

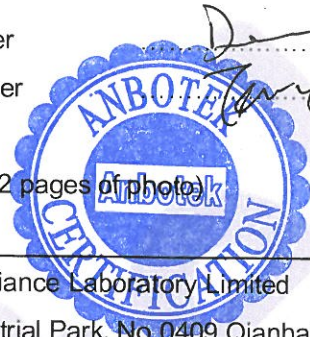
**APPLICATION FOR LOW VOLTAGE DIRECTIVE**  
**On Behalf of**  
**Shenzhen Aosion Photoelectricity Co., Ltd.**  
**Double speaker pest repeller**  
**Model: AN-A319**

**Prepared For** : **Shenzhen Aosion Photoelectricity Co., Ltd.**  
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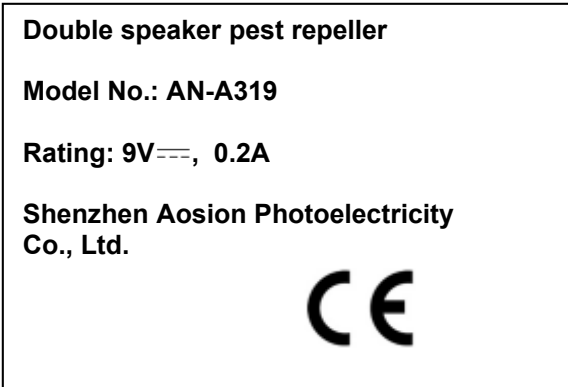
**Date of Test:** Apr. 01, 2014 to Apr. 11, 2014  
**Date of Report:** Apr. 11, 2014  
**Report Number:** 201404669S

<b>TEST REPORT</b> <b>EN 60335-2-59</b> <b>Safety of household and similar electrical appliances</b> <b>Part 2-59: Particular requirements for insect killers</b>	
<b>Report Reference No.</b> .....	: 201404669S
<b>Compiled by (+ signature)</b> .....	: Dean Qiu / Project Engineer
<b>Approved by (+ signature)</b> .....	: Terry Tian / Deputy Manager
<b>Date of issue</b> .....	: Apr. 11, 2014
<b>Contents</b> .....	: 72 pages report (including 2 pages of photo)
<b>Testing laboratory</b> .....	: Shenzhen Anbotek Compliance Laboratory Limited
<b>Address</b> .....	: 1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China
<b>Testing location/procedure</b> .....	: Shenzhen Anbotek Compliance Laboratory Limited
<b>Testing location</b> .....	: 1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China
<b>Applicant's name</b> .....	: Shenzhen Aosion Photoelectricity Co., Ltd.
<b>Address</b> .....	: 2F, Building 3, Furong Industrial Zone, Furong 7 Road, Xinqiao, Shajing Town, Bao'an District, Shenzhen
<b>Test specification:</b>	
<b>Standard</b> .....	: EN 60335-1:2012 EN 60335-2-59:2003+A1:2006+A2:2009 EN 62233:2008
<b>Test procedure</b> .....	: CE Certificate
<b>Non-standard test method</b> .....	: N.A.
<b>Test item Description</b> .....	: Double speaker pest repeller
<b>Trademark</b> .....	: N.A.
<b>Model and/or type reference</b> .....	: AN-A319
<b>Manufacturer</b> .....	: Shenzhen Aosion Photoelectricity Co., Ltd.
<b>Rating(s)</b> .....	: DC9V, 0.2A via Adapter AC220-240V, 50Hz



**Copy of marking plate**

formed as following:



**Summary of testing**

This product was tested and found to compliance with requirement of EN 60335-1:2012 and EN 60335-2-59:2003+A1:2006+A2:2009

**Particulars: test item vs. test requirements**

Electrical safety class.....	: III
IP number.....	: IPX0
Switch.....	: Yes
Thermostat.....	: No
Thermal cut-out.....	: No
Electronic circuit.....	: Yes
Timer.....	: No
Heating elements.....	: No
Motor.....	: No
Low voltage motor.....	: No
Accessories provided.....	: No
Portable appliance.....	: Yes
Attachment type.....	: Y

**Test case verdicts**

Test case does not apply to the test object.....	: N(.A.)
Test item does meet the requirement.....	: P(ass)
Test item does not meet the requirement.....	: F(ail)

**Testing**

Date of receipt of test item ..... : Apr. 01, 2014

Date(s) of performance of test..... : Apr. 01, 2014 to Apr. 11, 2014

**General remarks**

This test report shall not be reproduced except in full without the written approval of the testing laboratory.

The test results presented in this report relate only to the item tested.

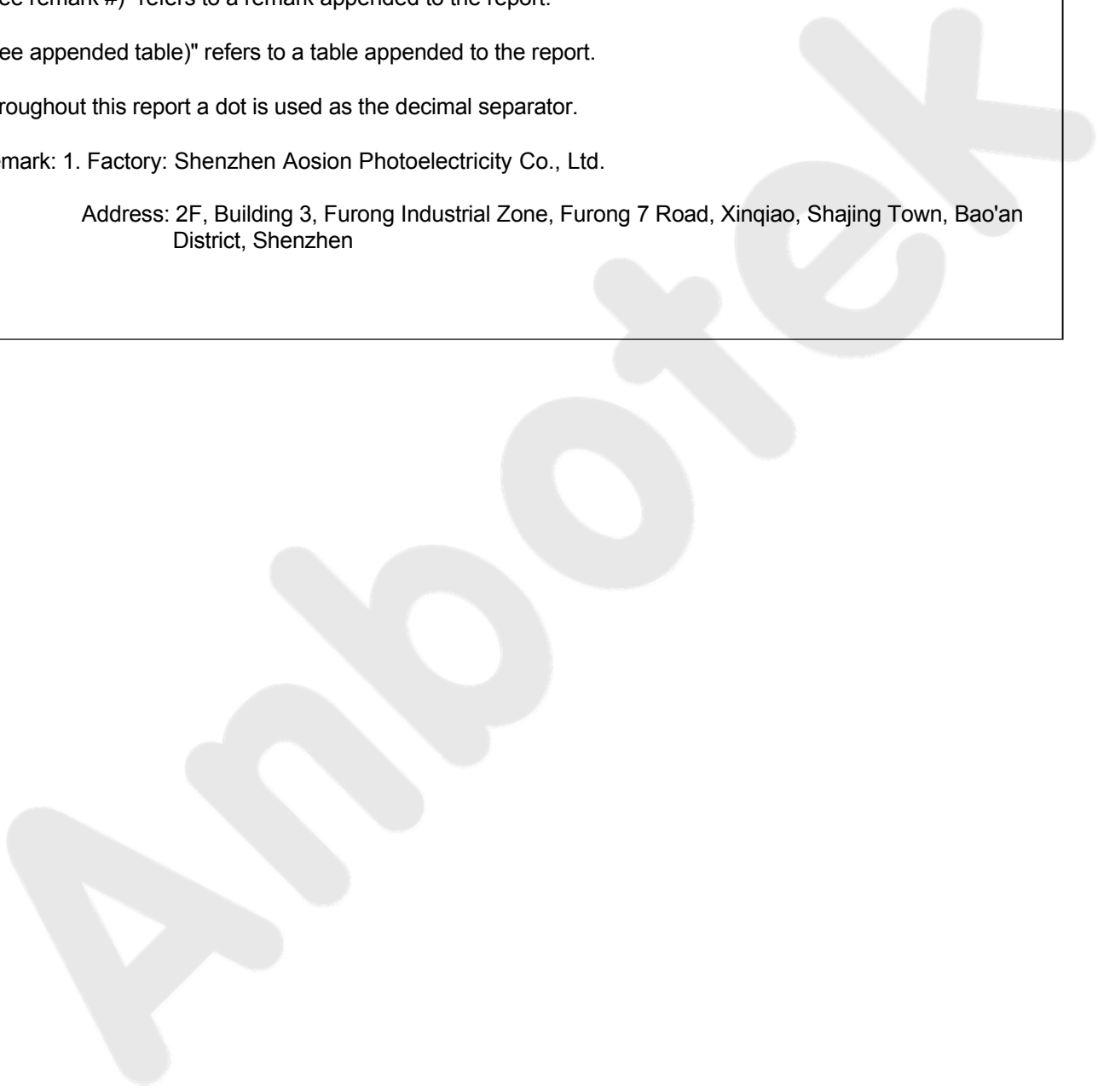
"(see remark #)" refers to a remark appended to the report.

"(see appended table)" refers to a table appended to the report.

Throughout this report a dot is used as the decimal separator.

Remark: 1. Factory: Shenzhen Aosion Photoelectricity Co., Ltd.

Address: 2F, Building 3, Furong Industrial Zone, Furong 7 Road, Xinqiao, Shajing Town, Bao'an District, Shenzhen



EN 60335-2-59			
Clause	Requirement - Test	Result - Remark	Verdict
<b>5</b>	<b>GENERAL CONDITIONS FOR THE TESTS</b>		---
	Tests performed according to Cl. 5, e.g nature of supply, sequence of testing, etc.	A.C.	P
<b>6</b>	<b>CLASSIFICATION</b>		---
6.1	- Protection against electric shock: Class I, II, III.....:	Class III	P
6.2	Protection against harmful ingress of water	IPX0	P
<b>7</b>	<b>MARKING AND INSTRUCTIONS</b>		---
7.1	Rated voltage or voltage range (V) .....	220-240V	P
	Single-phase appliances: 230 V covered		P
	Multi-phase appliances: 400 V covered	Not this type	N
	Nature of supply.....	~	P
	Rated frequency (Hz).....	50Hz	P
	Rated power input (W).....		N
	Rated current (A).....	0.2A	P
	Manufacturer's or responsible vendor's name, trademark or identification mark.....	Shenzhen Aosion Photoelectricity Co., Ltd. Trademark: N.A.	P
	Model or type reference.....	AN-A319	P
	Symbol 5172 of IEC 60417, for Class II appliances		P
	IP number, other than IPX0.....	Ordinary appliance, IPX0	P
	- the name, trademark or identification mark of the manufacturer or responsible vendor;		P
	Addition: Appliances shall be marked with symbol 5036 of IEC 60417-1 or with the substance of the following : DANGER: High voltage(EN 60335-2-59)		N
	Appliance provided with replaceable lamps shall be marked with type reference of the lamp(EN 60335-2-59)		P
	- the model or type reference.		P
7.2	Warning placed in vicinity of terminal cover		N
7.3	Range of rated values correctly marked with the lower and upper limits separated by a hyphen		N

EN 60335-2-59			
Clause	Requirement - Test	Result - Remark	Verdict
	Different rated values marked with the values separated by an oblique stroke		N
7.4	Appliances adjustable for different rated voltages, the voltage setting is clearly discernible	No such adjustor	N
7.5	Appliances with more than one rated voltage or one or more than voltage ranges, marked with rated input or rated current for each rated voltage or range, unless		N
	The power input is related to the mean value of the rated voltage range		N
	Relation between marking for upper and lower limits of rated power input or rated current and voltage is clear		N
7.6	Correct symbols used	Correct symbols used	P
	symbol 5036 of IEC 60417-1		N
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply		N
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 (N)		P
	- marking of protective earthing terminals(symbol 5019 of IEC 60417)		N
	- marking not placed on removable parts		N
7.9	Marking or placing of switches which may cause a hazard		N
7.10	Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means.....:		N
	The figure 0 indicates only OFF position, unless no confusion with the OFF position		N
7.11	Indication for direction of adjustment of controls		N
7.12	Instructions for safe use provided	Stated at instruction	P
	- staff kitchen areas in shops, offices and other working environments;		P
	- farm houses;		P
	- by clients in hotels, motels and other residential type environments;		P

EN 60335-2-59			
Clause	Requirement - Test	Result - Remark	Verdict
	- bed and breakfast type environments.		P
	The instructions shall state whether the appliance is for indoor use only or suitable for outdoor use. (EN 60335-2-59)		P
	The instructions for appliances for indoor use only shall state that they are not suitable for use in barns, stables and similar locations. (EN 60335-2-59)		P
	The instructions for appliances intended for outdoor use shall include the substance of the following:  WARNING: An electric shock hazard may exist if water from a garden hose is directed at the insect killer. When using extension cords, keep the socket-outlet away from moisture and avoid damage to the cord. (EN 60335-2-59)		P
	The instructions shall state the substance of the following:		--
	-the appliance is to be kept out of reach of children;		P
	- the appliance is not to be used in locations where flammable vapour or explosive dust is likely to exist		P
	The instructions shall give details concerning		--
	-the method and frequency of cleaning, together with the precautions to be taken		P
	-precautions to be taken when replacing lamps and starters, if applicable		P
	If symbol 5036 of IEC 60417-1 is used, its meaning shall be explained		P
7.12.1	Sufficient details for installation supplied	All necessary information are provided in the manual	P
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	Considered as portable appliance	N
7.12.3	Insulation of the fixed wiring in contact with parts exceeding 50K during clause 11; instructions stating that the fixed wiring must be protected		N

EN 60335-2-59			
Clause	Requirement - Test	Result - Remark	Verdict
7.12.4	Instructions for built-in appliance:		---
	- dimensions of space		N
	- dimensions and position of supporting means		N
	- distances between parts and surrounding structure		N
	- dimensions of ventilation openings and arrangement		N
	- connection to supply mains and interconnection of separate components		N
	- plug accessible after installation, unless		N
	a switch complying with 24.3		N
7.12.5	Replacement cord instructions, type X attachment with a specially prepared cord		N
	Replacement cord instructions, type Y attachment		N
	Replacement cord instructions, type Z attachment		N
7.12.6	Caution in the instructions for heating appliances with a non-self-resetting thermal cut-out		N
7.12.7	Instructions for fixed appliances stating how the appliance is to be fixed		N
7.12.8	Instructions for appliances connected to the water mains:	Does not intended to the water mains	N
	- max. inlet water pressure (Pa)..... :		N
	- min. inlet water pressure, if necessary (Pa)..... :		N
	Instructions concerning new and old hose-sets for appliances connected to the water mains by detachable hose-sets		N
7.13	Instructions and other texts in an official language	English	P
7.14	Marking clearly legible and durable	Rubbed the marking by hand for 15 s with a piece of cloth soaked with water and again for 15 s with a piece of cloth soaked with petroleum spirit  After tests, the marking clearly legible	P
	The height of symbol 5036 of IEC 60417-1 shall be at least 10 mm(EN 60335-2-59)		N



EN 60335-2-59			
Clause	Requirement - Test	Result - Remark	Verdict
	The height of the lettering of the warning relating to high voltage shall be at least 3 mm(EN 60335-2-59)		P
7.15	Marking on a main part		P
	Marking clearly discernible from the outside, if necessary after removal of a cover	Clearly discernible from the outside	P
	For portable appliances, cover can be removed or opened without a tool		N
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation		N
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions		N
	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	Indications near the components, see additional products photos below	P
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		P
<b>8</b>	<b>PROTECTION AGAINST ACCESS TO LIVE PARTS</b>		---
8.1	Adequate protection against accidental contact with live parts		P
8.1.1	Requirements applies for all positions, detachable parts removed		N
	Insertion or removal of lamps, protection against contact with live parts of the lamp cap	No lamps used	N
	Use of test probe B of IEC 61032:no contact with live parts		N
	When the grid voltage is obtained from an isolating transformer, the test probe may touch earthed parts of the secondary circuit. (EN 60335-2-59)		N
8.1.2	Use of test probe 13 of IEC 61032 through openings in class 0 appliances and class II appliances/constructions		P
	Test probe 13 also applied through openings in earthed metal enclosures having a non-conductive coating: no contact with live parts		N

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Clause	Requirement - Test	Result - Remark	Verdict
8.1.3	For appliances other than class II, use of test probe 41 of IEC 61032:no contact with live parts of visible glowing heating elements		N
8.1.4	Accessible part not considered live if:		---
	- safety extra-low a.c. voltage: peak values not exceeding 42.4 V		N
	- safety extra-low d.c. voltage: not exceeding 42.4 V		N
	- or separated from live parts by protective impedance		N
	If protective impedance : d.c. current not exceeding 2mA, and		N
	a.c. peak value not exceeding 0.7mA		N
	- for peak value 42,4 V up to and including 450 V capacitance not exceeding 0,1 µF		N
	- for peak value over 450 V up to and including 15 kV, discharge not exceeding 45 µC		N
8.1.5	Live parts protected at least by basic insulation before installation or assembly :		---
	- built-in appliances		N
	- fixed appliances		N
	- appliances delivered in separate units		N
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		N
	Only possible to touch parts separated from live parts by double or reinforced insulation		P
<b>9</b>	<b>STARTING OF MOTOR-OPERATED APPLIANCES</b>		---
	Requirements and tests are specified in part 2 when necessary		N
<b>10</b>	<b>POWER INPUT AND CURRENT</b>		---
10.1	Power input at normal operating temperature, rated voltage and normal operation not deviating from rated power input by more than shown in table 1	(See appended table)	P
10.2	Current at normal operating temperature, rated voltage and normal operation not deviating from rated current by more than shown in table 2		N

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Clause	Requirement - Test	Result - Remark	Verdict
<b>11</b>	<b>HEATING</b>		---
11.1	No excessive temperatures in normal use	(See appended table)	P
11.2	Placing and mounting of appliance as described		P
11.3	Temperature rises, other than of windings, determined by thermocouples		P
	Temperature rises of windings determined by resistance method, unless		N
	The windings makes it difficult to make the necessary connections		N
11.4	Heating appliances operated under normal operation at 1,15 times rated power input.....:		N
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0,94 and 1,06 times rated voltage.....:		P
11.6	Combined appliances operated under normal operation at most unfavourable voltage between 0,94 and 1,06 times rated voltage.....:		N
11.8	Temperature rises not exceeding values in table 3	(see appended table)	P
	Protective devices do not operate		P
	Sealing compound does not flow out		P
	Components in protective electronic circuits tested for the number of cycles specified in 24.1.4		P
	The temperature rise of surfaces likely to collect dust or insects shall not exceed 60 K		P
	Surfaces having an inclination of at least 60° to the horizontal and parts having a diameter less than 10 mm are not considered likely to collect dust or insects		P
<b>13</b>	<b>LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE</b>		---
13.1	Leakage current not excessive and electric strength adequate		P
	Heating appliances operated at 1.15 times rated power input..... :		N
	Motor-operated appliances and combined appliances supplied at 1.06 times rated voltage:		N
	Protective impedance and radio interference filters disconnected before carrying out the tests		N

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Clause	Requirement - Test	Result - Remark	Verdict
13.2	Leakage current measured by means of circuit described in figure 4 of IEC 60990		N
	Leakage current measurements		P
13.3	Electric strength test according to table 4		P
	No breakdown during the test		P
<b>14</b>	<b>TRANSIENT OVERVOLTAGES</b>		---
	Appliances withstand the transient overvoltages to which they may be subjected		N
	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
	No flashover during the test, unless of functional insulation		N
	In case of flashover of functional insulation, the appliance complies with clause 19 with the clearance short circuited		N
<b>15</b>	<b>MOISTURE RESISTANCE</b>		---
15.1	Enclosure provides the degree of moisture protection according to classification of appliance		P
	Compliance checked as specified in 15.1.1, taking into account 15.1.2, followed by the electric strength test of 16.3		N
	No trace of water on insulation which can result in a reduction of clearances and creepage distance below values specified in clause 29		N
	Water on the grids is ignored		N
15.1.1	Appliances, other than IPX0, subjected to tests as specified in IEC 60529.....:		N
	Water values in external hoses for connection of an appliance to the water mains tested as specified for IPX7 appliances		N
15.1.2	Hand-held appliance turned continuously through the most unfavourable positions during the test		N
	Built-in appliance installed according to the instruction		N
	Appliances placed or used on the floor table placed on a horizontal unperforated support		N

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Clause	Requirement - Test	Result - Remark	Verdict
	Appliances normally fixed to a wall and appliances with pins for insertion into socket-outlets are mounted on a wooden board		P
	For IPX3 appliances, the base of wall mounted appliances is placed at the same level as the pivot axis of the oscillating tube		N
	For IPX4 appliances, the horizontal centre line of the appliances is aligned with the pivot axis of the oscillating tube		N
	However, 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
	Wall-mounted appliances, take into account the distance to the floor stated in the instructions		N
	Appliances with type X attachment fitted with a flexible cord as described		N
	Detachable parts tests as specified		N
15.2	Spillage of liquid does not affect the electrical insulation		N
	Appliances with type X attachment fitted with a flexible cord as described		N
	Appliance incorporating an appliance inlet tested with or without an connector, whichever is most unfavourable		N
	Detachable parts removed		N
	Overfilling test with additional amount of water, over a period of 1 min (l)..... :		N
	The appliance withstands the electrics strength test of 16.3		N
	No trace of water on insulation which can result in reduction of distances and clearances below values specified in 29		N
15.3	Appliance proof against humid conditions		P
	Humidity treatment for 48 h	RH: 93%, temperature: 25°C	P
	The appliance withstands the test of Cl. 16		P
<b>16</b>	<b>LEAKAGE CURRENT AND ELECTRIC STRENGTH</b>		---
16.1	Leakage current not excessive and electric strength adequate		P

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Clause	Requirement - Test	Result - Remark	Verdict
	Protective impedance disconnected from live parts before carrying out the tests		P
16.2	Single-phase appliance: test voltage 1.06 times rated voltage..... :		P
	Three-phase appliances: test voltage 1.06 times rated voltage divided by $\sqrt{3}$ ..... :		N
	Leakage current measurements		N
16.3	Electric strength tests according to table 7		P
	No breakdown during the tests		P
16.101	The transformer shall have adequate internal insulation(EN 60335-2-59)		N
	Twice the working voltage is induced in the secondary winding of the transformer by applying a sinusoidal voltage having a frequency higher than rated frequency to the primary terminals		N
	The duration of the test is		--
	–60 s, for frequencies up to twice the rated frequency, or		N
	–(120 × rated frequency/ test frequency )s, with a minimum of 15 s, for higher frequencies		N
	The frequency of the test voltage is higher than the rated frequency to avoid excessive excitation current		N
	A maximum of one-third of the test voltage is applied and is then rapidly increased without creating transients. At the end of the test, the voltage is decreased in a similar manner to approximately one-third of its full value before switching off		N
	There shall be no breakdown between windings or between adjacent turns of the same winding		N
<b>17</b>	<b>OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS</b>		---
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use		N
	Appliance supplied with 1.06 or 0.94 times rated voltage and the most unfavourable short-circuit or overload likely to occur in normal use applied..... :		N

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Clause	Requirement - Test	Result - Remark	Verdict
	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
	Temperature of the winding not exceeding the value specified in table 8		N
	However limits do not apply to fail-safe transformers complying with sub-clause 15.5 of IEC 61558-1		N
<b>18</b>	<b>ENDURANCE</b>		---
	Requirements and tests are specified in part 2 when necessary		N
<b>19</b>	<b>ABNORMAL OPERATION</b>		---
19.1	The risk of fire or mechanical damage under abnormal or careless operation obviated		P
	Electronic circuits so designed and applied that a fault not render the appliance unsafe		P
19.2	Test of appliance with heating elements with restricted heat dissipation; test voltage (V): power input of 0,85 times rated power input .....	No heating elements	N
19.3	Test of 19.2 repeated; test voltage (V): power input of 1,24 times rated power input .....	As above	N
19.4	Test conditions as in cl. 11, any control limiting the temperature during tests of cl. 11 short-circuited	As above	N
	Pressure regulators of pressure cookers are rendered inoperative together with each protective device in turn.		N
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 elements sheath	As above	N
	The test repeated with reversed polarity and the other end of the heating element connected to the sheath		N
	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
19.6	Appliances with PTC heating elements tested at rated voltage, establishing steady conditions	No PTC heating elements	N

EN 60335-2-59			
Clause	Requirement - Test	Result - Remark	Verdict
	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		N
19.7	Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque or locking moving parts of other appliances	(See appended table)	P
	Locked rotor, motor capacitors open circuited or short-circuited, if required		N
	Locked rotor, capacitors open-circuited one at a time		N
	Test repeated with capacitors short-circuited one at a time, if required		N
	Appliances with timer or controller supplied with rated voltage for each of the tests, for a period equal to the maximum period allowed		N
	Other appliances supplied with rated voltage for a period as specified		N
	Winding temperatures not exceeding values specified in table 8		N
19.8	Three-phase motors operated at rated voltage with one phase disconnected	No three-phase motors	N
19.9	Running overload test on appliance incorporating motors intended to be remotely or automatically controlled or liable to be operated continuously		N
	Winding temperatures not exceeding values as specified		N
19.10	Series motor operated at 1.3 times rated voltage for 1 min..... :	No series motor	N
	During the test, parts shall not be ejected from the appliance		N
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 they comply with the conditions specified in 19.11.1		N
	Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.3 and 19.11.4		N



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Clause	Requirement - Test	Result - Remark	Verdict
	Appliances having a switch having an off position obtained by electronic disconnection, or switch placing the appliance in a stand-by mode, subjected to the tests of 19.11.4		N
19.11.1	Before applying the fault conditions a) to f) in 19.11.2, it is checked if circuits or parts of circuit meet 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
	- the protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction in other parts of the appliance does not rely on the correct functioning of the electronic circuit		N
19.11.2	Fault conditions applied one at a time, the appliance operated under conditions specified in Cl. 11, but supplied at rated voltage, the duration of the tests as specified:		---
	a) short-circuit of functional insulation if clearances or creepage distances are less than the values specified in 29		N
	b) open circuit at the terminals of any component		P
	c) short-circuit of capacitors, unless they comply with IEC 60384-14		P
	d) short-circuit of any two terminals of an electronic component, other than integrated circuits. This fault condition is not applied between the two circuits of an optocoupler		N
	e) failure of triacs in the diode mode		N
	f) failure of an integrated circuit. The possible hazardous situations of the appliance are assessed to ensure that safety does not rely on the correct functioning of such a component		N
	g) failure of an electronic power switching device in a partial turn-on mode with loss of gate (base) control.		N
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 f) of 19.11.2		N
	During and after each test the following is checked:		---
	-the temperature rises of the windings do not exceed the values specified in table 8		N

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Clause	Requirement - Test	Result - Remark	Verdict
	-the appliance complies with the conditions specified in 19.13		N
	-any current flowing through protective impedance not exceeding the limits specified in 8.1.4		N
	If a conductor of a printed board becomes open-circuited, the appliance is considered to have withstood the particular test, provided all three of the following conditions are met:		---
	-the material of the printed circuit board withstands the burning test of annex E		N
	-any loosened conductor does not reduce the clearances or creepage distances between live parts and accessible metal parts below the values specified in cl.29		N
	-the appliance withstands the tests of 19.11.2 with open-circuited conductor bridged		N
19.11.4	Appliances having a switch with an off position obtained by electronic disconnection, or		N
	A switch that can be placed in the stand-by mode,		N
	Subjected to the tests of 19.11.4.1 to 19.11.4.7		N
	Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.4.1 to 19.11.4.7, except that		N
	Appliances operated for 30 s or 5 min during the test of 19.7 are not subjected to the tests for electromagnetic phenomena		N
19.11.4.1	The appliance is subjected to electrostatic discharges in accordance with IEC 61000-4-2, test level 4		N
19.11.4.2	The appliance is subjected to radiated fields in accordance with IEC 61000-4-3, test level 3		N
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
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
	Earthing heating elements in class I appliances disconnected		P
19.11.4.5	The appliance is subjected to injected currents in accordance with IEC 61000-4-6, test level 3		N

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Clause	Requirement - Test	Result - Remark	Verdict
19.11.4.6	The appliance is subjected to voltage dips and interruptions in accordance with IEC 61000-4-11		N
19.11.4.7	The appliance is subjected to the mains signals in accordance with IEC 61000-4-13, test level class 2		N
19.11.4.8	The appliance is subjected voltage reducing test		N
	The appliance shall continue to either operate normally from the same point in its operating cycle at which the voltage decrease occurred or a manual operation shall be required to restart it.		N
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) ..... :		N
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)	N
	Enclosures not deformed to such an extent that compliance with cl.8 is impaired		N
	If the appliance can still be operated it complies with 20.2		P
	Insulation, other than of class III appliance, withstand the electric strength test of 16.3, the test voltage specified in table 4:		--
	- basic insulation.....:	1000V	P
	- supplementary insulation.....:	1750V	P
	-reinforced insulation.....:	3000V	P
	The appliance does not undergo a dangerous malfunction, and		P
	No failure of protective electronic circuits, if the appliance is still operable		N
	Clearances and creepage distances across the functional insulation shall withstand the electric strength test of 16.3.		N
	Appliances tested with an electronic switch in the off position, or in the stand-by mode, shall		N
	- not become operational, or		N

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Clause	Requirement - Test	Result - Remark	Verdict
	- if they become operational, not result in a dangerous malfunction during or after the tests of 19.11.4.		N
	- placing objects in areas near motorized appliances that are not expected to start.		N
19.14	Appliances are operated under the conditions of Clause 11. Any contactor or relay contact that operates under the conditions of Clause 11 is short-circuited.		N
19.101	Kettles are placed on a plywood board having a thickness of approximately 20 mm. The thermal cut-out that operates during the test of 19.4 is short circuited and the kettle is operated empty at 0,85 times rated power input or 1,15 times rated power input, whichever is more unfavourable.		N
	During the test, any flames shall be kept within the enclosure of the kettle and the supporting surface shall not ignite.		N
	After the test, live parts shall not be accessible.		N
19.102	Kettles incorporating two self-resetting thermal cut-outs are operated with one of the thermal cut-outs short circuited. The kettle is operated empty at 0,85 times rated power input or 1,15 times rated power input, whichever is more unfavourable.		N
	Within 2 s of the other thermal cut-out operating, the kettle is filled with water having a temperature of 15 °C ± 5 °C. After 1 min, the kettle is emptied.		N
	The test is carried out 100 times.		N
19.103	For appliances with detachable liquid containers, the automatic transfer of liquid from one container to another shall not give rise to an electrical hazard if they are incorrectly positioned.		N
	Compliance is checked by assembling the appliance with its receiving container incorrectly positioned or removed. The water discharge pipe is incorrectly positioned if this is more unfavourable. The appliance is operated as specified in Clause 11 but for one cycle only.		N
	The appliance shall then withstand the electric strength test of 16.3 and inspection shall show that there is no trace of water on insulation that could result in the reduction of clearances and creepage distances below the values specified in Clause 29.		N

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Clause	Requirement - Test	Result - Remark	Verdict
<b>20</b>	<b>STABILITY AND MECHANICAL HAZARDS</b>		---
20.1	Adequate stability		P
	Tilting test through an angle of 10° (appliance placed on an inclined plane/horizontal plane); appliance does not overturn		N
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°		N
	Possible heating test in overturned position; temperature rise does not exceed values shown in table 9		N
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	Fixed by screws	P
	Adequate mechanical strength and fixing of protective enclosures		P
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard, by unexpected reclosure		N
	Not possible to touch dangerous moving parts with test probe		P
<b>21</b>	<b>MECHANICAL STRENGTH</b>		---
21.1	Appliance has adequate mechanical strength and is constructed as to withstand rough handling		P
	No damage after three blows applied to various parts of the enclosure, impact energy 0,5 ± 0,04 J		P
	Test also carried out on detachable parts that are necessary for protection against mechanical hazards		N
	If necessary, supplementary or reinforced insulation subjected to the electric strength test of 16.3		N
	If necessary, repetition of groups of three blows on a new sample		N
21.2	Accessible parts of solid insulation having strength to prevent penetration by sharp implements		N
	The insulation is tested as specified, unless		N

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Clause	Requirement - Test	Result - Remark	Verdict
	The thickness of supplementary insulation is at least 1 mm and reinforced insulation is at least 2 mm		P
<b>22</b>	<b>CONSTRUCTION</b>		---
22.1	Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60529 are fulfilled	Ordinary appliance, IPX0	N
22.2	Stationary appliance: means to provide all-pole disconnection from the supply provided, the following means being available:		<b>P</b>
	- a supply cord fitted with a plug		N
	- a switch complying with 24.3		N
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided		N
	- an appliance inlet		N
	Single-pole switches and single-pole protective devices for the disconnection of heating elements in single-phase permanently connected class 0I appliances and class I appliances, connected in the phase conductor		N
22.3	Appliance provided with pins: no undue strain on socket-outlets		N
	Applied torque not exceeding 0,25 Nm		N
	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
	Each pin subjected to a torque of 0.4Nm; the pins are not rotating unless rotating does not impair compliance with the standard		N
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets		N
22.5	No risk of electric shock when touching the pins of the plug	No capacitor used in this appliance	N
22.6	Electrical insulation not affected by condensing water or leaking liquid	Not this type	N
	Electrical insulation of Class II appliances not affected in case of a hose rupture or seal leak		N

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Clause	Requirement - Test	Result - Remark	Verdict
	Drain holes shall be at least 5 mm in diameter or 20 mm <sup>2</sup> in area with a width of at least 3 mm.	No drain holes used in this appliance	N
22.7	Adequate safeguards against the risk of excessive pressure in appliances provided with steam-producing devices		N
22.8	Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and that are likely to be cleaned in normal use		N
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances	No oil, grease and similar substances used	N
	Adequate insulating properties of oil or grease to which insulation is exposed		N
22.10	Not possible to reset voltage-maintained non-self-resetting thermal cut-outs by the operation of an automatic switch device incorporated within the appliance		N
	Non-self-resetting thermal motor protectors have a trip-free action, unless		N
	They are voltage maintained		N
	Location or protection of reset buttons of non-self-resetting controls is so that accidental resetting is unlikely		N
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	No snap-in devices	N
	No deterioration of the fixing properties of snap-in devices used in parts that are likely to be removed during installation or servicing		N
	Tests as described		N
22.12	Handles, knobs etc. fixed in a reliable manner		P
	Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible		N
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		N
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		N

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Clause	Requirement - Test	Result - Remark	Verdict
22.13	Unlikely that handles, when gripped as in normal use, make the operators hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only		N
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance		P
	No exposed pointed ends of self tapping screws etc., liable 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	No storage hooks used	N
22.16	Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands, no undue wear of contacts	No automatic cord reels used	N
	Cord reel tested with 6000 operations, as specified		N
	Electric strength test of 16.3, voltage of 1000 V applied		N
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner	No spacers used	N
22.18	Current-carrying parts and other metal parts resistant to corrosion under normal conditions of use		P
22.19	Driving belts not used as electrical insulation	No driving belts	N
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless material used is non-corrosive, non-hygroscopic and non-combustible		N
	Compliance is checked by inspection and, if necessary, by appropriate test		N
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless impregnated		P
	This requirement does not apply to magnesium oxide and mineral ceramic fibres used for the electrical insulation of heating elements.		N
22.22	Appliance not containing asbestos		P
22.23	Oils containing polychlorinated biphenyl (PCB) not used		P
22.24	Bare heating elements adequately supported	No heating elements	N



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Clause	Requirement - Test	Result - Remark	Verdict
	In case of rupture, the heating conductor is unlikely to come in contact with accessible metal parts		N
22.25	Sagging heating conductors cannot come into contact with accessible metal parts	As above	N
22.26	The insulation between parts operating at safety extra-low voltage and other live parts complies with the requirements for double or reinforced insulation	Primary and secondary of transformer complies with the requirements for reinforce insulation	N
22.27	Parts connected by protective impedance separated by double or reinforced insulation		N
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
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
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		N
22.31	Creepage distances and clearances over supplementary and reinforced insulation not reduced below values specified for supplementary insulation		P
22.32	Supplementary and reinforced insulation designed or protected against deposition of dirt or dust		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		P
	Ceramic material not tightly sintered, similar material or beads alone not used as supplementary or reinforced insulation		N
	Insulating material in which heating conductors are embedded is considered to be basic insulation and not reinforced insulation.		N

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Clause	Requirement - Test	Result - Remark	Verdict
	Oxygen bomb test at 70°C for 96 h and 16 h at room temperature		N
22.33	Conductive liquids which are or may become accessible in normal use are not in direct contact with live parts		N
	Electrodes not used for heating liquids		N
	For class II constructions, conductive liquids that are or may become accessible in normal use, not in direct contact basic or reinforced insulation		N
	For class II construction, Conductive liquids which are in contact with live parts, not in direct contact with reinforced insulation		N
22.34	Shafts of operating knobs, handles, levers etc. not live, unless the shaft is not accessible when the part is removed	No such device	N
22.35	handles, levers and knobs that are held or actuated in normal use shall not become live in the event of a failure of basic insulation.	As above	N
	If these handles, levers and knobs are of metal and if their shafts or fixings are likely to become live in the event of a failure of basic insulation, they shall be adequately covered by insulating material or their accessible parts shall be separated from their shafts or fixings by supplementary insulation.		N
	This requirement does not apply to handles, levers and knobs on stationary appliances other than those of electrical components, provided they are either reliably connected to an earthing terminal or earthing contact, or separated from live parts by earthed metal		N
22.36	Handles continuously held in the hand in normal use are so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts, unless they are separated from live parts by double or reinforced insulation	No such handles	N
22.37	Capacitors in Class II appliances not connected to accessible metal parts, unless complying with 22.42	No capacitors used in this appliance	N
	Metal casings of capacitors in Class II appliances separated from accessible metal parts by supplementary insulation, unless complying with 22.42		N

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Clause	Requirement - Test	Result - Remark	Verdict
22.38	Capacitors not connected between the contacts of a thermal cut-out	As above	N
22.39	Lamp holders only used for the connection of lamps	No lamp holders	N
22.40	Motor-operated appliances and combined appliances, intended to be moved while in operation or which have accessible moving parts, are fitted with a switch to control the motor, the actuating member of the switch being easily visible and accessible		P
	Unless the appliance can operate continuously, automatically or remotely without giving rise to a hazard, appliances for remote operation shall be fitted with a switch for stopping the operation of the appliance. The actuating member of this switch shall be easily visible and accessible.		N
22.41	No components, other than lamps, containing mercury		P
22.42	Protective impedance consisting of at least two separate components		N
	Values specified in 8.1.4 not exceeded if any one of the components is short-circuited or open circuited		N
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur	No such components	N
22.44	Appliances shall not have an enclosure that is shaped or decorated like a toy.		P
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	Fulfilled such requirements	P
22.46	Software used in protective electronic circuits is software class B or C.....:		N
22.47	Appliances connected to the water mains withstand the water pressure expected in normal use		N
	No leakage from any parts, including any inlet water hoses		N
22.48	Appliances connected to the water mains constructed to prevent backsiphonage of non-potable water		N

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Clause	Requirement - Test	Result - Remark	Verdict
22.49	For remote operation, the duration of operation shall be set before the appliance can be started unless the appliance switches off automatically at the end of a cycle or it can operate continuously without giving rise to a hazard.		N
22.50	Controls incorporated in the appliance, if any, shall take priority over controls actuated by remote operation.		N
22.51	A control on the appliance shall be manually adjusted to the setting for remote operation before the appliance can be operated in this mode. There shall be a visual indication on the appliance showing that the appliance is adjusted for remote operation. The manual setting and the visual indication of the remote mode are not necessary on appliances that can		N
	- operate continuously, or		N
	- operate automatically, or		N
	- be operated remotely,		N
	without giving rise to a hazard.		N
22.52	Socket-outlets on appliances accessible to the user shall be in accordance with the socket-outlet system used in the country in which the appliance is sold.		N
22.101	Interlock switches that prevent access to live parts during user maintenance shall be connected in the input circuit and located to prevent unintentional operation		P
22.102	Appliances having grids in the form of horizontal bars, and one pole of the output of the transformer connected to accessible parts, shall have the lowest bar connected to earth	Class II appliance	N
	Compliance is checked by inspection		
22.103	Appliances shall be constructed so that there is no risk of electric shock when touching the grids during user maintenance		P
	Compliance is checked by the following test		--

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Clause	Requirement - Test	Result - Remark	Verdict
	The appliance is supplied at rated voltage. It is then disconnected from the supply mains. One second after disconnection, the voltage between the grids is measured with an instrument that does not appreciably affect the value to be measured		--
	The voltage shall not exceed 34 V		P
<b>23</b>	<b>INTERNAL WIRING</b>		---
23.1	Wireways smooth and free from sharp edges		P
	Wires protected against contact with burrs, cooling fins etc.		P
	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 or corners		N
	Beads inside flexible metal conduits contained within an insulating sleeve		N
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress		N
	Flexible metallic tubes not causing damage to insulation of conductors		N
	Open-coil springs not used		N
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N
	Electric strength test, 1000 V between live parts and metal parts		N
23.4	Bare internal wiring sufficiently rigid and fixed	No bare internal wiring	N
23.5	The insulation of internal wiring withstanding the electrical stress likely to occur in normal use		P
	No breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation		P
	For circuits having a voltage over 1 000 V, the test voltage is ( $\sqrt{2} U+750$ ) and is applied for 1 min(EN 60335-2-59)		N

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Clause	Requirement - Test	Result - Remark	Verdict
23.6	Sleeving used as supplementary insulation on internal wiring retained in position by positive means		P
23.7	Only the colour combination green/yellow used for earthing conductors		P
23.8	Aluminium wires not used for internal wiring	No aluminium wires	P
23.9	No lead-tin soldering of stranded conductors where they are subject to contact pressure, unless		N
	clamping means so constructed that there is no risk of bad contact due to cold flow of the solder		P
23.10	The insulation and sheath of internal wiring, incorporated in external hoses for the connection of an appliance to the water mains, shall be at least equivalent to that of light polyvinyl chloride sheathed flexible cord (code designation 60227 IEC 52).		N
<b>24</b>	<b>COMPONENTS</b>		---
24.1	Components comply with safety requirements in relevant IEC standards		P
	List of components	(see appended table)	P
	Components not tested and found to comply with relevant IEC standard for the number of cycles specified are tested in accordance with 24.1.1 to 24.1.9		P
	Components not tested and found to comply with relevant IEC standard, components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance		N
	Lampholders and starterholders that have not been previously tested and found to comply with the relevant IEC standard are tested as a part of the appliance and shall additionally comply with the gauging and interchangeability requirements of the relevant IEC standard under the conditions occurring in the appliance.	No such components	N
24.1.1	Capacitors likely to be subjected to the supply mains voltage and used for radio interference suppression or voltage dividing, comply with IEC 60384-14, or		N
	Tested according to annex F		N
24.1.2	Safety isolating transformers comply with IEC 61558-2-6, or		N

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Clause	Requirement - Test	Result - Remark	Verdict
	Tested according to annex G		N
24.1.3	Switches: compliance with IEC 61058, the number of cycles of operation being at least 10000, or		N
	Tested according to annex H		N
	If the switch operates a relay or contactor, the complete switching system is subjected to the test		N
24.1.4	Automatic controls complying with IEC 60730-1 with relevant part 2. The number of cycles operation being:		N
	- thermostats: 10 000		N
	- temperature limiters: 1000		N
	- self-resetting thermal cut-outs: 300		N
	- voltage maintained non-self-resetting thermal cut-outs: 1000		N
	- non-self-resetting thermal cut-outs: 30		N
	- timers: 3000		N
	- energy regulators: 10 000		N
	Thermal motor protectors are tested in combination with their motor under the conditions specified in Annex D		N
	For water values 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
24.1.5	Appliance couplers: complying with IEC 60320-1		N
	However, appliance classified higher than IPX0, the appliance couplers complying with IEC 60320-2-3		N
	Interconnection couplers complying with IEC 60320-2-2		N
	- the earthing contact of the connector is allowed to be accessible, provided that this contact is not likely to be gripped during insertion or withdrawal of the connector;		N
	- the temperature required for the test of Clause 18 is that measured on the pins of the appliance inlet during the test of Clause 11 of this standard;		N
	- the breaking-capacity test of Clause 19 is carried out using the inlet of the appliance;		N

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Clause	Requirement - Test	Result - Remark	Verdict
	- the temperature rise of current-carrying parts specified in Clause 21 is not determined.		N
24.101	Devices incorporated in appliances, other than kettles, for compliance with 19.4, shall be non-self resetting.		N
	However, self-resetting thermal cut-outs are allowed for fixed water boilers if they have been subjected to 10 000 cycles of operation.		N
24.1.6	Small lamp holder similar to E10 lampholders complying with IEC 60238, the requirements for E10 lampholders being applicable	No lamp holder	N
24.1.7	If the remote operation of the appliance is via a telecommunication network, the relevant standards or the telecommunication interface circuitry in the appliance are EN 41003 and EN 60950-1:2006 (EN 60335-1+A13:2008)		N
24.1.8	The relevant standard for thermal links is IEC 60691. Thermal links that do not comply with IEC 60691 are considered to be an intentionally weak part for the purposes of Clause 19.		N
24.1.9	Relays, other than motor starting relays, are tested as part of the appliance.		N
	However, they are also tested in accordance with Clause 17 of IEC 60730-1 under the maximum load conditions occurring in the appliance for at least the number of operations in 24.1.4 selected according to the relay function in the appliance.		N
24.2	No switches or automatic controls in flexible cords		N
	No devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance		P
	No thermal cut-outs which can be reset by soldering		P
24.3	Switch intended for all-pole disconnection of stationary appliances is directly connected to the supply terminals and having a contact separation in all pole, providing full disconnection under overvoltage category III conditions		N



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Clause	Requirement - Test	Result - Remark	Verdict
24.4	Plugs and socket-outlets for extra-low voltage circuits and heating elements, not interchangeable with plugs, and socket-outlets listed in IEC 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1		N
24.5	Capacitors in auxiliary winding of motors marked with their rated voltage and capacitance and used accordingly		N
	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		N
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 42V		N
	In addition, the motors are complying with requirements of Annex I		N
24.7	Hose-sets for connection of appliances to the water mains, complying with IEC 61770 and supplied with the appliance		N
24.101	Interlock switches that prevent access to live parts during user maintenance shall		--
	–disconnect all poles, unless the secondary circuit is supplied through an isolating transformer		P
	–have a contact separation that provides full disconnection in accordance with IEC 61058-1		P
<b>25</b>	<b>SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS</b>		---
25.1	Appliance not intended for permanent connection to fixed wiring, means for connection to the supply:		---
	- supply cord fitted with a plug		N
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance		N
	- pins for insertion into socket-outlets		N
25.2	Appliance not provided with more than one means of connection to the supply mains		P

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Clause	Requirement - Test	Result - Remark	Verdict
	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	Portable appliance	N
25.3	Connection of supply wires for appliance intended to be permanently connected to fixed wiring possible after the appliance has been fixed to its support	Not intended to be permanently connected to fixed wiring	N
	Appliance provided with a set of terminals for the connection of cables or fixed wiring, cross-sectional areas specified in 26.6		N
	Appliance provided with a set of terminals allowing the connection of a flexible cord		N
	Appliance provided with a set of supply leads accommodated in a suitable compartment		N
	Appliance provided with a set of terminals and cable entries, conduit entries, knock-outs or glands, allowing connection of appropriate type of cable or conduit		N
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimension according to table 10	As above, No such required	N
	Introduction of conduit or cable does not affect the protection against electric shock or reduce creepage distances and clearances below values specified in 29		N
25.5	Method for assemble supply cord with the appliance:		---
	- type X attachment		N
	- type Y attachment		N
	- type Z attachment, if allowed in the relevant part 2		N
	Type X attachments, other than those having a specially prepared cord, shall not used for flat twin tinsel cords		N
25.6	Plugs fitted with only one flexible cord		N
	Supply cords of single-phase portable appliances having a rated current not exceeding 16 A, provided with a plug complying with the following Standard Sheets of IEC 83 (EN 60335-1: 2002):		---
	- for Class I appliances: Standard Sheet C2b, C3b or C4 (EN 60335-1: 2002)		N

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Clause	Requirement - Test	Result - Remark	Verdict
	- for Class II appliances: Standard Sheet C5 or C6 (EN 60335-1: 2002)		N
25.7	Appliance supply cord not lighter than:		---
	- braided cord (245 IEC 51)		N
	- ordinary tough rubber sheathed cord (60245 IEC 53)		N
	- flat twin tinsel cord (60227 IEC 41)		N
	- light polyvinyl chloride sheathed cord (60227 IEC 52), appliance not exceeding 3 kg		N
	- ordinary polyvinyl chloride sheathed cord (60227 IEC 53), appliance exceeding 3 kg		N
	Temperature rise of external metal parts exceeding 75 K, PVC cord not used, unless		N
	appliance so constructed that the supply cord is not likely to touch external metal parts in normal use, or		N
	The supply cord is appropriate for higher temperatures, type Y or type Z attachment used		N
25.8	Nominal cross-sectional area of supply cords according to table 11; rated current (A); cross-sectional area (mm <sup>2</sup> ).....:		N
25.9	Supply cord not in contact with sharp points or edges		N
25.10	Green/yellow core for earthing purposes in Class I appliance		N
25.11	Conductors of supply cords not consolidated by lead-tin soldering where they are subject to contact pressure, unless		N
	clamping means so constructed that there is no risk of bad contacts due to cold flow of the solder		N
25.12	Moulding the cord to part of the enclosure does not damage the insulation of the supply cord		N
25.13	Inlet opening so shaped as to prevent damage to the supply cord		N
	Unless the enclosure at the inlet opening is of insulation material, a non-detachable lining or bushing complying with 29.3 for supplementary insulation provided		N

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Clause	Requirement - Test	Result - Remark	Verdict
	If unsheathed supply cord, a similar additional bushing or lining is required, unless		N
	The appliance is class 0		N
25.14	Supply cords adequately protected against excessive flexing	Not moved while in operation	N
	Flexing test:		---
	-applied force (N).....:		N
	-number of flexings.....:		N
	The test does not result in:		---
	- short-circuit between the conductors		N
	- breakage of more than 10% of the strands of any conductor		N
	- separation of the conductor from its terminal		N
	- loosening of any cord guard		N
	- damage, within the meaning of the standard, to the cord or the cord guard		N
	- broken strands piercing the insulation and becoming accessible		N
25.15	Conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorages		N
	The cord cannot be pushed into the appliance to such an extent that the cord or internal parts of the appliance can be damaged		N
	Pull and torque test of supply cord, values shown in table 10: pull (N); torque (Nm) (not on automatic cord reel) .....		N
	Max. 2 mm displacement of the cord, and conductors not moved more than 1 mm in the terminals		N
	Creepage distances and clearances not reduced below values specified in 29.1		N
25.16	Cord anchorages for type X attachments so constructed and located so that:		---
	- replacement of the cord is easily possible	As above	N
	- it is clear how the relief from strain and the prevention of twisting are obtained		N
	- they are suitable for different types of cord, unless the cord is specially prepared.		N

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Clause	Requirement - Test	Result - Remark	Verdict
	- cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless separated from accessible metal parts by supplementary insulation		N
	- the cord is not clamped by a metal screw which bears directly on the cord		N
	- at least one part of the cord anchorage securely fixed to the appliance, unless part of a specially prepared cord		N
	- screws which have to be operated when replacing the cord do not fix any other component, if applicable		N
	- if labyrinths can be bypassed the test of 25.15 is nevertheless withstood		N
	- for Class 0, 0I and I appliances: they are of insulating material or are provided with an insulating lining, unless a failure of the insulation of the cord does not make accessible metal parts live		N
	- for Class II appliances: they are of insulating material, or if of metal, they are insulated from accessible metal parts by supplementary insulation		N
25.17	Adequate cord anchorages for type Y and Z attachment		N
25.18	Cord anchorages only accessible with the aid of a tool, or		N
	so constructed that the cord only can be fitted with the aid of a tool		N
25.19	Type X attachment, glands not used as cord anchorage in portable appliances		N
	Tying the cord into a knot or tying the cord with string not used		N
25.20	Conductors of the supply cord for type Y and Z attachment adequately additionally insulated		N
25.21	Space for supply cable for fixed wiring or supply cord for type X attachment constructed to permit checking of conductors with respect to correct positioning and connection before fitting any cover, no risk of damage, no contact with accessible metal parts if a conductor becomes loose, etc.		N

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Clause	Requirement - Test	Result - Remark	Verdict
	For portable appliances, the uninsulated end of a conductor prevented from any contact with accessible metal parts, unless the end of the cord is such that the conductors are unlikely to slip free		N
25.22	Appliance inlet:		---
	- live parts not accessible during insertion or removal		N
	- connector can be inserted without difficulty		N
	- the appliance is not supported by the connector		N
	- is not for cold conditions if temperature rise of external metal parts exceeds 75 K, unless the supply cord is not likely to touch such metal parts		N
25.23	Interconnection cords comply with the requirements for the supply cord, except as specified	No interconnection cord provided	N
	If necessary, electric strength test of 16.3		N
25.24	Interconnection cords not detachable without the aid of a tool if compliance with the standard is impaired when they are disconnected	As above	N
25.25	Dimensions of pins compatible with the dimensions of the relevant socket-outlet. Dimensions of pins and engagement face in accordance with the relevant plug in IEC 60083		N
<b>26</b>	<b>TERMINALS FOR EXTERNAL CONDUCTORS</b>		N
26.1	Appliance provided with terminals or equally effective devices for connection of external conductors		N
	Terminals only accessible after removal of a non-detachable cover		N
	However, 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
26.2	Appliance with type X attachment and appliances for connection to fixed wiring provided with terminals in which connections are made by means of screws, nuts or similar devices, unless the connections are soldered		N
	Screws and nuts serve only to clamp supply conductors, except		N

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Clause	Requirement - Test	Result - Remark	Verdict
	Internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N
	If soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone		N
	Soldering alone used, barriers provided, clearances and creepage distances satisfactory if the conductor becomes free at the soldered joint		N
26.3	Terminals for type X attachment and for connection to fixed wiring so constructed that the conductor is clamped between metal surfaces with sufficient contact pressure and without damaging the conductor		N
	Terminals for type X attachment and those for connection to fixed wiring so fixed that when tightening or loosening the clamping means:		N
	- the terminal does not loosen		N
	- internal wiring is not subjected to stress		N
	- clearances and creepage distances are not reduced below the values in 29		N
	Compliance checked by inspection and by the test of subclause 9.6 of IEC 60999-1, the torque specified. Nominal diameter of thread (mm); screw category; torque (Nm)		N
26.4	Terminals for type X attachment, except those with a specially prepared cord, and those for connection to fixed wiring, no special preparation of conductors required, and so constructed or placed that conductors prevented from slipping out		N
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 than result in a hazard		N
	Stranded conductor test, 8mm insulation removed		N
	No contact between live parts and accessible metal parts and , for class II constructions, between live parts and metal parts separated from accessible metal parts by supplementary insulation only		N

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Clause	Requirement - Test	Result - Remark	Verdict
26.6	Terminals for type X attachment and for connection to fixed wiring suitable for connection of conductors with required cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm <sup>2</sup> )..... :		N
	Terminals only suitable for a specially prepared cord		N
26.7	Terminals for type X attachment accessible after removal of a cover or part of the enclosure		N
26.8	Terminals for the connection to fixed wiring , including the earthing terminal, located close to each other		N
26.9	Terminals of the pillar type constructed and located as specified		N
26.10	Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless conductors ends fitted with a device suitable for screw terminals		N
	Pull test of 5 N to the connection		N
26.11	For type Y and Z attachment: soldered, welded, crimped and similar connections may be used		N
	For class II appliance: the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone		N
	For class II appliance: soldering, welding or crimping alone used, barriers provided, clearance and creepage distance satisfactory if the conductor become free		N
<b>27</b>	<b>PROVISION FOR EARTHING</b>		---
27.1	Accessible metal parts of Class 0I and I appliances, permanently and reliably connected to an earthing terminal		N
	Earthing terminals not connected to neutral terminal		N
	Class 0, II and III appliance have no provision for earthing		N
	Safety extra-low voltage circuits not earthed, unless protective extra-low voltage circuits		N
27.2	Clamping means adequately secured against accidental loosening		N



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Clause	Requirement - Test	Result - Remark	Verdict
	Terminals used for the connection of external equipotential bonding conductors allow connection of conductors of 2,5 to 6 mm <sup>2</sup> , and		N
	do not provide earthing continuity between different parts of the appliance		N
	Conductors cannot be loosened without the aid of a tool		N
27.3	For detachable parts that are plugged into another part of the appliance, and having an earthing connection the earthing connection made before and separated after current-carrying connections when removing the part		N
	For appliances with supply cord, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		N
27.4	No risk of corrosion resulting from contact between metal of earthing terminal and other metal		N
	Adequate resistance to corrosion of coated or uncoated parts providing earthing continuity, other than parts of a metal frame or enclosure		N
	Parts of steel providing earthing continuity provided at the essential areas with an electroplated coating, thickness at least 5 μm		N
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		N
	In case of aluminium alloys precautions taken to avoid risk of corrosion		N
27.5	Low resistance of connection between earthing terminal and earthed metal parts		N
	This requirement does not apply to connections providing earthing continuity in the protective extra-low voltage circuit, provided that clearances of basic insulation are based on the rated voltage of the appliance		N
	Resistance not exceeding 0,1Ω at the specified low-resistance test		N
27.6	The printed conductors of printed circuit boards not used to provide earthing continuity in hand held appliances		N
	They may be used in other appliances if :		---

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Clause	Requirement - Test	Result - Remark	Verdict
	-at least two tracks are used with independent soldering points and the appliance complies with requirements of 27.5 for each circuit		N
<b>28</b>	<b>SCREWS AND CONNECTIONS</b>		---
28.1	Fixings and electrical connections withstand mechanical stresses		N
	Screws not of soft metal liable to creep, such as zinc or aluminium		N
	Diameter of screws of insulating material min. 3 mm	No insulating screws used	N
	Screws of insulating material not used for any electrical connection or connections providing earthing continuity		N
	Screws transmitting electrical contact only screwing into metal	No screws used for this purpose	N
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		N
	Type X attachment, screws to be removed for replacement of supply cord, or for users maintenance, not of insulating material if their replacement by a metal screw can impair basic insulation		N
	For screws and nuts; test as specified		N
28.2	Electrical connections and connections providing earthing continuity constructed so that contact pressure not transmitted through insulating material liable to shrink or distort, unless shrinkage or distortion compensated		N
	This requirement does not apply to electrical connections in circuits carrying a current not exceeding 0,5 A		N
28.3	Space-threaded (sheet metal) screws only used for the connection of current-carrying parts if they clamp these parts directly in contact with each other	No such screws used	N
	Thread-cutting (self-tapping) screws and thread rolling screws shall only be used for electrical connections if they generate a full form standard machine screw thread.		N

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Clause	Requirement - Test	Result - Remark	Verdict
	However, thread-cutting (self-tapping) screws shall not be used if they are likely to be operated by the user or installer.		N
	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		N
	- in normal use,		N
	- during user maintenance,		N
	- when replacing a supply cord having a type X attachment, or		N
	- during installation.		N
28.4	Screws and nuts making mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity		N
	Rivets for electrical connections or connections providing earthing continuity secured against loosening if subjected to torsion	No rivets used	N
<b>29</b>	<b>CREEPAGE DISTANCES, CLEARANCES AND DISTANCES THROUGH INSULATION</b>		---
	Clearances, creepage distances and solid insulation withstand electrical stress		N
	If coatings are used on printed circuit boards to protect the microenvironment (Type 1 coating) or to provide basic insulation (Type 2 coating), Annex J applies.		N
	The microenvironment is pollution degree 1 under Type 1 coating.		N
	There are no clearance or creepage distance requirements under Type 2 coating.		N
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		N
	The values specified may be smaller for basic insulation and functional insulation if the clearance meets the impulse voltage test of clause 14		N

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Clause	Requirement - Test	Result - Remark	Verdict
	However, if the constructions is affected by wear, distortion, movement of the parts or during assembly, the clearances for rated impulse voltages of 1500 V and above are increased by 0,5 mm and the impulse voltage test is not applicable		N
	Impulse voltage test not applicable:		N
	- when the microenvironment is pollution degree 3		N
	- for basic insulation of class 0 and class 0I appliances		N
	Appliances are in overvoltage category II		N
	Compliance is checked by inspection and measurements as specified		N
29.1.1	Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage		N
	Clearance at the terminals of tubular sheathed heating elements may be reduced to 1 mm if the microenvironment is pollution degree 1		N
	Lacquered conductors of windings are considered to be bare conductors.		N
29.1.2	Clearances of supplementary insulation not less than those specified for basic insulation in table 16		N
29.1.3	Clearances of reinforced insulation not less than those specified for basic insulation in table 16, but using the next higher step for rated impulse voltage		N
29.1.4	For fuctional insulation, the values of table 16 are applicable, unless		N
	The appliance complies with clause 19 with the functional insulation short-circuited		N
	Clearances at crossover points of lacquered conductors not measured		N
	Clearance between surfaces of PTC heating elements may be reduced to 1mm	No heating elements	N
	Lacquered conductors of windings are considered to be bare conductors.		N
	However, clearances at crossover points are not measured.		N

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Clause	Requirement - Test	Result - Remark	Verdict
29.1.5	Appliances having higher working voltage than rated voltage, the voltage used for determining clearances from table 16 is the sum of the rated impulse voltage and the difference between the peak value of the working voltage and the peak value of the rated voltage	No higher working voltage generated	N
	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
	Circuits supplied with a voltage lower than rated voltage, clearances of functional insulation based on the working voltage used as the rated voltage in table 15		N
29.2	Creepage distances not less than those appropriate for the working voltage , taking into account the material group and the pollution degree		N
	Pollution degree 2 applies, unless		N
	Precautions taken to protect the insulation; pollution degree 1		N
	Insulation subjected to conductive pollution; pollution degree 3		N
	Compliance is checked by inspection and measurements as specified		N
	The microenvironment is pollution degree 3 unless the insulation is enclosed or located sothat it is unlikely to be exposed to pollution during normal use of the appliance(EN 60335-2-59)		N
29.2.1	Creepage distances of basic insulation shall not be less than those specified in table 17		N
	For pollution degree1, 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
29.2.2	Creepage distances of supplementary insulation shall be at least those specified for basic insulation in table 17		N

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Clause	Requirement - Test	Result - Remark	Verdict
29.2.3	Creepage distances of reinforced insulation shall be at least double those specified for basic insulation in table 17		N
29.2.4	Creepage distances of functional insulation shall be not less than those specified in table 18.		N
	creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited		N
29.3	Supplementary and reinforced insulation having adequate thickness, or a sufficient number of layers, to withstand the electrical stresses insulation		N
	Compliance checked by:		---
	- measurement, in accordance with 29.3.1, or		N
	- an electric strength test in accordance with 29.3.2, or		N
	- an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3		N
	For accessible reinforced insulation consisting of a single layer, measurement in accordance with 29.3.Z1 (IEC 60335-1/A12: 2006)		N
29.3.1	Supplementary insulation having a thickness of at least 1 mm		N
	Reinforced insulation having a thickness of at least 2 mm		N
29.3.2	Each layer of material withstand the electric strength test of 16.3 for supplementary insulation		N
	Supplementary insulation consisting of at least 2 layers		N
	Reinforced insulation consisting of at least 3 layers		N
29.3.3	The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by		N
	The electric strength test of 16.3		N
	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
29.3.Z1	If applicable reinforced insulation consists of a single layer, the thickness of this layer shall comply with table Z1 (IEC 60335-1/A12: 2006)		N

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Clause	Requirement - Test	Result - Remark	Verdict
<b>30</b>	<b>RESISTANCE TO HEAT, FIRE AND TRACKING</b>		---
30.1	Relevant external parts of non-metallic material		P
	Parts supporting live parts and		P
	Thermoplastic material providing supplementary or reinforced insulation		N
	Sufficiently resistant to heat		P
	Ball-pressure test according to IEC 60695-10-2	(see appended table)	P
	External parts: 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: 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
	Parts of thermoplastic material providing supplementary or reinforced insulation, 25°C plus the maximum temperature rise determined during clause 19, if higher, temperature (°C) .....		N
	For coffee-makers, egg boilers, kettles and steam cookers, the temperature rises occurring during the tests of 19.4, 19.5 and 19.101 are not taken into account.		P
30.101	Parts of non-metallic material enclosing or supporting the grids, and non-metallic trays intended to collect insects, shall be resistant to fire. This also applies to parts within 50 mm above the tray (EN 60335-2-59)		P
	Printed boards in the output circuit having a surface area exceeding 25 cm <sup>2</sup> shall be resistant to fire, unless they are contained in a metal enclosure (EN 60335-2-59)		P
	The needle-flame test is not carried out on parts of material classified as V-0 or V-1 according to IEC 60695-11-10, provided that the sample tested was not thicker than the relevant part (EN 60335-2-59)		P
30.2	Relevant parts of non-metallic material adequately resistant to ignition and spread of fire		P
30.2.1	Glow-wire test of IEC 60695-2-11 at 550 °C Unless	(see appended table)	P
	The material is classified at least HB40 according to IEC 60695-11-10		N

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Clause	Requirement - Test	Result - Remark	Verdict
	Parts for which the glow-wire test cannot be carried out meet the requirements in ISO9772 for category FH3 material		N
30.2.2	Appliances operated while attended, Parts of insulating material supporting current-carrying connections and parts within a distance of 3mm subjected to the glow-wire test of IEC 60695-2-11 at a temperature of :		---
	- 750°C, for connections carrying a current exceeding 0,5A during normal operation		P
	- 650°C, for other conditions		N
	Test not applicable to conditions as specified		N
30.2.3	Appliances operated while unattended, tested as specified in 30.2.3.1 and 30.2.3.2		N
	Test not applicable to conditions as specified		N
30.2.3.1	Parts of insulating material supporting connections carrying a current exceeding 0.2A during normal operation, and		N
	Parts of insulating material within a distance of 3mm,		N
	Having a glow-wire flammability index of at least 850 °C according to IEC 60695-2-12		N
30.2.3.2	Parts of insulating material supporting current-carrying connections, and		N
	Parts of insulating material within a distance of 3mm,		N
	Subjected to glow-wire test of IEC 60695-2-11		N
	Test not carried out on material having a glow-wire ignition temperature according to IEC 60695-2-13 as specified		N
	Glow-wire test of IEC 60695-2-11, the temperature being		---
	- 750°C, for connections carrying a current exceeding 0,2A during normal operation		N
	- 650°C, for other connections		P
	Parts that during the test produce a flame persisting longer than 2 s, tested as specified		N



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Clause	Requirement - Test	Result - Remark	Verdict
	If a flame persists longer than 2 s during the test, parts above the connection, as specified, subjected to the needle-flame test of annex E, unless		N
	The material is classified as V-0 or V-1 according to IEC 60695-11-10		N
30.2.4	Base material of printed circuit boards subjected to needle-flame test of annex E		N
	Test not applicable to conditions as specified		N
<b>31</b>	<b>RESISTANCE TO RUSTING</b>		---
	Relevant ferrous parts adequately protected against rusting		P
<b>32</b>	<b>RADIATION, TOXICITY AND SIMILAR HAZARDS</b>		---
	Appliance does not emit harmful radiation		P
	Appliance does not present a toxic or similar hazard		P
	For appliances incorporating lamps emitting UV radiation, compliance is checked by the following test(EN 60335-2-59)		N
	The appliance is supplied at rated voltage and operated under normal operation. The irradiance is measured at a distance of 1 m, the measuring instrument being positioned so that the highest radiation is recorded(EN 60335-2-59)		N
<b>A</b>	<b>ANNEX A (INFORMATIVE) ROUTINE TESTS</b>		---
	Description of routine tests to be carried out by the manufacturer		P
<b>B</b>	<b>ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES</b>		---
	The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance		P
	This annex does not apply to battery chargers		P
3.1.9	Appliance operated under the following conditions:		---
	-the appliance, supplied by its fully charged battery, operated as specified in relevant part 2		P

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Clause	Requirement - Test	Result - Remark	Verdict
	-the battery is charged, the battery being initially discharged to such an extent that the appliance cannot operate		P
	-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		P
	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
3.6.2	Part to be removed in order to discard the battery is not considered to be detachable		P
5.101	Appliances supplied from the supply mains tested as specified for motor-operated appliances		P
7.1	Battery compartment for batteries intended to be replaced by the user, marked with battery voltage and polarity of the terminals		P
7.12	The instructions for appliances incorporating batteries intended to be replaced by the user includes required information		N
	Details about how to remove batteries containing materials hazardous to the environment given		N
7.15	Marking placed on the part of the appliance connected to the supply mains		N
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
	If the appliance can be operated without batteries, double or reinforced insulation required		N
11.7	The battery is charged for the period described		P
19.1	Appliances subjected to tests of 19.101, 19.102 and 19.103		P
19.101	Appliances supplied at rated voltage for 168 h, the battery being continually charged		P
19.102	Short-circuiting of the terminals of the battery, being fully charged, for appliances having batteries that can be removed without the aid of a tool		P

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Clause	Requirement - Test	Result - Remark	Verdict
19.103	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		P
21.101	Appliances having pins for insertion into socket-outlets have adequate mechanical strength, checked according to procedure 2 IEC 68-2-32		N
	Part of the appliance incorporating the pins subjected to the free fall test, procedure 2, of IEC 60068-2-32, the number of falls being:		---
	- 100, the mass of part does not exceed 250 g		N
	- 50, the mass of part exceeds 250 g		N
	After the test, the requirements of 8.1, 15.1.1, 16.3 and clause 29 are met		N
22.3	Appliances having pins for insertion into socket-outlets tested as fully assembled as possible		N
25.13	An additional lining or bushing not required for interconnection cords operating at safety extra-low voltage		N
30.2	For parts of the appliance connected to the supply mains during the charging period, 30.2.3 applies		N
	For other parts, 30.2.2 applies		N
<b>C</b>	<b>ANNEX C (NORMATIVE) AGEING TEST ON MOTORS</b>		---
	Tests , as described, carried out when doubt with regard to the temperature classification of the insulation of a motor winding		N
	The value of <i>p</i> in table C.1 is 2000(IEC 60335-1),		N
<b>D</b>	<b>ANNEX D(NORMATIVE) ALTERNATIVE REQUIREMENTS FOR PROTECTED MOTORS</b>		---
	Applicable to protected motors for unattended use, test of 19.7 carried out on a separate sample according to the specification		N
<b>E</b>	<b>ANNEX E(NORMATIVE) NEEDLE-FLAME TEST</b>		---
	The needle-flame test is carried out in accordance with IEC 60695-11-5 with the following modifications.		N
7	Severities		--

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Clause	Requirement - Test	Result - Remark	Verdict
	The duration of application of the test flame is 30 s ± 1 s.		N
9	Test procedure		--
9.1	The specimen is arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1.		N
9.2	The first paragraph does not apply.		N
	If possible, the flame is applied at least 10 mm from a corner.		N
9.3	Replacement: The test is carried out on one specimen. If the specimen does not withstand the test, the test may be repeated on two additional specimens, both of which shall then withstand the test.		N
11	Evaluation of test results		--
	The duration of burning not exceeding 30s		N
	However, for printed circuit boards, the duration of burning not exceeding 15s		N
<b>F</b>	<b>ANNEX F (NORMATIVE) CAPACITORS</b>		---
	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:		N
1.5	Terminology		---
1.5.3	Class X capacitors tested according to subclass X2		N
1.5.4	This subclause is applicable		N
1.6	Marking		N
	Items a) and b) are applicable		N
3.4	Approval testing		---
3.4.3.2	Table II is applicable as described		N
4.1	Visual examination and check of dimensions		---
	This subclause is applicable		N
4.2	Electrical tests		N
4.2.1	This subclause is applicable		N

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Clause	Requirement - Test	Result - Remark	Verdict
4.2.5	This subclause is applicable		N
4.2.5.2	Only table IX is applicable		N
	Values for test A apply		N
	However, for capacitors in heating appliances the values for test B or C apply		N
4.12	Damp heat, steady-state		N
	This subclause is applicable		N
	Only insulation resistance and voltage proof are checked		N
4.13	Impulse voltage		N
	This subclause is applicable		N
4.14	Endurance		N
	Subclauses 4.14.1, 4.14.3, 4.14.4 and 4.14.7 applicable		N
4.14.7	Only insulation resistance and voltage proof are checked		N
	Visual examination, no visible damage		N
4.17	Passive flammability test		N
	This subclause is applicable		N
4.18	Active flammability test		N
	This subclause is applicable		N
<b>G</b>	<b>ANNEX G(NORMATIVE) SAFETY ISOLATING TRANSFORMERS</b>		---
	The following modifications to this standard are applicable for safety isolating transformers:		N
7	Marking and instructions		---
7.1	Transformers for specific use marked with:		---
	-name, trademark or identification mark of the manufacturer or responsible vendor		N
	-model or type reference		N
17	Overload protection of transformers and associated circuits		---
	Fail-safe transformers comply with subclause 15.5 of IEC 61558-1		N
22	Construction		---

EN 60335-2-59			
Clause	Requirement - Test	Result - Remark	Verdict
	Subclauses 19.1 and 19.1.2 of IEC 61558-2-6 are applicable		P
29	Clearances, creepage distances and solid insulation		---
29.1, 29.2 and 29.3	The distances specified in items 2a, 2c and 3 in table 13 of IEC 61558-1 apply		P
<b>H</b>	<b>ANNEX H(NORMATIVE) SWITCHES</b>		---
	Switches comply with the following clauses of IEC 61058-1, as modified:		---
	-the tests of IEC 61058-1 carried out under the conditions occurring in the appliance		N
	-before being tested, switches are operated 20 times without load		N
8	Marking and documentation		---
	Switches are not required to be marked		N
	However, switches that can be tested separately from the appliance marked with the manufacturer's name or trade mark and the type reference		N
13	Mechanism		---
	The tests may be carried out on a separate sample		N
15	Not applicable		---
15.1	Not applicable		N
15.3	Applicable for full disconnection and micro-disconnection		N
17	Endurance .....		---
	Compliance is checked on three separate appliances or switches		N
	For 17.2.4.4, the number of cycles is 10000, unless otherwise specified in 24.1.3 of the relevant part 2 of IEC 60335		N
	Switches for operation under no load and which can be operated only by a tool and switches operated by hand that are interlocked so that they cannot be operated under load, are not subjected to the tests		N
	Subclauses 17.2.2 and 17.2.5.2 are not applicable.		N

EN 60335-2-59			
Clause	Requirement - Test	Result - Remark	Verdict
	Temperature rise of the terminals not more than 30K above the temperature rise measured in clause 11 of IEC 60335-1		N
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
I	<b>ANNEX I(NORMATIVE) MOTORS HAVING BASIC INSULATION THAT IS INADEQUATE FOR THE RATED VOLTAGE OF THE APPLIANCE</b>		---
	The following modifications to this standard are applicable for motors having basic insulation that is inadequate for the rated voltage of the appliance:		N
8	Protection against access to live parts		---
8.1	Metal parts of the motor are considered to be bare live parts		N
11	Heating		---
11.3	Temperature rise of the body of the motor is determined instead of the temperature rise of the windings		N
11.8	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
16	Leakage current and electric strength		---
16.3	Insulation between live parts of the motor and its other metal parts not subjected to the test		N
19	Abnormal operation		---
19.1	The tests of 19.7 to 19.9 not carried out		N
19.101	Appliance operated at rated voltage with each of the following fault conditions:		N
	- short circuit of the terminals of the motor, including any capacitor incorporated in the motor circuit		N
	- short circuit of each diode of the rectifier		N
	- open circuit of the supply to the motor		N
	- open circuit of any parallel resistor, the motor being in operation		N

EN 60335-2-59			
Clause	Requirement - Test	Result - Remark	Verdict
	Only one fault simulated at a time, the tests carried out consecutively		N
22	Construction		N
22.101	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		P
	Compliance checked by the tests specified for double and reinforced insulation		N
<b>J</b>	<b>ANNEX J(NORMATIVE) COATED PRINTED CIRCUIT BOARDS</b>		---
	The testing of protective coatings of printed circuit boards is carried out in accordance with IEC 60664-3 with the following modifications.		N
5.7	Conditioning of the test specimens		---
	When production samples are used, three samples of the printed circuit board are tested.		N
5.7.1	The test is carried out at -25 °C.		N
5.7.3	Severity 1 is specified.		N
5.9	Additional tests		--
	This subclause is not applicable.		N
<b>K</b>	<b>ANNEX K(NORMATIVE) OVERVOLTAGE CATEGORIES</b>		---
	The information on overvoltage categories is extracted from IEC 60664-1		P
	Overvoltage category is a numeral defining a transient overvoltage condition		N
	Equipment of overvoltage category IV is for use at the origin of the installation		N
	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
	Equipment of overvoltage category II is energy consuming equipment to be supplied from the fixed installation		N
	If such equipment is subjected to special requirements with regard to reliability and availability, overvoltage category III applies		N



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Clause	Requirement - Test	Result - Remark	Verdict
	Equipment of overvoltage category I is equipment for connection to circuit in which measures are taken to limit transient overvoltages to an appropriate low level		N
<b>L</b>	<b>ANNEX L(INFORMATIVE) GUIDANCE FOR THE MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES</b>		---
	Sequences for the determination of clearances and creepage distances		P
<b>M</b>	<b>ANNEX M(NORMATIVE) POLLUTION DEGREE</b>		---
	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 microenvironment		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
	-pollution degree 2: only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be except		N
	-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
<b>N</b>	<b>ANNEX N(NORMATIVE) PROOF TRACKING TEST</b>		---

EN 60335-2-59			
Clause	Requirement - Test	Result - Remark	Verdict
	The proof tracking test is carried out in accordance with IEC 60112 with the following modifications.		P
7	Test apparatus		---
7.3	Test solution A is used.		P
10	Determination of proof tracking index (PTI)		---
10.1	The proof voltage is 100 V, 175 V, 400 V or 600 V, as appropriate.		P
	The last paragraph of Clause 3 applies.		P
	The test is carried out on five specimens.		P
	In case of doubt, a material is considered to have a PTI of the specified value if it withstands the test at a voltage equal to the proof voltage reduced by 25 V, the number of drops being increased to 100.		N
10.2	The report shall state if the PTI value was based on a test using 100 drops with a test voltage of (PTI-25) V.		N
<b>O</b>	<b>ANNEX O(INFORMATIVE) SELECTION AND SEQUENCE OF THE TESTS OF CLAUSE 30</b>		---
	Description of tests for determination of resistance to heat and fire		P
<b>P</b>	<b>ANNEX P(INFORMATIVE) GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN WARM DAMP EQUABLE CLIMA TES (IEC 60335-1/A1: 2004)</b>		N
	Modifications applicable for class 0 and 0I appliances having a rated voltage exceeding 150V, intended to be used in countries having a warm damp equable climate and that are marked WdaE		N
	Modifications may also be applied to class I 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		N
5	General conditions for the tests		N
5.7	The ambient temperature for the tests of Clauses 11 and 13 is 40°C		N
7	Marking and instructions		N

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Clause	Requirement - Test	Result - Remark	Verdict
7.1	The appliance marked with the letters WDaE		
7.12	The instructions state that the appliance is to be supplied through a RCD having a rated residual operating current not exceeding 30 mA		N
	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
11	Heating		N
11.8	The values of Table 3 are reduced by 15 K		N
13	Leakage current and electric strength at operating temperature		N
13.2	The leakage current for class I appliances not exceeding 0,5 mA		P
15	Moisture resistance		N
15.3	The value of t is 37°C		N
16	Leakage current and electric strength		N
16.2	The leakage current for class I appliances not exceeding 0,5 mA		P
19	Abnormal operation		N
19.13	The leakage current test of 16.2 is applied in addition to the electric strength test of 16.3		
<b>Q</b>	<b>ANNEX Q(NORMATIVE) SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS</b>		---
	Description of tests for appliances incorporating electronic circuits		N
<b>R</b>	<b>ANNEX R(NORMATIVE) SOFTWARE EVALUATION (IEC 60335-1/A: 2004)</b>		---
	Software evaluated in accordance with the following clauses of Annex H of IEC 60730-1, as modified		N
H.2	Definitions		N
	Only definitions H.2.16 to H.2.20 applicable		N
H.7	Information		N
	Only footnotes 12) to 18) of Table 7.2, as modified, applicable		N
H.11.12	Controls using software		N
	All the subclauses of H.11.12, as modified, except H.11.12.6 and H.11.12.6.1, applicable		N

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Clause	Requirement - Test	Result - Remark	Verdict
H.11.12.71	For appliances using software class C having a single channel with self-test and monitoring structure, the manufacturer provides the measures necessary to address the fault/errors in safety related segments and data		N
H.11.12.8	Software fault/error detection occurs before compliance with 19.13 of IEC 60335-1 is impaired		N
H.11.12.81	Replace text		N
H.11.12.13	Software and safety related hardware under its control initializes and terminates before compliance with 19.13 of IEC 60335-1 is impaired		N
<b>ZA</b>	<b>ANNEX ZA(NORMATIVE) SPECIAL NATIONAL CONDITIONS(EN)</b>		---
7.12	DENMARK: requirements regarding marking tag of power supply cord and connecting of earthing wire for class I appliances delivered without a plug (EN)		P
19.5	NORWAY: the test is also applicable to appliances intended to be permanently connected to fixed wiring (EN)		N
22.2	FRANCE, NORWAY: The second paragraph of this subclause dealing with single-phase Class I appliances with heating elements is not applicable due to the supply system(EN)		N
25.6	BELGIUM, FRANCE, SPAIN, UNITED KINGDOM: plugs according to Standard Sheet C2b not allowed(EN)		N
	AUSTRIA, GERMANY, FINLAND, ICELAND, IRELAND, ITALY, LUXEMBOURG, NETHERLANDS, NORWAY, PORTUGAL, SPAIN, SWEDEN, SWITZERLAND, UNITED KINGDOM: plugs according to Standard sheet C3b not allowed (EN)		N
	DENMARK: Supply cords of single-phase portable appliances having a rated current not exceeding 13 A provided with a plug according to the following: (EN)		N
	Class I appliances: Section 107-2-DI, ed.3 1998, Standard Sheet DK2-1a(EN)		N
	For appliances covered by a Part 2 of EN 60 335, also plugs in accordance with Section 107-2-D1, de.3, 1998, Standard Sheet C2b, C3b or C4 are allowed(EN)		N

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Clause	Requirement - Test	Result - Remark	Verdict
	Class II appliances: Section 107-2-D1, ed.3 1998, Standard Sheet C1b, C5, C6, DKA 2-1a and DKA 2-1b(EN)		N
	Stationary single-phase appliances, having a rated current not exceeding 13 A, and provided with a supply cord and a plug, the plug is in accordance with the requirements above(EN)		N
	Multi-phase appliances and single-phase appliances having a rated current exceeding 13 A, and provided with a supply cord and a plug, the plug is in accordance with the requirements below: (EN)		N
	- Class I appliances: Section 107-2-D1, Standard Sheet DK6-1a/EN 60309-2, Standard Sheet 2-II, 2-IV (EN)		N
	- Class II appliances: Section 107-2-D1, Standard Sheet DK6-1a/EN 60309-2, Standard Sheet 2-II, 2-IV, the earthing contact not being connected (EN)		N
	The current for the plug not exceeding the values specified; standard sheet (no.); current (A) (EN) ... :		N
	IRELAND: Only plug according to Standard Sheets B2 and C5 allowed (see also Annex ZB) (EN)		N
	ITALY: Only plugs listed in CENELEC Report ROBT-005: 2001 allowed (EN)		N
	SPAIN: For appliances for household use, only the following plugs are allowed: (EN)		N
	according to UNE 20315: ESC 10-1b, C2b, C4, C6 or ESB 25-5b (EN)		N
	according to UNE-EN 50075 (EN)		N
	SWITZERLAND: supply cords of portable household and similar electrical appliances having a rated current not exceeding 10A, provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets: (EN)		N
	SEV 6532-2:1991 plug type 15, 3P+N+PE, 250/400 V, 10 A (EN)		N
	SEV 6533-2:1991 plug type 11, L+N, 250 V, 10 A (EN)		N
	SEV 6534-2:1991 plug type 12, L+N+PE, 250 V, 10 A (EN)		N

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Clause	Requirement - Test	Result - Remark	Verdict
	UNITED KINGDOM: Only plugs according to Standard Sheet B2 or C5 allowed (see also Annex ZB) (EN)		N
25.8	IRELAND, UNITED KINGDOM: replacement of figures (rated current/cross-sectional area) in the table (EN)		N
<b>ZB</b>	<b>ANNEX ZB (INFORMATIVE) A-DEVIATIONS</b>		---
4	SWITZERLAND: information about batteries with carbon-zinc and alkali-manganese (EN)		N
7.1	ITALY: the voltage is 220 V/380 V (EN)		N
25.6	IRELAND: These regulations apply to all plugs for domestic use at a voltage of not less than 200V and allow only plugs complying with I.S. 401: 1997, or equivalent, to be fitted to domestic appliances. (EN)		N
	UNITED KINGDOM: These regulations apply to all plugs for domestic use at a voltage of not less than 200V and allow only plugs to BS 1363 to be fitted to domestic appliances. It also allows plugs to BS 4573 and standard sheet C5 to be fitted to shavers and toothbrushes. (EN)		N
<b>ZC</b>	<b>ANNEX ZC(NORMATIVE) NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS (EN)</b>		---
	This standard incorporates provisions from the publications listed (EN)		P
<b>ZD</b>	<b>ANNEX ZD (INFORMATIVE) IEC AND CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS (EN)</b>		---
	A list of code designations for different types of flexible cords (EN)		P

10.1	TABLE: INPUT DEVIATION MEASUREMENTS					N
input deviation dP of/at:	P rate (W)	P (W)	dP	required dP	Remark	

10.1	TABLE: CURRENT DEVIATION MEASUREMENTS					P
current deviation dP of/at:	I rate (A)	I (A)	dP	required dP	Remark	
230V, 50Hz	0.2	0.19	-5.0%	+20%	P	

11.8	TABLE: TEMPERATURE RISE MEASUREMENTS			P
room temperature t1 (°C) .....			23.5	--
room temperature t2 (°C) .....			23.8	--
test wattage (W) .....			254.4V	--
temperature rise dT of part/at:			dT (K)	required dT (K)
Inside wiring			0.5	50
PCB			1.2	105
Enclosure			0.6	60
Floor of test corner			0.3	60

13.2	TABLE: LEAKAGE CURRENT			N
Heating appliances: at 1,15 times maximum rated input (W) .....				---
-operated and combined appliances: at 1,06 times rated voltage (V) .....				---
leakage current I between:			I (mA)	Required I (mA)
L and enclosure; adapter			0.020	0.35peak
N and enclosure; adapter			0.008	0.35peak
L and enclosure; Double speaker pest repeller			0.005	0.7peak
N and enclosure; Double speaker pest repeller			0.005	0.peak

13.3	TABLE: ELECTRIC STRENGTH		P
test voltage applied between:		Test voltage (V)	Breakdown (Yes/No)

L/N to enclosure	500	P
------------------	-----	---

14	TABLE: TRANSIENT OVERVOLTAGES					N
Clearance between:	Cl(mm)	Required Cl(mm)	Rated impulse voltage(V)	Impulse test voltage(V)	Flashover (Yes/No)	

16.2	TABLE: LEAKAGE CURRENT MEASUREMENTS			P
	at 1,06 times rated voltage (V) .....		254.4V	--
leakage current I between:	Switch position	I (mA)	required I (mA)	
L and enclosure	--	0.020	0.25	
N and enclosure	--	0.008	0.25	
L and enclosure; Double speaker pest repeller	--	0.005	0.5	
N and enclosure; Double speaker pest repeller	--	0.005	0.5	

16.3	TABLE: ELECTRIC STRENGTH		P
test voltage applied between:	Test voltage (V)	Breakdown (Yes/No)	
L/N to enclosure	500	P	

17	TABLE: OVERLOAD PROTECTION, TEMPERATURE RISE		N
temperature rise Dt of part/at:	Dt (K)	required Dt (K)	

19.2	TABLE: ABNORMAL OPERATION, TEMPERATURE RISES		N
Thermocouple locations	Dt (K)	Max. Dt (K)	

19.3	TABLE: ABNORMAL OPERATION, TEMPERATURE RISES		N
Thermocouple locations	Dt (K)	Max. Dt (K)	




<b>19.4</b>	<b>TABLE: ABNORMAL OPERATION, TEMPERATURE RISES</b>	<b>N</b>
Thermocouple locations	Dt (K)	Max. Dt (K)

<b>19.7</b>	<b>TABLE: LOCK MOTOR, TEMPERATURE RISES</b>	<b>N</b>
Thermocouple locations	Dt (K)	Max. Dt (K)

<b>19.13</b>	<b>TABLE: ABNORMAL OPERATION, TEMPERATURE RISES</b>	<b>N</b>
Thermocouple locations	Dt (K)	Max. Dt (K)

<b>24.1</b>	<b>TABLE: COMPONENTS</b>					<b>P</b>
object/part No.	manufac-turer/trademark	type/model	technical data	stan-dard	mark(s) of conformity <sup>1)</sup>	
Internal wire	HENGDIAN	1007	28AWG, 90°C 300V	UL758	VDE E228840	
Enclosure	Various	Various	Phenolic, V-0 150°C	UL 94	UL	
PCB	Various	Various	V-0, 130°C	UL94	UL E123995	
AC/DC Adaptor	--	PESTREPELL ER	Ip: AC 220V- 240V,50Hz Op: DC9V, 0.2A	EN 60335-1 EN 60335-2-59	Test with appliance	

<sup>1)</sup> an asterisk indicates a mark which assures the agreed level of surveillance

<b>29.1</b>	<b>TABLE: CLEARANCES</b>					<b>P</b>
	<b>OVERVOLTAGE CATEGORY.....:</b>			<b>I</b>		
		Type of insulation				
Rated impulse voltage(V)	Min. cl (mm)	Basic	Functional	Supplementary	Reinforced	Remark
330	0.5					
500	0.5					
800	0.5					

1500	1.0					
2500	2.0				2.0	P
4000	3.5					
6000	6.0					
8000	8.5					
10000	11.5					

29.2	TABLE: creepage distances, basic, supplementary and reinforced insulation										N
Working voltage(V)	Creepage distance (mm)							Pollution degree			Verdict
	1	2			3			Type of insulation			
	Material group			Material group			B)	S)	R)		
	I	II	IIIA /IIIB	I	II	IIIA/III B					
=50	0.2	0.6	0.9	1.2	1.5	1.7	1.9				
=50	0.2	0.6	0.9	1.2	1.5	1.7	1.9				
=50	0.4	1.2	1.8	2.4	3.0	3.4	3.8				
>50 and =125	0.3	0.8	1.1	1.5	1.9	2.1	2.4				
>50 and =125	0.3	0.8	1.1	1.5	1.9	2.1	2.4				
>50 and =125	0.6	1.6	2.2	3.0	3.8	4.2	4.8				
>125 and =250	0.6	1.3	1.8	2.5	3.2	3.6	4.0				
>125 and =250	0.6	1.3	1.8	2.5	3.2	3.6	4.0				
>125 and =250	1.2	2.6	3.6	5.0	6.4	7.2	8.0				
>250 and =400	1.0	2.0	2.8	4.0	5.0	5.6	6.3				
>250 and =400	1.0	2.0	2.8	4.0	5.0	5.6	6.3				
>250 and =400	2.0	4.0	5.6	8.0	10.0	11.2	12.6				
>400 and =500	1.3	2.5	3.6	5.0	6.3	7.1	8.0				
>400 and =500	1.3	2.5	3.6	5.0	6.3	7.1	8.0				
>400 and =500	2.6	5.0	7.2	10.0	12.6	14.2	16.0				
>500 and =800	1.8	3.2	4.5	6.3	8.0	9.0	10.0				
>500 and =800	1.8	3.2	4.5	6.3	8.0	9.0	10.0				
>500 and =800	3.6	6.4	9.0	12.6	16.0	18.0	20.0				
>800 and =1000	2.4	4.0	5.6	8.0	10.0	11.0	12.5				
>800 and =1000	2.4	4.0	5.6	8.0	10.0	11.0	12.5				
>800 and =1000	4.8	8.0	11.2	16.0	20.0	22.0	25.0				
>1000 and =1250	3.2	5.0	7.1	10.0	12.5	14.0	16.0				

>1000 and =1250	3.2	5.0	7.1	10.0	12.5	14.0	16.0		
>1000 and =1250	6.4	10.0	14.2	20.0	25.0	28.0	32.0		
>1250 and =1600	4.2	6.3	9.0	12.5	16.0	18.0	20.0		
>1250 and =1600	4.2	6.3	9.0	12.5	16.0	18.0	20.0		
>1250 and =1600	8.4	12.6	18.0	25.0	32.0	36.0	40.0		
>1600 and =2000	5.6	8.0	11.0	16.0	20.0	22.0	25.0		
>1600 and =2000	5.6	8.0	11.0	16.0	20.0	22.0	25.0		
>1600 and =2000	11.2	16.0	22.0	32.0	40.0	44.0	50.0		
>2000 and =2500	7.5	10.0	14.0	20.0	25.0	28.0	32.0		
>2000 and =2500	7.5	10.0	14.0	20.0	25.0	28.0	32.0		
>2000 and =2500	15.0	20.0	28.0	40.0	50.0	56.0	64.0		
>2500 and =3200	10.0	12.5	18.0	25.0	32.0	36.0	40.0		
>2500 and =3200	10.0	12.5	18.0	25.0	32.0	36.0	40.0		
>2500 and =3200	20.0	25.0	36.0	50.0	64.0	72.0	80.0		
>3200 and =4000	12.5	16.0	22.0	32.0	40.0	45.0	50.0		
>3200 and =4000	12.5	16.0	22.0	32.0	40.0	45.0	50.0		
>3200 and =4000	25.0	32.0	44.0	64.0	80.0	90.0	100.0		
>4000 and =5000	16.0	20.0	28.0	40.0	50.0	56.0	63.0		
>4000 and =5000	16.0	20.0	28.0	40.0	50.0	56.0	63.0		
>4000 and =5000	32.0	40.0	56.0	80.0	100.0	112.0	126.0		
>5000 and =6300	20.0	25.0	36.0	50.0	63.0	71.0	80.0		
>5000 and =6300	20.0	25.0	36.0	50.0	63.0	71.0	80.0		
>5000 and =6300	40.0	50.0	72.0	100.0	126.0	142.0	160.0		
>6300 and =8000	25.0	32.0	45.0	63.0	80.0	90.0	100.0		
>6300 and =8000	25.0	32.0	45.0	63.0	80.0	90.0	100.0		
>6300 and =8000	50.0	64.0	90.0	126.0	160.0	180.0	200.0		
>8000 and =10000	32.0	40.0	56.0	80.0	100.0	110.0	125.0		
>8000 and =10000	32.0	40.0	56.0	80.0	100.0	110.0	125.0		
>8000 and =10000	64.0	80.0	112.0	160.0	200.0	220.0	250.0		
>10000 and =12500	40.0	50.0	71.0	100.0	125.0	140.0	160.0		
>10000 and =12500	40.0	50.0	71.0	100.0	125.0	140.0	160.0		
>10000 and =12500	80.0	100.0	142.0	200.0	250.0	280.0	320.0		
*), B = Basic , S = Supplementary and R = Reinforced									

29.2	TABLE: creepage distances, functional insulation							N
Working voltage(V)	Creepage distance (mm) Pollution degree							verdict / remark
	1	2			3			
	Material group			Material group				
	I	II	III a / III b	I	II	III a / III b		
=50	0.2	0.6	0.8	1.1	1.4	1.6	1.8	
>50 and = 125	0.3	0.7	1.0	1.4	1.8	2.0	2.2	
>125 and = 250	0.4	1.0	1.4	2.0	2.5	2.8	3.2	
>250 AND = 400	0.8	1.6	2.2	3.2	4.0	4.5	5.0	
>400 AND = 500	1.0	2.0	2.8	4.0	5.0	5.6	6.3	
>500 AND = 800	1.8	3.2	4.5	6.3	8.0	9.0	10.0	
>800 AND = 1000	2.4	4.0	5.6	8.0	10.0	11.0	12.5	
>1000 AND =1250	3.2	5.0	7.1	10.0	12.5	14.0	16.0	
>1250 AND = 1600	4.2	6.3	9.0	12.5	16.0	18.0	20.0	
>1600 AND = 2000	5.6	8.0	11.0	16.0	20.0	22.0	25.0	
>2000 AND = 2500	7.5	10.0	14.0	20.0	25.0	28.0	32.0	
>2500 AND = 3200	10.0	12.5	18.0	25.0	32.0	36.0	40.0	
>3200 AND = 4000	12.5	16.0	22.0	32.0	40.0	45.0	50.0	
>4000 AND = 5000	16.0	20.0	28.0	40.0	50.0	56.0	63.0	
>5000 AND = 6300	20.0	25.0	36.0	50.0	63.0	71.0	80.0	
>6300 AND = 8000	25.0	32.0	45.0	63.0	80.0	90.0	100.0	
>8000 AND = 10000	32.0	40.0	56.0	80.0	100.0	110.0	125.0	
>10000 AND = 12500	40.0	50.0	71.0	100.0	125.0	140.0	160.0	

30.1	TABLE: BALL-PRESSURE TESTS		P
Part	test temperature (°C)	impression diameter (mm)	
Plastic enclosure	75	1.12	

30.2	TABLE: GLOW-WIRE TESTS			P
Part	Test temperature (°C)	Ignition	Remarks	
Plastic enclosure	650	No	P	

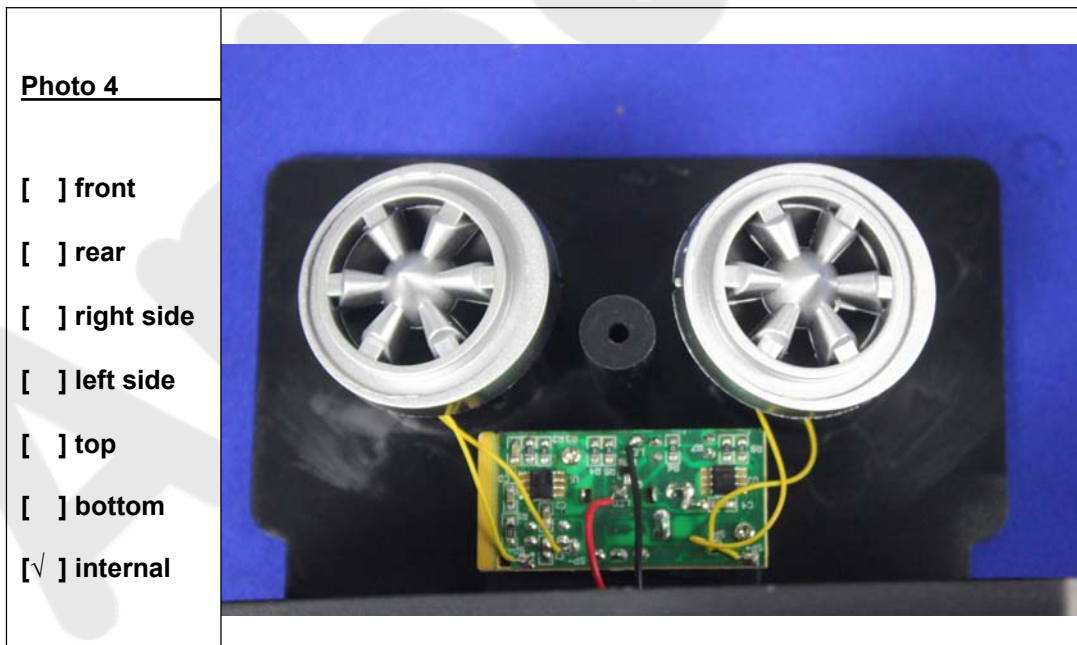
## Appendix I

<b>EN 62233: 2008</b>			
<b>Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure</b>			
Clause	Requirement - Test	Result - Remark	Verdict
<b>5</b>	<b>Measuring methods</b>		---
5.1	Electric fields		P
	If appliances, with their internal transformer or electronic circuit, are working at voltage lower than 1000V, they are deemed to comply without testing		P
5.2	Frequency range		
	The frequency range considered is from 10Hz to 400KHz		P
5.3	Measuring distances, positions and operating mode		P
	The measuring distances, sensor locations and operating conditions are specified in Annex A		
5.4	Magnetic fields sensor		P
5.5	Measuring procedures for magnetic fields	Time domain evaluation	P
5.7	Model.....	AN-A319	P
	Rated voltage (V).....	AC220-240V	P
	Measuring equipment.....	Magnetic field probe 100cm <sup>2</sup> Exposure level tester	P
	Measuring distance(cm).....	30cm	P
	Sensor location.....	Around	P
	Operating conditions.....		N
	Coupling factor.....	0.12	P
	Test duration.....	Until steady condition	P
	Measurement uncertainty (U).....		N
	The weighted result W (Limit: 100%).....	9.62%	P

## Photo Documentation



### Photo Documentation



## Photo Documentation

