/A
G	ANNEX G (NORMATIVE) SAFETY ISOLATING TRANSFORMERS		
	The following modifications to this standard are applicable for safety isolating transformers:		
7	Marking and instructions		
7.1	Transformers for specific use marked with:		
	-name, trademark or identification mark of the manufacturer or responsible vendor.....:		N/A
	-model or type reference.....:		N/A
17	Overload protection of transformers and associated circuits		
	Fail-safe transformers comply with subclause 15.5 of IEC 61558-1		N/A
22	Construction		
	Subclauses 19.1 and 19.1.2 of IEC 61558-2-6 are applicable		N/A
29	Clearances, creepage distances and solid insulation		
29.1, 29.2, 29.3	The distances specified in items 2a, 2c and 3 in table 13 of IEC 61558-1 apply		P
	For insulated winding wires complying with subclause 19.12.3 of IEC 61558-1 there are no requirements for clearances or creepage distances		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	For windings providing reinforced insulation, the distance specified in item 2c of table 13 of IEC 61558-1 is not assessed		N/A
	For safety isolating transformers subjected to periodic voltages with a frequency exceeding 30 kHz, the clearances, creepage distances and solid insulation values specified in IEC 60664-4 are applicable, if greater than the values specified in items 2a, 2c and 3 in table 13 of IEC 61558-1		N/A
H	ANNEX H (NORMATIVE) SWITCHES		
	Switches comply with the following clauses of IEC 61058-1, as modified below:		
	The tests of IEC 61058-1 carried out under the conditions occurring in the appliance		N/A
	Before being tested, switches are operated 20 times without load		N/A
8	Marking and documentation		
	Switches are not required to be marked		N/A
	However, a switch that can be tested separately from the appliance marked with the manufacturer's name or trade mark and the type reference		N/A
13	Mechanism		
	The tests may be carried out on a separate sample		N/A
15	Insulation resistance and dielectric strength		
15.1	Not applicable		N/A
15.2	Not applicable		N/A
15.3	Applicable for full disconnection and micro-disconnection		N/A
17	Endurance		
	Compliance is checked on three separate appliances or switches		N/A
	For 17.2.4.4, the number of cycles declared according to 7.1.4 is 10 000, unless		N/A
	otherwise specified in 24.1.3 of the relevant part 2 of IEC 60335		N/A
	Switches for operation under no load and which can be operated only by a tool, and		N/A
	switches operated by hand that are interlocked so that they cannot be operated under load,		N/A
	are not subjected to the tests		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	However, switches without this interlock are subjected to the test of 17.2.4.4 for 100 cycles of operation		N/A
	Subclauses 17.2.2 and 17.2.5.2 not applicable		N/A
	The ambient temperature during the test is that occurring in the appliance during the test of Clause 11 in IEC 60335-1		N/A
	The temperature rise of the terminals not more than 30 K above the temperature rise measured in clause 11 of IEC 60335-1 (K).....:		N/A
20	Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies		
	This clause is applicable to clearances and creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in table 24		N/A
I	ANNEX I (NORMATIVE) MOTORS HAVING BASIC INSULATION THAT IS INADEQUATE FOR THE RATED VOLTAGE OF THE APPLIANCE		
	The following modifications to this standard are applicable for motors having basic insulation that is inadequate for the rated voltage of the appliance:		
8	Protection against access to live parts		
8.1	Metal parts of the motor are considered to be bare live parts		N/A
11	Heating		
11.3	The temperature rise of the body of the motor is determined instead of the temperature rise of the windings		N/A
11.8	The temperature rise of the body of the motor, where in contact with insulating material, not exceeding values in table 3 for the relevant insulating material		N/A
16	Leakage current and electric strength		
16.3	Insulation between live parts of the motor and its other metal parts is not subjected to the test		N/A
19	Abnormal operation		
19.1	The tests of 19.7 to 19.9 are not carried out		N/A
19.1.101	Appliance operated at rated voltage with each of the following fault conditions:		
	- short circuit of the terminals of the motor, including any capacitor incorporated in the motor circuit		N/A
	- short circuit of each diode of the rectifier		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- open circuit of the supply to the motor		N/A
	- open circuit of any parallel resistor, the motor being in operation		N/A
	Only one fault simulated at a time, the tests carried out consecutively		N/A
22	Construction		
22.1.101	For class I appliances incorporating a motor supplied by a rectifier circuit, the d.c. circuit being insulated from accessible parts of the appliance by double or reinforced insulation		N/A
	Compliance checked by the tests specified for double and reinforced insulation		N/A
J	ANNEX J (NORMATIVE) COATED PRINTED CIRCUIT BOARDS		
	Testing of protective coatings of printed circuit boards carried out in accordance with IEC 60664-3 with the following modifications:		
5.7	Conditioning of the test specimens		
	When production samples are used, three samples of the printed circuit board are tested		N/A
5.7.1	Cold		
	The test is carried out at -25 °C		N/A
5.7.3	Rapid change of temperature		
	Severity 1 is specified		N/A
5.9	Additional tests		
	This subclause is not applicable		N/A
K	ANNEX K (NORMATIVE) OVERVOLTAGE CATEGORIES		
	The information on overvoltage categories is extracted from IEC 60664-1		P
	Overvoltage category is a numeral defining a transient overvoltage condition		P
	Equipment of overvoltage category IV is for use at the origin of the installation		N/A
	Equipment of overvoltage category III is equipment in fixed installations and for cases where the reliability and the availability of the equipment is subject to special requirements		N/A
	Equipment of overvoltage category II is energy consuming equipment to be supplied from the fixed installation		P

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Clause	Requirement + Test	Result - Remark	Verdict
	If such equipment is subjected to special requirements with regard to reliability and availability, overvoltage category III applies		N/A
	Equipment of overvoltage category I is equipment for connection to circuits in which measures are taken to limit transient overvoltages to an appropriate low level		N/A
L	ANNEX L (INFORMATIVE) GUIDANCE FOR THE MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES		
	Information for the determination of clearances and creepage distances		P
M	ANNEX M (NORMATIVE) POLLUTION DEGREE		
	The information on pollution degrees is extracted from IEC 60664-1		P
	Pollution		
	The microenvironment determines the effect of pollution on the insulation, taking into account the macroenvironment		P
	Means may be provided to reduce pollution at the insulation by effective enclosures or similar		P
	Minimum clearances specified where pollution may be present in the microenvironment		P
	Degrees of pollution in the microenvironment		
	For evaluating creepage distances, the following degrees of pollution in the microenvironment are established:		
	- pollution degree 1: no pollution or only dry, non-conductive pollution occurs. The pollution has no influence		N/A
	- pollution degree 2: only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be expected	Interior of main PCB cover	P
	- pollution degree 3: conductive pollution occurs or dry non-conductive pollution occurs that becomes conductive due to condensation that is to be expected		P
	- pollution degree 4: the pollution generates persistent conductivity caused by conductive dust or by rain or snow		N/A
N	ANNEX N (NORMATIVE) PROOF TRACKING TEST		

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Clause	Requirement + Test	Result - Remark	Verdict
	The proof tracking test is carried out in accordance with IEC 60112 with the following modifications:		
7	Test apparatus		
7.3	Test solutions		
	Test solution A is used		P
10	Determination of proof tracking index (PTI)		
10.1	Procedure		
	The proof voltage is 100V, 175V, 400V or 600V..:	175V	P
	The test is carried out on five specimens		P
	In case of doubt, additional test with proof voltage reduced by 25V, the number of drops increased to 100		P
10.2	Report		
	The report states if the PTI value was based on a test using 100 drops with a test voltage of (PTI-25) V		P
O	ANNEX O (INFORMATIVE) SELECTION AND SEQUENCE OF THE TESTS OF CLAUSE 30		
	Description of tests for determination of resistance to heat and fire		P
P	ANNEX P (INFORMATIVE) GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN WARM DAMP EQUABLE CLIMATES		
	Modifications applicable for class 0 and 01 appliances having a rated voltage exceeding 150V, intended to be used in countries having a warm damp equable climate and that are marked WDaE		
	Modifications may also be applied to class 1 appliances having a rated voltage exceeding 150V, intended to be used in countries having a warm damp equable climate and that are marked WdaE, if liable to be connected to a supply mains that excludes the protective earthing conductor		
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 the letters WDaE		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 warm damp equable climate, but may also be used in other countries		N/A
11.8	The values of Table 3 are reduced by 15 K		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
13.2	The leakage current for class I appliances not exceeding 0,5 mA		N/A
15.3	The value of t is 37 °C		N/A
16.2	The leakage current for class I appliances not exceeding 0,5 mA (mA):		N/A
19.13	The leakage current test of 16.2 is applied in addition to the electric strength test of 16.3		N/A
Q	ANNEX Q (INFORMATIVE) SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS		
	Description of tests for appliances incorporating electronic circuits		
R	ANNEX R (NORMATIVE) SOFTWARE EVALUATION		
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 validated in accordance with the requirements of this annex		N/A
R.1	Programmable electronic circuits using software		
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 constructed so that the software does not impair compliance with the requirements of this standard		N/A
R.2	Requirements for the architecture		
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 use measures to control and avoid software-related faults/errors in safety-related data and safety-related segments of the software		N/A
R.2.1.1	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.2 have one of the following structures:		
	- single channel with periodic self-test and monitoring		N/A
	- dual channel (homogenous) with comparison		N/A
	- dual channel (diverse) with comparison		N/A
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 have one of the following structures:		
	- single channel with functional test		N/A
	- single channel with periodic self-test		N/A
	- dual channel without comparison		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
R.2.2	Measures to control faults/errors		
R.2.2.1	When redundant memory with comparison is provided on two areas of the same component, the data in one area is stored in a different format from that in the other area		N/A
R.2.2.2	Programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.2 and that use dual channel structures with comparison, have additional fault/error detection means for any fault/errors not detected by the comparison		N/A
R.2.2.3	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, means are provided for the recognition and control of errors in transmissions to external safety-related data paths		N/A
R.2.2.4	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the programmable electronic circuits incorporate measures to address the fault/errors in safety-related segments and data indicated in table R.1 and R.2 as appropriate		N/A
R.2.2.5	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, detection of a fault/error occur before compliance with clause 19 is impaired		N/A
R.2.2.6	The software is referenced to relevant parts of the operating sequence and the associated hardware functions		N/A
R.2.2.7	Labels used for memory locations are unique		N/A
R.2.2.8	The software is protected from user alteration of safety-related segments and data		N/A
R.2.2.9	Software and safety-related hardware under its control is initialized and terminates before compliance with clause 19 is impaired		N/A
R.3	Measures to avoid errors		
R.3.1	General		
	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the following measures to avoid systematic fault in the software are applied		

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Clause	Requirement + Test	Result - Remark	Verdict
	Software that incorporates measures used to control the fault/error conditions specified in table R.2 is inherently acceptable for software required to control the fault/error conditions specified in table R.1		N/A
R.3.2	Specification		
R.3.2.1	Software safety requirements:	Software Id:	N/A
	The specification of the software safety requirements includes the descriptions listed		N/A
R.3.2.2	Software architecture		
R.3.2.2.1	The specification of the software architecture includes the aspects listed - techniques and measures to control software faults/errors (refer to R.2.2); - interactions between hardware and software; - partitioning into modules and their allocation to the specified safety functions; - hierarchy and call structure of the modules (control flow); - interrupt handling; - data flow and restrictions on data access; - architecture and storage of data; - time-based dependencies of sequences and data	Document ref. No:	N/A
R.3.2.2.2	The architecture specification is validated against the specification of the software safety requirements by static analysis		N/A
R.3.2.3	Module design and coding		
R.3.2.3.1	Based on the architecture design, software is suitably refined into modules		N/A
	Software module design and coding is implemented in a way that is traceable to the software architecture and requirements		N/A
R.3.2.3.2	Software code is structured		N/A
R.3.2.3.3	Coded software is validated against the module specification by static analysis		N/A
	The module specification is validated against the architecture specification by static analysis		N/A
R.3.3.3	Software validation		
	The software is validated with reference to the requirements of the software safety requirements specification		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

	Compliance is checked by simulation of:		
	- input signals present during normal operation		N/A
	- anticipated occurrences		N/A
	- undesired conditions requiring system action		N/A

TABLE R.1 ^e – GENERAL FAULT/ERROR CONDITIONS						
Component ^a	Fault/error	Acceptable measures ^{b, c}	Definitions	Document reference for applied measure	Document reference for applied test	Ver- dict
1 CPU						N/A
1.1 Registers	Stuck at	Functional test, or periodic self-test using either: - static memory test, or - word protection with single bit redundancy	H.2.16.5 H.2.16.6 H.2.19.6 H.2.19.8.2			N/A
1.2 VOID						
1.3 Programme counter	Stuck at	Functional test, or Periodic self-test, or Independent time-slot monitoring, or Logical monitoring of the programme sequence	H.2.16.5 H.2.16.6 H.2.18.10.4 H.2.18.10.2			N/A
2 Interrupt handling and execution	No interrupt or too frequent interrupt	Functional test, or time-slot monitoring	H.2.16.5 H.2.18.10.4			N/A
3 Clock	Wrong frequency (for quartz synchroniz ed clock: harmonics/ sub- harmonics only)	Frequency monitoring, or time slot monitoring	H.2.18.10.1 H.2.18.10.4			N/A

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Clause	Requirement + Test		Result - Remark			Verdict
4. Memory						N/A
4.1 Invariable memory	All single bit faults	Periodic modified checksum, or multiple checksum, or word protection with single bit redundancy	H.2.19.3.1 H.2.19.3.2 H.2.19.8.2			
4.2 Variable memory	DC fault	Periodic static memory test, or word protection with single bit redundancy	H.2.19.6 H.2.19.8.2			N/A
4.3 Addressing (relevant to variable and invariable memory)	Stuck at	Word protection with single bit redundancy including the address	H.2.19.8.2			N/A
5 Internal data path	Stuck at	Word protection with single bit redundancy	H.2.19.8.2			N/A
5.1 VOID						
5.2 Addressing	Wrong address	Word protection with single bit redundancy including the address	H.2.19.8.2			N/A
6 External communication	Hamming distance 3	Word protection with multi-bit redundancy, or CRC – single work, or Transfer redundancy, or Protocol test	H.2.19.8.1 H.2.19.4.1 H.2.18.2.2 H.2.18.14			N/A
6.1 VOID						
6.2 VOID						

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Clause	Requirement + Test			Result - Remark		Verdict
6.3 Timing	Wrong point in time	Time-slot monitoring, or scheduled transmission	H.2.18.10.4 H.2.18.18 H.2.18.10.3			N/A
	Wrong sequence	Time-slot and logical monitoring, or comparison of redundant communication channels by either: - reciprocal comparison - independent hardware comparator Logical monitoring, or time-slot monitoring, or Scheduled transmission	H.2.18.15 H.2.18.3 H.2.18.10.2 H.2.18.10.4 H.2.18.18			
7 Input/output periphery	Fault conditions specified in 19.11.2	Plausibility check	H.2.18.13			N/A
7.1 VOID						
7.2 Analog I/O						N/A
7.2.1 A/D and D/A-converter	Fault conditions specified in 19.11.2	Plausibility check	H.2.18.13			
7.2.2 Analog multiplexer	Wrong addressing	Plausibility check	H.2.18.13			N/A
8 VOID						
9 Custom chips ^d e.g. ASIC, GAL, gate array	Any output outside the static and dynamic functional specification	Periodic self-test	H.2.16.6			N/A
NOTE A Stuck-at fault model denotes a fault model representing an open circuit or a non-varying signal level. A DC fault model denotes a stuck-at fault model incorporating short circuit between signal lines.						
^{a)} For fault/error assessment, some components are divided into their sub-functions. ^{b)} For each sub-function in the table, the Table R.2 measure will cover the software fault/error. ^{c)} Where more than one measure is given for a sub-function, these are alternatives. ^{d)} To be divided as necessary by the manufacturer into sub-functions. ^{e)} Table R.1 is applied according to the requirements of R.1 to R.2.2.9 inclusive.						

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10.1	TABLE: Power input deviation					P
Input deviation of/at:	P rated (W)	P measured (W)	ΔP	Required ΔP	Remark	
230V, 50Hz	184	87,7	-52,3%	+20%	HA9088	
230V, 60Hz	184	105,9	-42,4%	+20%	HA9088	
230V, 50Hz	184	93,4	-46,7%	+20%	HA9085	
230V, 60Hz	184	109,0	-40,8%	+20%	HA9085	
Supplementary information: N/A						

10.2	TABLE: Current deviation					N/A
Current deviation of/at:	I rated (A)	I measured (A)	ΔI	Required ΔI	Remark	
Supplementary information:						

11.8	TABLE: Heating test		HA9088	P
	Test voltage (V).....:	254,4	—	
	Ambient (°C).....:	21,2	—	
Thermocouple locations	Max. temperature rise measured, ΔT (K)	Max. temperature rise limit, ΔT (K)		
Power cord	4,5	50		
Motor lead wire	4,3	50		
Control panel	2,6	60		
Surface of motor running capacitor	4,9	45(T70)		
Relay	7,7	60(T85)		
X Capacitor	15,0	80(T105)		
Y Capacitor	2,8	100(T125)		
Varistor	2,4	60(T85)		
Surface of transformer winding	11,2	85(Class 130)		
PCB	8,9	120		
Plastic of PCB holder	2,7	Cl.30		
Supplementary information: With hob element in operation, test at 254,4V is more unfavourable				

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11.8	TABLE: Heating test, resistance method				HA9088	P
	Test voltage (V)..... :				254,4	—
	Ambient, t1 (°C)..... :				21,3	—
	Ambient, t2 (°C)..... :				21,2	—
Temperature rise of winding		R1 (Ω)	R2 (Ω)	Δ T (K)	Max. Δ T (K)	Insulation class
Main winding of motor		39,61	47,41	50,5	90	120
Auxiliary winding of motor		106,19	127,33	51,0	90	120
Supplementary information: With hob element in operation, test at 254,4V is more unfavourable						

11.8	TABLE: Heating test		HA9088	P
	Test voltage (V)..... :	254,4		—
	Ambient (°C)..... :	21,2		—
Thermocouple locations		Max. temperature rise measured, Δ T (K)	Max. temperature rise limit, Δ T (K)	
External enclosure		1,5	60	
Test corner		1,2	65	
Supplementary information: Without hob element in operation, test at 254,4V is more unfavourable				

11.8	TABLE: Heating test				HA9085	P
	Test voltage (V)..... :				254,4	—
	Ambient (°C)..... :				22,8	—
Thermocouple locations		Max. temperature rise measured, Δ T (K)			Max. temperature rise limit, Δ T (K)	
Power cord		3,8			50	
Motor lead wire		2,5			50	
Control panel		1,6			60	
Surface of motor running capacitor		2,7			45(T70)	
Relay		1,1			60(T85)	
X Capacitor		15,3			80(T105)	
Y Capacitor		1,9			100(T125)	
Varistor		1,4			60(T85)	
Surface of transformer winding		4,2			85(Class 130)	

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PCB	7,0	120
Plastic of PCB holder	1,6	Cl.30
Supplementary information: With hob element in operation, test at 254,4V is more unfavourable		

11.8	TABLE: Heating test, resistance method					HA9085	P
	Test voltage (V)..... :					254,4	—
	Ambient, t1 (°C)..... :					22,5	—
	Ambient, t2 (°C)..... :					22,8	—
Temperature rise of winding		R1 (Ω)	R2 (Ω)	Δ T (K)	Max. Δ T (K)	Insulation class	
Main winding of motor		39,13	46,75	49,7	90	120	
Auxiliary winding of motor		107,66	128,25	48,9	90	120	
Supplementary information: With hob element in operation, test at 254,4V is more unfavourable							

11.8	TABLE: Heating test		HA9085	P
	Test voltage (V)..... :	254,4		—
	Ambient (°C)..... :	22,8		—
Thermocouple locations		Max. temperature rise measured, Δ T (K)	Max. temperature rise limit, Δ T (K)	
External enclosure		1,6	60	
Test corner		1,1	65	
Supplementary information: Without hob element in operation, test at 254,4V is more unfavourable				

13.2	TABLE: Leakage current						P
	Heating appliances: 1.15 x rated input (W) . :					N/A	—
	Motor-operated and combined appliances: 1.06 x rated voltage (V)..... :					254,4	—
Leakage current between					I (mA)	Max. allowed I (mA)	
N/L to earthed metal enclosure					Max. 0,058	3,5	
N/L to control panel					Max. 0,003	0,35 peak	
Supplementary information: N/A							

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13.3	TABLE: Dielectric strength			P
Test voltage applied between:		Test potential applied (V)	Breakdown / flashover (Yes/No)	
N/L to earthed metal enclosure		1000	No	
N/L to control panel		3000	No	
Supplementary information: N/A				

14	TABLE: Transient overvoltages					N/A
Clearance between:		CI (mm)	Required CI (mm)	Rated impulse voltage (V)	Impulse test voltage (V)	Flashover (Yes/No)
Supplementary information:						

16.2	TABLE: Leakage current		P
	Single phase appliances: 1.06 x rated voltage (V) :	254,4	—
	Three phase appliances 1.06 x rated voltage divided by $\sqrt{3}$ (V)..... :	N/A	—
Leakage current between		I (mA)	Max. allowed I (mA)
N/L to earthed metal enclosure		Max. 0,115	3,5
N/L to control panel		Max. 0,012	0,25
Supplementary information: N/A			

16.3	TABLE: Dielectric strength			P
Test voltage applied between:		Test potential applied (V)	Breakdown / flashover (Yes/No)	
N/L to earthed metal enclosure		1250	No	
N/L to control panel		3000	No	
Supplementary information: N/A				

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17	TABLE: Overload protection		P
Thermocouple locations		Max. temperature measured, T (°C)	Max. temperature limit, T (°C)
Surface of transformer winding		78,1	175
Supplementary information: N/A			

17	TABLE: Overload protection, resistance method					N/A
	Test voltage (V)..... :					—
	Ambient, t1 (°C)..... :					—
	Ambient, t2 (°C)..... :					—
Temperature of winding		R1 (Ω)	R2 (Ω)	Δ T (K)	T (°C)	Max. T (°C)
Supplementary information:						

19	Abnormal operation conditions						P
Operational characteristics		YES/NO	Operational conditions				
Are there electronic circuits to control the appliance operation?		YES	Without PEC				
Are there “off” or “stand-by” position?		YES					
The unintended operation of the appliance results in dangerous malfunction?		NO					
Sub-clause	Operating conditions description	Test results description	PEC description	EMP 19.11.4	Software type required	19.11.3 PEC	Final result
19.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.7	240V	No hazard	N/A	N/A	N/A	N/A	P
19.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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19.10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.11.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.11.4.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.101	206,8V and 254,4V	No hazard	N/A	N/A	N/A	N/A	P
Supplementary information: N/A							

19.7	TABLE: Abnormal operation, locked rotor/moving parts					P
	Test voltage (V).....:				240	—
	Ambient, t1 (°C).....:				21,3 / 21,3	—
	Ambient, t2 (°C).....:				21,6 / 21,6	—
Temperature of winding		R1 (Ω)	R2 (Ω)	Δ T (K)	T (°C)	Max. T (°C)
Fan motor winding (locking the rotor)		145,62	209,04	-	132,7	215
Fan motor winding (locking the rotor + capacitor open-circuited)		145,62	204,80	-	125,3	215
Supplementary information: N/A						

19.9	TABLE: Abnormal operation, running overload					N/A
	Test voltage (V).....:					—
	Ambient, t1 (°C).....:					—
	Ambient, t2 (°C).....:					—
Temperature of winding		R1 (Ω)	R2 (Ω)	Δ T (K)	T (°C)	Max. T (°C)
Supplementary information:						

19.13	TABLE: Abnormal operation, temperature rises		N/A
Thermocouple locations		Max. temperature rise measured, ΔT (K)	Max. temperature rise limit, ΔT (K)
Supplementary information:			

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21.1	TABLE: Impact resistance			P
Impacts per surface		Surface tested	Impact energy (Nm)	Comments
3		Enclosure	0,5	No visible cracks
3		Control panel	0,5	No visible cracks
Supplementary information: N/A				

24.1	TABLE: Components					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity	
Plug	Ningbo Jintao Electrical Co., Ltd.	TS03	AC250V, 16A	DIN VDE 0620-2-1	VDE 40014174	
	Ningbo Qiaopu Electric Co., Ltd	D03	AC250V, 16A	DIN VDE 0620-2-1	VDE 40002872	
Plug for UK	Yuyao Yunbiao Electrical Co.Ltd	YB006	AC250V, 13A	BS 1363-1	BSI KM 73093	
	Ningbo Weiyun Electronic Co.Ltd	EP888	AC250V, 13A	BS 1363-1	BSI KM 562806	
Supply cord	Ningbo Jintao Electrical Co., Ltd.	H05VV-F	3G0,75mm ²	DIN EN 50525-2-11	VDE 40024517	
	Ningbo Qiaopu Electric Co., Ltd	H05VV-F	3G0,75mm ²	DIN EN 50525-2-11	VDE 40035976	
Motor	Shengzhou Shi Shuang Gang Electric Co., Ltd	YPY-60-4	220-240V, 50/60Hz, 60W, Class 120(E)	IEC 60335-1 IEC 60335-2-31	Test with appliance	
Thermal motor protector	Jiangsu Changsheng Electric Appliance Co., Ltd	BR-B2D	AC250V, 125°C, 8A	IEC 60730-1 IEC 60730-2-2	VDE 132813	
	Changzhou Desheng Heng Hui Electronics Co., Ltd	BW-B	AC250V, 125°C, 10A	IEC 60730-1 IEC 60730-2-2	VDE 40032370	
Motor running capacitor	Guangdong Fengming Electronic Tech. Co., Ltd	CBB61-P2	AC450V, 50/60Hz, 5µF, T70, S3 or P2	IEC 60252-1	TUV Rh. R 50163114	

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Motor lead wire	Ningbo Haoguang Electric Appliance Co.,Ltd.	H05V-K	1×0,5mm ² , 1×0,75mm ²	DIN EN 50525-2-31 IEC 60335-1 IEC 60335-2-31	VDE 126062 Test with appliance
	Xinxin Electronic Wire Rod Co., Ltd.	H03VH7-H	1×0,5mm ² , 1×0,75mm ²	DIN VDE 0281-8 IEC 60335-1 IEC 60335-2-31	VDE 40006505 Test with appliance
Internal wire	Wenzhou Hutia Electronic Cable Co., Ltd.	2547	24AWG, 300V, 80°C	IEC 60335-1 IEC 60335-2-31	Test with appliance
	JIAXING YONGDA ELECTRIC CO; LTD	H03VV-F	2×0,5mm ²	IEC 60335-1 IEC 60335-2-31	Test with appliance
	Shengzhou Xuefeng Electrical Wire & Appliances Factory	52RVV	2×0,5mm ²	IEC 60335-1 IEC 60335-2-31	Test with appliance
	Tongxiang Yisheng Electric Appliance Co Ltd	52RVV	2×0,5mm ²	IEC 60335-1 IEC 60335-2-31	Test with appliance
PCB lead wire	ZHONGSHAN WEIFENG ELECTRICAL EQUIPMENT CO LTD	2468	32AWG-16AWG, 300V, 80°C	IEC 60335-1 IEC 60335-2-31	Test with appliance
	ZHONGSHAN WEIFENG ELECTRICAL EQUIPMENT CO LTD	1007	32AWG-16AWG, 300V, 80°C	IEC 60335-1 IEC 60335-2-31	Test with appliance
	ZHONGSHAN CITY WEIFENG ELECTRIC APPLIANCE CO.,LTD	60227 IEC 08(RV-90)	0,5-2,5mm ² , 300/500V	IEC 60335-1 IEC 60335-2-31	Test with appliance
Relay	Song Chuan Precision Co., Ltd.	307H-1AH-F-C	250VAC, 10A, T85 250VAC, 6A, T105	IEC 61810-1	VDE 40028236
	Xiamen Hongfa Electroacoustics Co., Ltd.	HF32F-G	250VAC, 10A, T85	IEC 61810-1	VDE 40012204

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Fuse	XC Electronics (Shen Zhen) Corp. Ltd.	5TE	250VAC, 5A	IEC 60127-1 IEC 60127-3	VDE 40036821
	Dongguan Better Electronics Technology Co., Ltd.	932	250VAC, 5A	IEC 60127-1 IEC 60127-3	VDE 40033369
Varistor	Fenghua Adv. Tech. (holding) Co., Ltd	FNR 14K561	560V, T85	IEC 61051-1 IEC 61051-2 IEC 61051-2-2	VDE 40008242
	SHANTOU HIGH- NEW TECHNOLOGY DEVELOPMNT ZONE SONGTIAN ENTERPRISE CO LTD	14D561K	560V, T125	IEC 61051-1 IEC 61051-2 IEC 61051-2-2	VDE 40023049
X capacitor	Guangdong Menlo Electric Power Co. Ltd.	MLC-X2	0,22µF, 275VAC, T105	IEC 60384-14	VDE 40040284
	Shantou High- New Technology Dev. Zone Songtian Enterprise Co., Ltd.	MPX	0,22µF, 275VAC, T110	IEC 60384-14	VDE 40034679
Y capacitor	Fenghua Advanced Technology (Holding) CO. LTD	CT7	1000pF, 400VAC, T125, Y1	IEC 60384-14	VDE 40013874
Optocoupler	Everlight Electronics Co., Ltd.	EL817	Cr. ≥ 7,6mm	IEC 60747-5-5	VDE 132249
Transformer	Foshan Shunde Weirui Electronic CO.,LTD	EF-20002	Class B	IEC 60335-1 IEC 60335-2-31	Test with appliance
PCB	Shandong Jinbao Tech-Innov Corporation	ZD-95(G)F	Min. Thk.: 1,6mm, V-0	IEC 60335-1 IEC 60335-2-31	Test with appliance

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	Kingboard Laminates Holdings Ltd	KB-5150, KB-6150C	Min. Thk.: 1,4mm, V-0	IEC 60335-1 IEC 60335-2-31	Test with appliance
Bracket of PCB board	NINGBO LG YONGXING CHEMICAL CO LTD	ABS, FR-500	-	IEC 60335-1 IEC 60335-2-31	Test with appliance UL E203955
	Yuyao Ditang Jiachen Electrical Equipment Factory	ABS ,765A	-	IEC 60335-1 IEC 60335-2-31	Test with appliance
Terminal	Zhejiang Hongxing Electrical Co.,Ltd	-	4,8mm×0,5mm (187)	IEC 60335-1 IEC 60335-2-31	Test with appliance
	Ningbo Hanyu Electric Co., Ltd.	-	4,8mm×0,5mm (187)	IEC 60335-1 IEC 60335-2-31	Test with appliance
	Yueqing Fuqiang Electrical Factory	-	4,8mm×0,5mm (187)	IEC 60335-1 IEC 60335-2-31	Test with appliance
Connector	CWB ELECTRONICS (ZHEJIANG) CO LTD	TJC2	-	IEC 60335-1 IEC 60335-2-31	Test with appliance
LED lamp	SHENGZHOU CHUANGYI KITCHEN PHOTOELECTRIC CO.,LTD	CY-E01-44A	12VDC, 2W	IEC 62471 IEC 60335-1 IEC 60335-2-31	Test with appliance
Oil cup	Hangzhou Xiaoshan Dongtai Lighting Equipment Factory	PP	940A	IEC 60335-1 IEC 60335-2-31	Test with appliance
Electric box / check valve plates / protect cover	Hangzhou Xiaoshan Dongtai Lighting Equipment Factory	ABS	D1200	IEC 60335-1 IEC 60335-2-31	Test with appliance

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Outlet seat	Hangzhou Xiaoshan Dongtai Lighting Equipment Factory	PP	F400	IEC 60335-1 IEC 60335-2-31	Test with appliance
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¹⁾ An asterisk indicates a mark which assures the agreed level of surveillance

28.1	TABLE: Threaded part torque test			P
Threaded part identification	Diameter of thread (mm)	Column number (I, II, or III)	Applied torque (Nm)	
Screws for fixing electric box	3,8	II	1,2	
Screws for fixing enclosure	3,8	II	1,2	
Screws for earthing	3,8	II	1,2	
Supplementary information: N/A				

29.1	TABLE: Clearances					P
	Overvoltage category..... :				II	—
		Type of insulation:				Verdict / Remark
Rated impulse voltage (V):	Min. cl (mm)	Basic (mm)	Supplementary (mm)	Reinforced (mm)	Functional (mm)	
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
<u>2 500</u>	<u>1,5</u> / 2,0***	☒	☒		☒	P
<u>4 000</u>	<u>3,0</u> / 3,5***			☒		P
6 000	5,5 / 6,0***					N/A
8 000	8,0 / 8,5***					N/A
10 000	11,0 / 11,5***					N/A
Supplementary information:						
*) For tracks on printed circuit boards if pollution degree 1 and 2						
**) For pollution degree 3						
***) If the construction is affected by wear, distortion, movement of the parts or during assembly						

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29.2	TABLE: Creepage distances, basic, supplementary and reinforced insulation										P
Working voltage (V)	Creepage distance (mm) Pollution degree							Type of insulation			
	1	2			3						
		Material group			Material group						
		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
<u>250</u>	0,56	1,25	1,8	<u>2,5</u>	3,2	3,6	<u>4,0</u>	☒	—	—	P
<u>250</u>	0,56	1,25	1,8	<u>2,5</u>	3,2	3,6	<u>4,0</u>	—	☒	—	P
<u>250</u>	1,12	2,5	3,6	<u>5,0</u>	6,4	7,2	<u>8,0</u>	—	—	☒	P
<u>400</u>	1,0	2,0	2,8	<u>4,0</u>	5,0	5,6	6,3	☒	—	—	P
<u>400</u>	1,0	2,0	2,8	<u>4,0</u>	5,0	5,6	6,3	—	☒	—	P
<u>400</u>	2,0	4,0	5,6	<u>8,0</u>	10,0	11,2	12,6	—	—	☒	P
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

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>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: The minimum creepage distance between primary winding and secondary winding of transformer > 6,0mm (limit 5,0mm, Pollution degree 2)

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

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

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29.2	TABLE: Creepage distances, functional insulation							P
Working voltage (V)	Creepage distance (mm) Pollution degree							
	1	2			3			
		Material group			Material group			
		I	II	IIIa/IIIb	I	II	IIIa/IIIb*	Verdict / Remark
≤10	0,08	0,4	0,4	0,4	1,0	1,0	1,0	N/A
50	0,16	0,56	0,8	1,1	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
<u>250</u>	0,42	1,0	1,4	<u>2,0</u>	2,5	2,8	<u>3,2</u>	P
<u>400</u>	0,75	1,6	2,2	<u>3,2</u>	4,0	4,5	5,0	P
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								

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TABLE: Resistance to heat and fire																				
Object/ part No.	Manufacturer/ trademark	Type/ mode I	Ball pressure test °C			Glow wire test (GWT) °C				Glow-wire flammability index (GWFI) °C				Glow- wire ignition temp. (GWIT) °C		Needle- flame test (NFT)	Verdict			
			75	125	cl. 11 +40	cl. 19 +25	550	650		750		850	550	650	750	850	675	775		
								ti	te	ti	te									
Oil cup	-	-			105°C 1,0mm		P												P	P
Check- valve	-	-	1,2 mm				P												P	P
Electric box	-	-	1,2 mm				P													P
PCB	-	-		0,9 mm															P	P
Connector on PCB	-	-		1,4 mm						0s	0s	P								P
Transformer bobbin	-	-		0,8 mm						0s	0s	P								P
Supplementary information:																				
1) Parts of material classified at least HB40 or if relevant HBF																				
2) Parts of material classified as V-0 or V-1																				
3) Flame persisting longer than 2 s (= te – ti) need only be reported for unattended appliances																				
4) Surrounding parts subjected to the needle-flame test of annex E																				

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TABLE: Resistance to heat and fire																		
Object/ part No.	Manufacture r/ trademark	Type/ mode I	Ball pressure test °C		Glow wire test (GWT) °C				Glow-wire flammability index (GWFI) °C			Glow- wire ignition temp. (GWIT) °C	Needle- flame test (NFT)	Verdict				
			75	125	cl. 11 +40	cl. 19 +25	550	650	750	850	550	650	750	850	675	775		
								ti	te	ti	te							
5) Base material classified as V-0 or if relevant VTM-0																		
6) The GWIT pre-selection option, the 850 °C GWFI pre-selection option, and the 850 °C GWT are not applicable for attended appliances																		

Attachment No. 1

IEC 60335-1:2010/AMD1:2013

Household and similar electrical appliances - Safety - Part 1: General requirements

Attachment contains

Cover page:	1 page
Requirements:	11 pages
Total:	12 pages

Explanation for Abbreviations:

Possible Verdicts: **P** = Pass, **F**= Fail, **N/A** = Not Applicable

Remarks:

Throughout this report, a point is used as the decimal separator.

Clause	Requirement – Test	Result – Remark	Verdict
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IEC 60335-1:2010/AMD1:2013			
Clause	Requirement –Test	Result - Remark	Verdict
5.17	Replace the existing text by the following:		--
	Appliances powered by rechargeable batteries that are recharged in the appliance are tested in accordance with Annex B.		N/A
	Battery-operated appliances powered by batteries that are non-rechargeable or not recharged in the appliance are tested in accordance with Annex S.		N/A
7.1	Add the following new paragraph after Note 4:		--
	Class II appliances and class III appliances incorporating a functional earth shall be marked with the symbol IEC 60417-5018 (2011-07).	Class I appliance	N/A
7.3	In Note 3, replace the text of the example by the following:		--
	EXAMPLE: 230 V/400 V 3N: The appliance is only suitable for the voltage values indicated, 230 V being for single-phase, a.c. operation and 400 V 3N for three-phase, a.c. with neutral operation (an appliance with terminals for both supplies).		N/A
7.4	Replace the requirement by the following:		--
	If the appliance can be adjusted for different rated voltages or rated frequencies, the voltage or the frequency to which the appliance is adjusted shall be clearly discernible. If frequent changes in voltage setting or frequency setting are not required, this requirement is considered to be met if the rated voltage or rated frequency to which the appliance is to be adjusted can be determined from a wiring diagram fixed to the appliance.		N/A
7.6	Replace [symbol ISO 7000-0434 (2004-01)] by [symbol ISO 7000-0434A (2004-01)].		N/A
7.8	Add the following to the first paragraph of the requirement:		--
	- Functional earthing terminals shall be indicated by symbol IEC 60417-5018 (2011-07).		N/A
7.12	Delete “for use” in the first paragraph and in the Note.		--
	Add the following after the existing last paragraph of the requirement:		--
	For appliances intended for use at altitudes exceeding 2 000 m, the maximum altitude of use shall be stated.		N/A
	The instructions for appliances incorporating a functional earth shall state the substance of the following:		N/A
	This appliance incorporates an earth connection for functional purposes only.		N/A
7.12.1	Add the following text:		--

Clause	Requirement – Test	Result – Remark	Verdict
	For appliances marked with different rated voltages or different rated frequencies (separated by a /), instructions shall be included to indicate to the user or installer what action must be taken to adjust the appliance for operation at the required rated voltage or rated frequency.		N/A
7.15	Add the following:		--
	The symbol IEC 60417-5018 (2011-07) shall be placed next to the symbol IEC 60417-5172 (2003-02) or the symbol IEC 60417-5180 (2003-02) as appropriate.		N/A
8.1.1	Delete the Note.		N/A
10.1	Replace the penultimate paragraph of the test specification by the following:		--
	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, then the power input is the maximum value that is exceeded for more than 10 % of the representative period. Otherwise the power input is taken as the arithmetic mean value.		N/A
10.2	Replace the penultimate paragraph of the test specification by the following:		--
	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, then the current is the maximum value that is exceeded for more than 10 % of the representative period. Otherwise the current is taken as the arithmetic mean value.		N/A
11.8	Delete the second sentence of the first paragraph.		--
	Table 3 – Maximum normal temperature rises After the entry for pins of appliance inlets, add the following new entry: Pins of appliances for insertion into socket-outlets(45°C)		N/A
	Replace the second to last, third to last and fourth to last entries in Table 3 by the following table		--
	Add the following footnotes to Table 3:		--
	k-The temperature rise limits of controls actuated by contact or proximity of a finger, with no movement of the contact surface also includes all surfaces within 5 mm of such controls, regardless of their shape.		N/A
	l-The temperature rise limit of plastic also applies for plastic material having a metal finish of thickness less than 0,1 mm.		N/A
	m- When the thickness of the plastic coating does not exceed 0,4 mm, the temperature rise limits of the coated metal or of glass and ceramic material apply.		N/A

Clause	Requirement – Test	Result – Remark	Verdict
	n- Metal is considered coated when a coating having a minimum thickness of 90 µm made by enamel, powder or non-substantially plastic coating is used.		N/A
13.2	In the first paragraph, after “class II appliances” add “, class II constructions” and replace the second sentence by the following:		N/A
	For class 0I appliances and class I appliances, C may be replaced by a low impedance ammeter responding to the rated frequency of the appliance.		N/A
	Replace the second paragraph by the following:		--
	The leakage current is measured between any pole of the supply and		--
	- accessible metal parts intended to be connected to protective earth, for class I appliances and class 0I appliances;		P
	- metal foil having an area not exceeding 20 cm × 10 cm which is in contact with accessible surfaces of insulating material and metal parts not intended to be connected to protective earth, for class 0 appliances, class II appliances, class II constructions and class III appliances.		P
	Replace the fourth paragraph by the following:		--
	For single-phase appliances, the measuring circuit is shown in the following figures:		--
	- If they are class II appliances or parts of class II construction, Figure 1;	Class II construction	P
	- If they are neither class II appliances nor parts of class II construction, Figure 2.		N/A
	Replace the sixth paragraph by the following:		--
	For three-phase with neutral (3N~) connected appliances, the measuring circuit is shown in the following figures:		--
	- if they are class II appliances or parts of class II construction, Figure 3;		N/A
	-if they are neither class II appliances nor parts of class II construction, Figure 4.		N/A
	Delete “For three-phase appliances,” from the first sentence of the seventh paragraph.		N/A
	Replace the third sentence of the seventh paragraph by the following:		--
	For three-phase without neutral (3~) connected appliances, the measuring circuit in Figure 3 or Figure 4 shall be used as applicable, but the neutral is not connected to the appliance		N/A
	In the existing eighth paragraph, replace the first dashed item by the following:		--
	- for class II appliances and for parts of class II construction 0,35mA peak	class II construction	P
15.2	Replace the first paragraph of the test specification by the following:		-
	Compliance is checked by the following test using a spillage solution comprising water containing approximately 1 % NaCl and 0,6 % rinsing agent.		N/A

Clause	Requirement – Test	Result – Remark	Verdict
	Replace the fifth paragraph of the test specification by the following:		--
	The liquid container of the appliance is completely filled with the solution and a further quantity equal to 15 % of the capacity of the container or 0,25 l, whichever is the greater, is poured in steadily over a period of 1 min.		N/A
	Add the following new text as a penultimate paragraph:		--
	Any commercially available rinsing agent may be used, but if there is any doubt with regards to the test results, the rinsing agent shall have the following properties: - viscosity, 17 mPa·s; - pH, 2,2 (1 % in water).		N/A
16.2	Replace the first paragraph by the following:		--
	An a.c. test voltage is applied between live parts and		--
	- accessible metal parts intended to be connected to protective earth, for class I appliances and class 0I appliances;		P
	- metal foil having an area not exceeding 20 cm × 10 cm which is in contact with accessible surfaces of insulating material and metal parts not intended to be connected to protective earth, for class 0 appliances, class II appliances, class II constructions and class III appliances.	class II construction	P
	In the fourth paragraph, replace the first dashed item by the following:		--
	- for class II appliances and for parts of class II construction 0,25 mA	class II construction	P
19.7	Add the following to the fourth paragraph.		--
	If the timer or programmer is an electronic type that operates to ensure compliance with the test before the maximum period under the conditions of Clause 11 is reached, it is considered to be a protective electronic circuit as well as a control that operates under the conditions of Clause 11.		N/A
19.11.4.4	Replace the first paragraph by the following:		--
	The power supply terminals of the appliance are subjected to voltage surges in accordance with IEC 61000-4-5, five positive impulses and five negative impulses being applied at the selected points. An open circuit test voltage of 2 kV is applicable for the line-to-line coupling mode, a generator having a source impedance of 2Ω being used. An open circuit test voltage of 4 kV is applicable for the line-to-earth coupling mode, a generator having a source impedance of 12Ω being used.		N/A
22.5	In the requirement, replace “exceeding” by “equal to or greater than”.		P

Clause	Requirement – Test	Result – Remark	Verdict
	Add the following text after the existing last paragraph of the test specification. 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 one at a time to the appliance. The discharge test is then repeated three times and for each test, the voltage shall not exceed 34 V.		N/A
22.32	Replace the words 'Insulating material' at the beginning of the 4th paragraph of the requirement by 'Ceramic and similar porous material' and combine this paragraph with the third paragraph of the requirement.		N/A
22.33	Add the following to the first sentence of the first paragraph of the requirement:		--
	"Or unearthed metal parts that are separated from live parts by basic insulation only."		N/A
22.35	In the second paragraph of the requirement add 'and cordless appliances' after stationary appliances'.		N/A
	Add the following note after the requirement:		--
	NOTE A cordless appliance is an appliance that is connected to the supply only when placed on its associated stand.		N/A
22.53	Class II appliances and class III appliances that incorporate functionally earthed parts shall have at least double insulation or reinforced insulation between live parts and the functionally earthed parts.		N/A
	Compliance is checked by inspection and test.		N/A
22.54	Button cells and batteries designated R1 shall not be accessible without the aid of a tool unless the cover of their compartment can only be opened after at least two independent movements have been applied simultaneously.		P
	Compliance is checked by inspection and by manual test.		P
23.5	Replace Note 2 by the following text.		--
	For class II construction, the requirements for supplementary insulation and reinforced insulation apply except that the sheath of a cord complying with IEC 60227 or IEC 60245 may provide supplementary insulation		P
	A single layer of internal wiring insulation does not provide reinforced insulation.		P
24.1	Replace Notes 1, 2, 3 and 4 by the following, and renumber Note 5 to Note 2.		--
	Compliance with the IEC standard for the relevant component does not necessarily ensure compliance with the requirements of this standard.		P
	Motors are not required to comply with IEC 60034-1. They are tested as part of the appliance according to this standard.		P

Clause	Requirement – Test	Result – Remark	Verdict
	Relays shall be tested as part of the appliance according to this standard. They may be alternatively tested to IEC 60730-1, in which case they must also meet the additional requirements in IEC 60335-1.		P
	Unless otherwise specified, the requirements of Clause 29 of this standard apply between live parts of components and accessible parts of the appliance. Unless otherwise specified, components may comply with the requirements for clearances and creepage distances for functional insulation as specified in the relevant component standard.		P
	Unless otherwise specified, 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 previously tested and shown to comply with the IEC standard for the relevant component are tested according to the requirements of 30.2 of this standard.		P
	Components that have been previously tested and shown to comply with the resistance to fire requirements in the IEC 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 of this standard, and		P
	- Unless the pre-selection alternatives in 30.2 are used, the test report for the component states the values of t_e and t_i as required by IEC 60695-2-11.		P
	If the above two conditions are not satisfied, the component shall be tested as part of the appliance.		N/A
	Power electronic converter circuits are not required to comply with IEC 62477-1. They are tested as part of the appliance according to this standard		N/A
24.1.2	Add the following text as a new first paragraph.		-
	The relevant standard for transformers in associated switch mode power supplies is Annex BB of IEC 61558-2-16. Clause 26 of IEC 61558-1 and Annex H of IEC 61558-1 are not applicable.		P
24.1.4	Add the following new paragraph:		--
	Thermal cut-outs of the capillary type shall comply with the requirements for type 2.K controls in IEC 60730-2-9.		N/A
24.1.5	In the second sentence of the first paragraph, add "class II" before "appliances".		N/A
25.1	Replace the first dashed item of the requirement by the following:		-
	-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

Clause	Requirement – Test	Result – Remark	Verdict
25.7	Delete the third dashed item in the first paragraph of the requirement.		N/A
25.10	Add the following as a new paragraph to the requirement.		--
	In multi-phase appliances, the colour of the neutral conductor of the supply cord, if any, shall be blue.		N/A
25.13	In the requirement, replace the second sentence by the following:		--
	If it is not evident from the construction of the appliance that the supply cord can be introduced without risk of damage, a non-detachable lining or non-detachable bushing shall be provided that complies with 29.3 for supplementary insulation.		P
25.15	Replace the second paragraph of the test specification by the following:		--
	A mark is made on the cord at a distance of approximately 20 mm from the cord anchorage or other suitable point. The mark is made while the cord is subjected to a pull force of		--
	- 100 N, for fixed appliances regardless of the mass of the appliance;		P
	- The value as shown in Table 12, for other appliances.		N/A
25.20	Delete “insulated” and “additionally” from the requirement.		P
27.1	In the first paragraph of the requirement replace “an insulation fault” by “a failure of basic insulation”.		P
	Delete Note 1 and replace “Note 2” by “Note”.		P
	Replace the third paragraph by the following:		--
	Class 0 appliances, class II appliances and class III appliances shall have no provision for protective earthing. Class II appliances and class III appliances may incorporate an earth for functional purposes.		N/A
27.2	Add the following paragraph to the requirement:		--
	These requirements are not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes.		N/A
27.3	Add the following paragraph to the requirement:		--
	These requirements are not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes.		N/A
27.4	Add the following paragraph to the requirement:		--
	These requirements are not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes.		N/A
27.5	Add the following paragraph to the requirement:		--
	These requirements are not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes.		N/A
	Replace existing Note 1 by the following as an addition to the existing second paragraph of the test specification.		N/A

Clause	Requirement – Test	Result – Remark	Verdict
	The test is carried out until steady conditions have been established.		P
	Replace existing Note 2 by the following as an addition to the last paragraph of the test specification.		P
	The resistance of the supply cord is not included in the resistance calculation.		P
	Renumber existing Note 3 as Note.		P
27.6	Add the following sentence to the requirement:		--
	This requirement is not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes.		N/A
28.2	In the second paragraph of the requirement, replace bullets with dashes in the two bulleted items.		N/A
29.1	Add the following as a new second paragraph of the requirement:		--
	For appliances intended for use at altitudes exceeding 2000m, the clearances in Table 16 shall be increased according to the relevant multiplier values in Table A.2 of IEC 60664-1.		N/A
	Add the following to the existing second paragraph of the requirement:		--
	or to appliances intended for use at altitudes exceeding 2 000 m.		N/A
	Table 17 – Minimum creepage distances for basic insulation		--
	Replace Note 1 by the following:		--
	Lacquered conductors of windings are considered to be bare conductors but creepage distances for basic insulation in other than a double insulation construction need not be greater than the associated clearance specified in Table 16 taking into account 29.1.1.		N/A
29.3	Replace the third dashed item by the following: -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 for accessible parts of reinforced insulation consisting of a single layer, by measurement in accordance with 29.3.4, or		N/A
	Add the following as the fourth dashed item of the test specification: – 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
Annex B	Replace the introductory text by the following:		-
	The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance.		N/A

Clause	Requirement – Test	Result – Remark	Verdict
	NOTE 1 Rechargeable batteries are also referred to as secondary batteries		N/A
	NOTE 2 This Annex B does not apply to battery chargers (IEC 60335-2-29).		N/A
	These appliances take one of the following three forms of construction:		-
	a) The appliance can be supplied directly from the supply mains or a renewable energy source such as a solar cell, the battery charging circuitry and other supply unit circuitry being 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 such as a solar cell, via a detachable supply unit. The battery charging circuitry is incorporated within the part of the appliance containing the battery. In this case, the complete appliance is the detachable supply unit plus the part of the appliance containing the battery and the battery charging circuitry.		N/A
	c) The part of the appliance incorporating the battery is supplied from the supply mains or a renewable energy source such as a solar cell, via a detachable supply unit. The battery charging circuitry is incorporated within the detachable supply unit. In this case, the complete appliance is the detachable supply unit with the battery charging circuitry plus the part of the appliance containing the battery.		N/A
	NOTE 3 Examples of the forms of construction covered by this Annex B are shown in Figure B.1.		N/A
	NOTE 4 If the appliance incorporates a non-rechargeable (primary) battery or a rechargeable (secondary) battery that must be removed from the appliance for charging, then Annex S is applicable. In this case, the appliance is simply a battery-operated appliance and the safety requirements for the battery charger for charging the rechargeable battery are contained in IEC 60335-2-29.		N/A
Annex H	Replace the text by the following:		-
	Clause 20 is applicable to clearances across full disconnection and micro-disconnection. It is also applicable to creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in Table 24.		N/A
Annex S	Battery-operated appliances powered by batteries that are non-rechargeable or not recharged in the appliance		--
5.8.1	Where the supply terminals for the connection of the battery have no indication of polarity, the more unfavourable polarity shall be applied.		N/A

Clause	Requirement – Test	Result – Remark	Verdict
5.S.101	Battery-operated 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	Battery-operated appliances are tested as motor-operated appliances.		P
7	Marking and instructions		-
7.1	Battery-operated appliances shall be marked with the battery voltage and the polarity of the terminals unless the polarity is irrelevant.		--
	Battery-operated appliances shall also be marked with the:		--
	- 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.		P
7.6	  [symbol IEC 60417-5005 (2002-10)] [symbol IEC 60417-5006 (2002-10)] plus; positive polarity minus; negative polarity		P
7.12	The instructions for battery-operated appliances shall contain the substance of the following, as applicable:		--
	- the types of batteries that may be used;		P
	- how to remove and insert the batteries;		P
	- non-rechargeable batteries are not to be recharged;		P
	- 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;		P
	- exhausted batteries are to be removed from the appliance and safely disposed of;		P
	- if the appliance is to be stored unused for a long period, the batteries should be removed;		P
	- the supply terminals are not to be short-circuited.		P
11	Heating		--
11.5	By means of an external power supply, battery-operated appliances are supplied at the terminals for the connection of the battery with the most unfavourable supply voltage between		--
	- 0,55 and 1,0 times the battery voltage, if the appliance can be used with non-rechargeable batteries;		P

Clause	Requirement – Test	Result – Remark	Verdict
	– 0,75 and 1,0 times battery voltage, if the appliance is designed for use with rechargeable batteries only.		N/A
19	Abnormal operation		--
19.1	For battery-operated appliances, the tests are carried out with the battery fully charged unless otherwise specified.		P
19.13	The battery shall not rupture or ignite.		P
19.S.101	Battery-operated 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 such a connection is unlikely to occur due to the construction of the appliance.		N/A
19.S.102	For battery-operated appliances with provision for multiple batteries, one or more of the batteries shall be reversed and the appliance shall be operated, if reversal of batteries is allowed by the construction.		N/A
25	Supply connection and external flexible cords		--
25.5	The flexible leads or flexible cord used to connect an external battery or battery box in battery-operated appliances shall be 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	Battery-operated appliances shall have suitable means for connection of the battery. If the type of battery is marked on the appliance, the means of connection shall be suitable for this type of battery.		N/A
26	Terminals for external conductors		--
26.5	Terminal devices in an appliance for the connection of the flexible leads or flexible cord connecting an external battery or battery box shall be so located or shielded that there is no risk of accidental connection between supply terminals.		N/A
30	Resistance to heat and fire		--
30.2.3.2	Addition: There shall be no battery in the area of the vertical cylinder used for the consequential needle flame test unless the battery is shielded by a barrier that meets the needle flame test of Annex E or that comprises material classified as V-0 or V-1 according to IEC 60695-11-10 provided that the test sample used for the classification was no thicker than the relevant part of the appliance.		P