

LVD TEST REPORT

Report No.: EBO1706095-E216

Product: DIODE LASER SYSTEM

Brank name: SK EILY

Model No.: AL-310C, AL-310B, AL-310, AL-300C, AL-300B, AL-300,
AL-320C, AL-320B, AL-320, AL-330C, AL-330B, AL-330,
AL-340C, AL-340B, AL-340

Applicant: WUHAN SK EILY PHOTOELECTRIC TECHNOLOGY CO., LTD.

Address: 403 Building, Core Center of Optical Valley, Wuhan, China.

Issued by: Shenzhen EBO Testing Center.

Lab Location: A506, Financial Port Building, Xin'an Sixth Road, 82th District,
Bao'an, Shenzhen, China.

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LVD REPORT**EN60335-1, EN 60335-2-23****Household and similar electrical appliances - Safety****Part 1: General requirements****Part 2-23: Particular requirements for appliances for skin or hair care****Administrative Data:**

Report Reference No..... : EBO1706095-E216
Testing laboratory : Shenzhen EBO Testing Center.
Address..... : A506, Financial Port Building, Xin'an Sixth Road, 82th District, Bao'an, Shenzhen, China.
Tested by(name and signature)..... : Don Wang *Don Wang*
Approved by(name and signature...) : Kevin Yu *Kevin Yu*
Date of issue..... : June 30, 2017
Contents..... : 69 pages.

**Test specification**

Test Standard(s)..... : EN 60335-1:2012+A11:2014+AC:2014
EN 60335-2-23:2003+A1:2008+A11:2010+AC:2012+A2:2015
Test procedure..... : LVD
Non-standard test method : N/A

Applicant : WUHAN SK EILY PHOTOELECTRIC TECHNOLOGY CO., LTD.
Address..... : 403 Building, Core Center of Optical Valley, Wuhan, China.
Manufacturer : WUHAN SK EILY PHOTOELECTRIC TECHNOLOGY CO., LTD.
Address : 403 Building, Core Center of Optical Valley, Wuhan, China.

Test item

Description..... : DIODE LASER SYSTEM
Model and/or type reference : AL-310C, AL-310B, AL-310, AL-300C, AL-300B, AL-300, AL-320C, AL-320B, AL-320, AL-330C, AL-330B, AL-330, AL-340C, AL-340B, AL-340
Test model : AL-310C
Rating(s) : AC 99-242V, 20A 4400W, 50HZ/60HZ

Particulars: test item vs. test requirements

Operating condition.....:	Continuous
Tested for IT power systems	N/A
IT testing, phase-phase voltage (V)	N/A
Class of equipment	Class I
Protection against ingress of water.....:	N/A

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	June 19, 2017
Date(s) of performance of test	June 19, 2017 June 30, 2017

General remarks

This 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 Annex #)" refers to an annex appended to the report.

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

Copy of marking plate:

Product Name: DIODE LASER SYSTEM
 Model no.: AL-310C ta=40°C
 Input : AC 110~240V, 45W 50/60Hz
 WUHAN SK EILY PHOTOELECTRIC TECHNOLOGY CO., LTD.
 403 Building, Core Center of Optical Valley, Wuhan, China .

S/N:XXXXXX
 Importer:XXXXXX
 Address:XXXXXX
 Made In China

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	GENERAL NOTES FOR THE TESTS		--
	Tests performed according to Cl. 5, e.g. nature of supply, sequence of testing, etc.		P
	The test of 25.14 for hand-held appliances is carried out on A separate appliance. (EN 60 335-2-23:03)		P
5.2	If the test of annex D has to be carried out an additional appliance may be used.		N
5.3	The test of clause 14 and 22.24 are carried out after the tests of clause 29.		P
5.14	Note: guidance is given in annex P for enhanced requirements that may be used to ensure an acceptable level of protection against electrical and thermal hazards for particular type of appliances used in an conductor in countries that have warm damp equable climates.		P

6	CLASSIFICATION		--
6.1	Appliances shall be one of the following Classes with respect to protection against electric shock (EN 60335-2-23:03):		--
	- hairdryers, curling irons, curling combs, facial saunas and other steam-producing or spray-producing appliances shall be of Class II or III (EN 60335-2-23:03)		N
	- however, fixed hairdryers intended to be permanently connected to fixed wiring, helmet-type hairdryers for Hairdressers and steam-producing appliances for hairdressers may be of Class I (EN 60335-2-23:03)		P
	- other appliances shall be of Class I, Class II or Class III (EN 60335-2-23:03)	Class I appliances	N
6.2	Protection against harmful ingress of water (EN 60335-2-23:03)	IPX0	N
	Hand dryers shall be at least IPX1		N
	Curling rollers of permanent-wave appliances shall be at least IPX4 (EN 60335-2-23:03)		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
7	MARKING		--
7.1	Rated voltage or voltage range (V) :	99-242V	P
	Single-phase appliances: 230 V covered (EN 60 335-1:02)	Covered 230 V	P
	Multi-phase appliances: 400 V covered (EN 60 335-1:02)	Single voltage appliance	N
	Nature of supply	~	P
	Rated frequency or frequency range (Hz) :	50HZ/60HZ	P
	Rated input or rated current	220W	P
	Manufacturer's or responsible vendor's name, trademark or identification mark	WUHAN SK EILY PHOTOELECTRIC TECHNOLOGY CO., LTD.	P
	Model or type reference	See model list	P
	Symbol for Class II	See label	P
	IP number		N
	The enclosure of electrically-operated water valves incorporated in external hose-sets for connection of an appliance to the water mains shall be marking symbol IEC 60417-5036 (DB:2002-10) if the working voltage exceeds extra-low voltage		N
	Portable hairdryers, curling irons and similar appliances shall be marked with the substance of the following warning: WARNING - Do not use this appliance near water, contained in bath-tubes, basins or other vessels (EN 60 335-2-23:03)		P
	Except for the specified colours, or with the substance of the following: WARNING: Do not use this appliance near water		P
	Marking on a label which is permanently attached to the appliance or appropriate symbol (EN 60 335-2-23:03)		P
7.2	Warning for stationary appliances		N
	Warning placed in vicinity of terminal cover		N
7.3	Range of rated values correctly marked		P
7.4	Voltage setting clearly discernible		P
7.5	Marking of rated input for each rated voltage		P
	The power input is related to the mean value of the rated voltage range.		P

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	Marking for upper and lower limits of rated input		N
7.6	Correct symbols used	See label	P
	Symbol 5582 of IEC 60417-1 suit for use in bath or shower. (EN 60 335-2-23:03)		P
	Symbol IEC 60417-5021 (DB: 2002-10) equipotentiality		N
	Symbol IEC 60417-5036 (DB: 2002-10) dangerous voltage		N
7.7	Correct connection diagram, fixed to the appliance		N
7.8	Not for type Z attachment:		--
	- marking of terminals for the neutral conductor (N)		N
	- marking of earthing terminals		N
	- marking not placed on removable parts	On outside enclosure	p
7.9	Marking or placing of switches which may cause a hazard	No hazard when operating	P
7.10	Indications of switches and regulating devices by use of figures, letters or other		N
	The figure 0 indicates only OFF position, unless no confusion with the OFF position		p
7.11	Indication for direction of adjustment of controls		N
7.12	Instructions for safe use provided		P
	The instructions for use for portable hairdryers shall include the substance of the following (EN 60 335-2-23:03):		N
	The instructions for use for portable hairdryers shall include the substance of the following (EN 60 335-2-23:03):		N
	- when the hairdryer is used in a bathroom, unplug it after use since the proximity of water presents a hazard even when the hairdryer is switched off (EN 60335-2-23:03)		N
	- for additional protection the installation of a residual current device (RCD) with a rated residual operating current not exceeding 30 mA is advisable in the electrical circuit supplying the bathroom. Ask your installer for advice (EN 60 335-2-23:03)		N
	The instructions for use for facial saunas shall include the substance of the following (EN 60		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	335-2-23:03):		
	- clean the appliance after use to avoid the accumulation of grease and other residues (EN 60 335-2-23:03)		N
	If symbol 5582vof IEC 60417-1 is used, together with the prohibition sign, the meaning shall be explained. Instructions shall also state the substance of the following: WARNING: do not use this appliance near bathtubs, showers, basins or other vessels containing water,		P
7.12.1	The instructions for installation for fixed hairdryers intended for use in bathrooms shall include the substance of the following (EN 60 335-2-23:03):		--
	- this hairdryer must be fixed out of reach of a person using a bath or shower (EN 60 335-2-23:03)		N
	If the hand-held part of the hairdryer incorporates electrical components, the instructions shall state that the appliance must be fixed so that the hand-held part, when fully extended, is out of reach of a person using a bath or shower (EN 60 335-2-23:03)		N
7.12.2	Means for disconnection with contact separation at least 3 mm		N
	Stationary appliance with supply cord and plug: statement in the instructions that the appliance is so positioned that the plug is accessible (EN 60 335-1:02)		N
7.12.3	Insulation in contact with parts exceeding 50 K; instruction		P
7.12.4	Information with regard to building-in:		--
	- dimensions of space		N
	- dimensions and position of support		N
	- ventilation openings		N
	- connection/interconnection plug accessible		N
	- necessity to allow disconnection of the appliance from the supply after installation, unless the appliance incorporates a switch complying with 24.3		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	The disconnection may be achieved by having the plug accessible or by incorporating a switch in fixed wiring in accordance with the wiring rules		N
7.12.5	Replacement cord, type X attachment		N
	Replacement cord, type Y attachment	Type Y attachment	P
	Replacement cord, type Z attachment		--
7.12.6	The instructions for heating appliances incorporating a non-self-resetting thermal cut-out that is reset by disconnection of the supply mains shall contain the substance of the following:		N
	CAUTION: In order to avoid a hazard due to inadvertent resetting of the thermal cutout, this appliance must not be applied through an external switching device, such as a timer, or connected to a circuit that is regularly switched on and off by the utility		N
7.12.7	The instructions for fixed appliances shall state how the appliance is to be fixed to its support		N
7,12,8	The instructions connected to the water mains shall state		--
	- the maximum inlet water pressure, in pascals;		N
	- the minimum inlet water pressure, in pascals, if this is necessary for the correct operation of the appliance		N
	The instructions for appliances connected to the water mains by detachable house-sets shall state that the new hose sets supplied with the appliance are to be used and that old hose-sets should not be reused.		N
7.13	Instructions and other texts in official language	English	P
7.14	Marking easily legible and durable	The label is clearly legible after the rubbing test	P
	The diameter of the circle superimposed an symbol 5562 of IEC 60417-1vshall be at least 10 mm.		N
7.15	Marking on a main part	Marking label attached to outside enclosure	P
	Marking clearly discernible from outside		P

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	For portable appliances, cover can be removed or opened without a tool		N
	For stationary appliance: name or trademark and model or type reference visible after installation	No such construction	N
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation		N
	Indication for switches and controls in vicinity of components; not on removable parts if misleading		P
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		P

8	PROTECTION AGAINST ACCESSIBILITY TO LIVE PARTS		--
8.1	Adequate protection against accidental contact with live parts		P
8.1.1	All positions; detachable parts removed		P
	Removal of lamps: protection against contact with live parts	No lamp	N
	Use of test probe B of IEC 61032: no contact with live parts		P
8.1.2	Use of test probe 13 of IEC 61032 through opening in class 0 appliances and class II appliance/ constructions: no contact with live parts		P
	The test probe 13 also applied through openings in earthing metal enclosures having a non-conductive coating no contact with live parts		N
8.1.3	Not applicable (EN 60 335-2-23: 03)		--
8.1.4	Accessible part not considered live if:	No hazards when operating	---
	- extra-low a.c. voltage: peak values not exceeding 42,4 V		N
	- extra-low d.c. voltage: not exceeding 42,4 V		N
	- or separated from live parts by protective impedance, d.c. current not exceeding 2 mA		N
	- or separated from live parts by protective impedance, a.c. peak value not exceeding 0,7 mA		N
	- for peak value 42,4 V up to and including 450 V capacitance not exceeding 0,1 uF		N
	- for peak value 450 V up to and including 15 kV		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	discharge not exceeding 45 uC.		
	The quantity of electricity in the discharge is measured using a resistor having a nominal non-inductive resistance of 2000Ω		N
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		--
	- built-in appliances		N
	- fixed appliances		N
	- separate units		N
8.2	Class II appliances and constructions adequately protected against accidental contact with basic insulation and metal parts separated from live parts with only basic insulation		N
	Only possible to touch parts separated from live parts by double or reinforced insulation		P
9	STARTING OF MOTOR-OPERATED APPLIANCES		--
	Requirements and tests are specified in parts 2 when necessary		N
10	POWER INPUT AND CURRENT		--
10.1	Power input at rated voltage and normal operating temperature not deviating from rated input by more than shown in table; measured power input (W); rated input (W); deviation :		P
10.2	Current at normal operating temperature not deviating from rated current by more than shown in table; measured current at rated voltage under normal operation (A); rated current (A); deviation :		N
11	HEATING		--
11.1	No excessive temperatures in normal use		P
	For appliances incorporating a swivel connection, compliance is also checked by the test of 11.101 (EN 60 335-2-23:03)		P
11.2	Placing and mounting of appliance as described		P
	Appliances provided with a stand and which also have means for attaching to a support are		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	positioned to give the most unfavourable results (EN 60 335-2-23:03)		
11.3	Temperature rises determined by thermocouples or resistance method	Determined by thermocouples	P
11.4	Heating appliances operated under normal operation at 1,15 times rated power input	276Va.c.	P
	If the temperature rise limits are exceeded in appliance incorporating motors, transformers or electronic circuits and the power input is lower than the rated power input, the test is repeated with the appliance supplied at 1,06 times rated voltage (EN 60 335-2-23:03)		N
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0,94 and 1,06 times rated voltage		N
11.6	Combined appliances are operated as heating appliances (EN 60 335-2-23:03)		N
11.7	Appliances without a timer are operated (EN 60 335-2-23:03):		N
	- for 30 min for hand-held appliances (EN 60 335-2-23:03)		P
	- in cycles of 30 s on and 5 s off, until steady conditions are established, for hand dryers which are automatically controlled by the presence of the hands (EN 60 335-2-23:03)	No such devices	N
	- until steady conditions are established for other appliances (EN 60 335-2-23:03)		N
	Appliances incorporating a timer are operated in cycles until steady conditions are established (EN 60 335-2-23:03)		N
	Each cycle consists of the maximum operating time of the timer followed by a rest period of 5 s (EN 60 335-2-23:03)		N
11.8	Temperature rises not exceeding values in table 3	(see appended table)	P
	The temperature rise limits of motors, transformers and components of electronic circuits, including parts directly influenced by them, may be exceeded when the appliance is operated at 1.15 times rated power input		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	However, components in protective electronic circuits are allowed to operate provided they are tested for the number of cycles of operation specified in 24.1.4		N
	The temperature rise of the handles of curling irons heated by a heater for detachable curlers incorporating a timer is determined at the end of the first cycle.		P
	Protective devices do not operate		P
	Sealing compound not flowing out	No such sealing compound	N
11.101	Appliances incorporating a swivel connection are positioned with their major axis horizontal, the supply cord hanging vertically (EN 60 335-2-23:03)		P
	A pull force of 1 N is applied to the supply cord (EN 60 335-2-23:03)		P
	The appliance is supplied at rated voltage, the current being 1,25 times the rated current (EN 60 335-2-23:03)		P
	The appliance is rotated about its major axis at a rate of approximately 50 rev/min, the direction of rotation being reversed after every 20 revolutions (EN 60 335-2-23:03)		P
	The test is continued for 1500 revolutions (EN 60 335-2-23:03)		P
	The temperature rise of sliding contacts shall not exceed 65 K (EN 60 335-2-23:03)	Not exceed 65K	P

13	LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE		--
13.1	Leakage current not excessive and electric strength adequate		P
	Heating appliances operated at 1.15 times rated power input		P
	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
13.2	Leakage current measured by means of circuit		P

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict

	described in Annex G		
	Leakage current measurements	(see appended table)	P
13.3	The appliance is disconnected from the supply and the insulation is immediately subjected to a voltage having a frequency of 50Hz or 60 Hz for 1 min, in accordance with IEC61180-1.	(see appended table)	P
	The high-voltage source used for the test is to be capable of supplying a short circuit current is between the terminals after the output voltage has been adjusted to the output voltage has been adjusted to the appropriate test voltage,		P
	The overload release of the circuit is not to be operated by any current below the tripping current I_r . The values if I_s and I_r are given in the 5 for various high-voltage sources,		P
	No breakdown during the test		P

14	TRANSIENT OVERVOLTAGES		--
	Appliances withstand the transient overvoltages to which they to		N
	Clearances having a value less than specified in table 16 subjected to an impulse voltage test, the test voltage specified in table 6		N
	No flashover during the test, unless of functional insulation		N
	In case of flashover of functional insulation, the appliances with clause 19 with the clearance short circuited		N

15	MOISTURE RESISTANCE		
----	---------------------	--	--

15.1	Enclosure provides the degree of moisture protection according to classification of appliance	IPX0	P
	Appliance subjected to test as specified in 15.1.1,		N
	Withstand electric strength test specified in 16.3		P
	No trace of water on insulation which can result in a reduction of distances and clearances below values specified in 29.1		N
15.1.1	Appliances other than IPX0 are subjected to the		--

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	test of IEC 529 as follows (EN 60 335-2-23:03):		
	Water valves containing lives parts and that are incorporated in external hoses for connection of an appliance to the water mains are subjected to the test specified for IPX7 appliances		N
	- IPX1 appliances as described in 14.2.1 (EN 60 335-2-23:03)		N
	- IPX2 appliances as described in 14.2.2 (EN 60 335-2-23:03)		N
	- IPX3 appliances as described in 14.2.3 (EN 60 335-2-23:03)		N
	- IPX4 appliances as described in 14.2.4 (EN 60 335-2-23:03)		N
	- IPX5 appliances as described in 14.2.5 (EN 60 335-2-23:03)		N
	- IPX6 appliances as described in 14.2.6 (EN 60 335-2-23:03)		N
	IPX7 appliances as described in 14.2.7 (EN 60 335-2-23:03)		N
	For this test the appliance is immersed in water containing 1% NaCl. (EN 60 335-2-23:03)		N
15.1.2	Hand-held appliance turned continuously through the most unfavourable positions during the test	IPX0	N
	Built-in appliance installed according to the manufacturer's instruction		N
	Appliances placed or used on the floor or table placed on a horizontal unperforated support		N
	Appliances normally fixed to wall and appliances with pins for insert into socket-outlets are mounted on a wooden board.		N
	Appliances normally fixed to a ceiling are mounted underneath a horizontal unperforated support that is constructed to prevent water spraying onto its top surface. The pivot axis of the oscillating tube is located at the same level as the underside of support and aligned centrally with the appliance. The spray is directed upwards.		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	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 appliance is aligned with the pivot axis of the oscillating tube.		N
	For IPX4 appliances, the movement of the tube is limited to two times 90°, the vertical for a period of 5 min/pivot axis of the oscillating tube		N
	Wall mounted appliances, take into account the distance to the floor stated in the instructions		N
	Detachable parts tested as specified		N
15.2	Spillage of liquid does not affect the electrical insulation	No such construction	N
	Appliances with X attachment fitted with a flexible cord as described		N
	Appliances 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 liquid (l) :		N
	Withstand electric strength test in 16.3		N
	No trace of water on insulation which can result in reduction of distances and clearances below values specified in 29.1		N
15.3	Appliances proof against humidity conditions		--
	Humidity treatment for 48 h	93 %RH, 25 °C	P
	Withstanding the test of Cl. 16		P

16	LEAKAGE CURRENT AND ELECTRIC STRENGTH		--
16.1	No excessive leakage current and adequate insulation and electric strength (tests 16.2 and 16.3)		P
	Protective impedance disconnected from live parts before carrying out the tests.		N
16.2	Single-phase appliances: test voltage 1.06 times rated voltage		P
	Three-phase appliances: test voltage 1.06 times rated voltage		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	Leakage current measurements	(see appended table)	P
16.3	Electric strength tests (values in Table 7)	(see appended table)	P
	No breakdown tests during test		P
17	OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS		--
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use	No transformer used	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
	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 51558-1		N
18	ENDURANCE		--
	Requirements and tests are specified in parts when necessary		N
19	ABNORMAL OPERATION		--
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 will not render the appliance unsafe		P
	Hairdryers are also subjected to the tests of 19.101 and 19.102 (EN 60 335-2-23:03)		N
19.2	Test of appliance with heating elements with restricted heat dissipation; test voltage (V): power input of 0,85 times rated power input :	254V	P
	Restricted heat dissipation is obtained as follows (EN 60 335-2-23:03):		--
	- motors are disconnected (EN 60 335-2-23:03)		N
	- hand-held hairdryers are placed on the floor of		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	the test corner in any stable position likely to occur (EN 60 335-2-23:03)		
	- appliances intended to be filled with water are operated empty (EN 60 335-2-23:03)	No such construction	N
	Hairdryers provided with a flexible hood attachment are also tested with the motor running, the air flow through the hose being restricted to give the most unfavourable result (EN 60 335-2-23:03)		N
	Heaters for detachable curlers are placed on a low density glass-fibre insulation having a coefficient of thermal insulation of approximately 2,5 m ² * K/W (EN 60 335-2-23:03)	No such constructions	N
19.3	Test of 19.2 repeated; test voltage (V): power input of 1,24 times rated power input :	297.6V	P
19.4	Test conditions as in Cl. 11, the power input being 1,15 times rated power input, any control limiting the temperature during tests of Cl. 11 short-circuited		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 (EN 60 335-1:02)	No such constructions	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 as specified. Supplied at rated voltage, establishing steady conditions, then the voltage increased in steps by 5% until 1,5 times rated voltage is reached or until the heating element ruptures		P
19.7	Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque or locking moving parts	No motor	N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	(EN 60 335-1:02)		
	Locked rotor, motor capacitors open circuited or short-circuited, if required		N
	Locked rotor, capacitors open-circuited one at a time		N
	The test repeated with capacitors shorted-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
	Test period at rated voltage (s or min) or until steady state conditions established:		N
	Winding temperatures not exceeding limiting temperature; type of appliance; insulation class; measured temperature °C *-		N
	The test is carried out for 5 min except for (EN 60 335-2-23:03):		--
	- hand-held appliances (EN 60 335-2-23:03)		N
	- appliances which have to be kept switched on by hand (EN 60 335-2-23:03)		N
	- appliances provided with a timer (EN 60 335-2-23:03)	No provided timer	N
	- hand dryers are subjected to the test only when the locked rotor torque is smaller than the full load (EN 60 335-2-23:03)		N
	Other appliances supplied with rated voltage for a period as specified		N
19.8	Three-phase motors operated at rated voltage with one phase disconnected	No such motors	N
19.9	Not applicable (EN 60225-2-23:03)		N
19.10	Series motor operated at 1,3 times rated voltage for 1 min	No such motor	N
	Parts shall not be ejected from the appliance (EN 60 335-1:02)		N
	The test is made with the heating elements disconnected or switched off (EN 60 335-2-23:03)	No such constructions	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		P

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	they comply with the conditions specified in 19.11.1		
	Appliances incorporating a protective electronic circuit are subjected to tests of 19.11.3 and 19.11.4		N
	Appliances having a switch with an off position obtained by electronic disconnection or a switch that can place the appliance in stand-by mode, are subjected to the test 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 creepage distances and clearances between live parts of different potential, if these distances are less than the values specified in 29.1, unless the relevant part is adequately encapsulated		P
	b) open circuit at the terminals of any component	(see appended table)	P
	c) short-circuit of capacitors, unless they comply with IEC 384-14 or subclause 14.2 of IEC 65		P
	d) short-circuit of any two terminals of an electronic component, other than integrated circuits. This fault condition is not applied between the circuits of an optocoupler		P
	e) failure of triacs in the diode mode		P
	f) failure of an integrated circuit. In this case the possible hazardous situations of the appliance are assessed to ensure that safety does not rely on the correct functioning of such a component		P
	In the case, the test is ended if a non-self-resetting interruption of the supply occurs within the appliance.		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
19.11.3	If the appliance incorporates a protective electronic circuit which operates to enclosure compliance with clause 19, the relevant test is repeated with a signal fault simulated, as indicated in a) to f) of 19.11.2		P
	During and after each test the following is checked:		--
	- the temperature rise of the windings do not exceed the values specified in Table 8		N
	- the appliance complies with the conditions specified in 19.13		P
	- live parts not accessible to the test finger or test pin as specified in Cl. 8		P
	- any current flowing through protective impedance not exceeding the limits specified in 8.14		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 20.1 of IEC 65		N
	- any loosened conductor does not reduce the creepage distances or clearances between live part and accessible metal parts		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 a switch that can be placed in the stand-by mode, are subjected to the tests of 19.11.4.1 to 19.11.4.7. The tests are carried out with the appliance supplied at rated voltage, the switch being set in the position or in the stand-by mode.		N
	Appliance incorporating a protective electronic circuit are subjected to the tests of 19.11.4 to 19.11.7. The tests carried out after the protective electronic circuit has operated during the relevant tests of clause 19 except 19.2, 19.6 and 19.11.3. however, appliances that are operated for 30s or 5 min during test of 19.7 are not subjected to the tests for electromagnetic phenomena.		N
	The tests carried out with surge arresters		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	disconnected, unless they incorporate spark gaps		
19.11.4.1	The appliances is subjected to electrostatic discharges in accordance with IEC 61000-4-2, test level 4 being applicable. Ten discharges having appositve and ten discharges having a negative polarity and for 2 min with a negative polarity		N
19.11.4.2	The appliances is subjected to fields in accordance with IEC 61000-4-3, thet level 3 being applicable		N
19.11.4.3	The appliance is subjected to fast transient bursts in accordance with IEC 64000-4-4. Test level 3 s applicable for signal and control lines. The test level 4 is applicable for the power supply lines. The bursts are applied for 2 min with positive polarity and for 2 min with a negative polarity		N
19.11.4.4	The power supply terminals of the appliance are subjected to voltage surges in accordance with IEC 61000-4-5, five positive impulses and five negative impulses being applied at the selected points. The level 3 is applicable for the line-to-line coupling mode, a generator having a source impedance of 12 Ω being used.		N
	Earthed heating elements in class I appliances are disconnected during this test		N
	For appliances having surge arresters incorporating spark gaps, the test is repeated at a level that is 95% of the flashover voltage		N
19.11.4.5	The appliance is subjected to injected currents in according with IEC 61000-4-6, test level 3 being applicable. During the test, all frequencies between 0.15 MHz to 80 MHz are covered		N
19.11.4.6	The appliance is subjected to voltage dips and interruptions in accordance with IEC 61000-4-11. the durations specified in table 1 of IEC 61000-4-11 are applied to each test level, the dips and interruptions being applied at zero crossing of the supply voltage		N
19.11.4.7	The appliance is subjected to mains signals in accordance with IEC 61000-4-13, test level class 2 being applicable.		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
19.12	If the safety of the appliance for any of the fault conditions specified in 19.11.2 depends on the operation of a miniature fuse-link complying with IEC 127, the test is repeated, measuring the current flowing through the fuse-link; measured current (A); rated current of the fuse-link (A) :		P
19.13	During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts		P
	Temperature rises not exceeding the values shown in Table 9		P
	Enclosures not deformed to such an extent that compliance with Cl. 8 is impaired		P
	Appliance still operable and complying with 20.2		P
	The appliance shall not undergo a dangerous malfunction, and there shall be no failure of protective electronic circuits if the appliance is still operable.		N
	Appliances tested with an electronic switch in the off position, or in the stand-by mode, shall not become operational		N
	Appliance, other than Class III, withstands the electric strength test of 16.3, however, the test voltage being:		--
	- basic insulation: 1000 V	1000V	P
	- supplementary insulation: 1750 V	1750V	P
	- reinforced insulation: 3000 V	3000V	P
19.101	Hairdryers are operated as specified in Cl. 11 except that the heating element and motor are supplied separately (EN 60 335-2-23:03)		N
	The heating element is supplied at the voltage used for 1.14 and the motor is supplied at its working voltage until steady conditions are established (EN 60 335-2-23:03)		N
	The voltage applied to the motor is then reduced until the running speed of the motor is just sufficient to prevent the thermal cut-out from operating (EN 60 335-2-23:03)		N
	The hairdryer is then operated until steady conditions are established (EN 60 335-2-23:03)		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	The voltage is decreased at (EN 60 335-2-23:03):		--
	- 1 V/min for motors having a working voltage not exceeding 30 V (EN 60 335-2-23:03)		N
	- 5 V/min for motors having a working voltage exceeding 30 V (EN 60 335-2-23:03)		N
	The hairdryer shall not emit flames or molten metal, and temperature rises shall not exceed the values in Table 7 (EN 60 335-2-23:03)		N
	The other criteria of 19.13 do not apply (EN 60 335-2-23:03)		N
	It may be necessary to compensate for the effect on the heating element of disconnecting the motor (EN 60 335-2-23:03)		N
19.102	Portable hairdryers are operated under normal operation at 1,15 times rated power input (EN 60 335-2-23:03)		N
	A sheet of polyethylene approximately 20 cm x 20 cm and having a thickness of 50 mm is placed against the air-inlet and moved in any direction in order to reduce the airflow so that the most unfavourable conditions are established (EN 60 335-2-23:03)		N
	The test is carried out for 30 min (EN 60 335-2-23:03)		N
	The test is repeated with the airflow directed horizontally (EN 60 335-2-23:03)		N
	The most unfavourable conditions are usually obtained by positioning the polyethylene sheet so that the thermal cut-out is prevented from operating (EN 60 335-2-23:03)		N

20	STABILITY AND MECHANICAL HAZARDS		--
20.1	Adequate stability	Hand-held appliance	N
	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;		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	temperature rise does not exceed values shown in Table 7		
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury	No moving parts	N
	Protective enclosures, guards and similar parts are non-detachable		P
	Adequate mechanical strength and fixing of protective enclosures		P
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard, if unexpectedly reclosed		N
	Not possible to touch dangerous moving parts with test finger		N
21	MECHANICAL STRENGTH		--
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 Nm	Impact energy 0.5 J three blows	P
	If necessary, supplementary or reinforced insulation subjected to the electric strength test of 16.3		P
	If necessary, repetition of groups of three blows on a new sample		N
21.2	Accessible parts of solid insulation shall have sufficient strength to prevent penetration by sharp implements		N
	Compliance is checked by subjecting the insulation to the following test unless the thickness of supplementary insulation is at least 1 mm and that of reinforced insulation is at least 2 mm.		N
	The insulation is raised to the temperature measured during the test of clause 11.		N
	The surface of insulation is then scratched by means of a hardened steel pin, the end of which has the form of a cone with angle of 40° its tip is rounded with a radius of 0.25 mm ± 0.20mm		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	The pin is held at an angle of 80° -85° to the horizontal and loaded so that the force exerted along its axis is 10 N ± 0.5N.		N
	The scratched are made by drawing the pin along the surface of the insulation at a speed of approximately 20 mm/s. two parallel scratched are made.		N
	Two similar scratches are made at 90° to the first pair without crossing them.		N
	The test fingernail of figure 7 is then applied to the scratched surface with a force of approximately 10 N. No further damage, such as separation of the material, shall occur. The insulation shall then withstand the electric strength test of 16.3		N
	The hardened steel pin is then applied perpendicularly with a force of 30 N ± 0.5N to an unscratched part of the surface. The insulation shall then withstand the electric strength test of 16.3 with the pin still applied and used as one of the electrodes.		N
21.101	Hand-held appliances are placed on a horizontal surface which is positioned 70 cm above a rigidly supported hardwood board (EN 60 335-2-23:03)		P
	The appliances is supplied at rated voltage and operated at its highest setting (EN 60 335-2-23:03)		P
	It is pulled from the surface by its supply cord and allowed to drop freely (EN 60 335-2-23:03)		P
	The test is carried out five times, the appliance being placed in different positions likely to occur (EN 60 335-2-23:03)		P
	The appliance shall not be damaged to such an extent that compliance with this standard is impaired. In particular, the requirements of Cl. 8 and Cl. 29 shall be fulfilled (EN 60 335-2-23:03)		P
22	CONSTRUCTION		--
22.1	Appliance marked with the first numeral of the IP system: relevant requirements of IEC 529 are fulfilled	IPX0	P

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
22.2	Stationary appliance: means to provide all-pole disconnection from the supply provided, the following means being available:	Hand-held appliance	--
	- 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 coupler		N
	Single-phase Class I appliance with heating elements, intended to be permanently connected to fixed wiring, incorporating single-pole switches or single-pole protective devices for the disconnection of the heating element(s): the switches/devices being connected in the phase conductor (EN 60 335-1:02)	No such constructions	N
22.3	Appliance provided with pins: no undue strain on socket-outlets	No such pins	N
	Applied torque not exceeding 0,25 Nm		N
	Each pin subjected to a tork of 0.4 Nm, the pins are not rotating unless rotating does not impair compliance with standard		N
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets	No heating liquids	N
22.5	The appliance is supplied at rated voltage. Any switch is then placed in the off position and the appliance is disconnection from the supply mains at instant of voltage peak, one second after disconnection, the voltage between the pins of the plug is measured with an instrument that does not appreciably affect the value to be measured.		N
	No risk of electric shock when touching the pins of the plug		N
22.6	Electrical insulation not affected by condensing water or leaking liquid	No such appliance	N
	Electrical insulation of Class II appliances not affected in case of a hose rupture or seal leak		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
22.7	Adequate safeguards against the risk of excessive pressure in appliances provided with steam-producing devices	No such appliance	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 which are likely to be cleaned in normal use	No such compartments	N
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances		P
	Adequate insulating properties of oil or grease to which insulation is exposed	No such substances	N
22.10	It shall not be possible to reset voltage-maintained non-self thermal cut-outs by the operation of an automatic switching device incorporated within the appliance.		N
	NOTE1 Voltage-maintained controls will automatically reset if they become energized		N
	Non-self-resetting thermal motor protectors shall a trip-free action unless they are voltage maintained.		N
	NOTE2 Trip-free is an automatic action that is independent of manipulation or position of the actuating member.		N
	Reset buttons of non-self-resetting controls shall located or protected so that their accidental resetting is unlikely to occur if this could result in a hazards.		N
	NOTE3 For example, this requirement precludes the location of reset buttons on the back of an appliance, which could result in them being reset by pushing the appliance against a wall.		N
22.11	Reliable fixing of non-detachable parts which provide the necessary degree of protection against electric shock, moisture or contact with moving parts		P
	Obvious locked position of snap-in devices used for fixing such parts		P
	No deterioration of the fixing properties of snap-in devices used in parts which are likely to be		P

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	removed during installation or servicing		
	Tests		P
22.12	Handles, knobs etc. fixed in a reliable manner		N
	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 of which being so that an axial pull is unlikely to be applied		N
	Axial force 30 N applied to parts, the shape of which being so that an axial pull is likely to be applied		N
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		P
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 such hook	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 such cord reel	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 such spacer	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 such parts	N
22.20	Direct contact between live parts and thermal		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	insulation effectively prevented, unless material used is non-corrosive, non-hygroscopic and non-combustible		
	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 be used as insulation, unless impregnated	No such material use for insulation	N
22.22	Asbestos not used in the construction of the appliance		P
22.23	Oils containing polychlorinated biphenyl (PCB) not used		P
22.24	Bare heating elements adequately supported		--
	In case of rupture, the heating conductor is unlikely to come in contact with earthed metal parts or accessible metal parts		P
	The heating element shall also be unlikely to come into contact with the skin or hair if it ruptures (EN 60 335-2-23:03)		P
22.25	Sagging heating conductors cannot come into contact with accessible metal parts		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		N
22.27	Parts connected by protective impedance separated by double or reinforced insulation	No such protective impedance	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	No such construction	N
22.29	Class II appliances permanently connected to fixed wiring so constructed that the required degree of protection against electric shock 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,		P

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	the appliance is rendered inoperable or manifestly incomplete		
22.31	Creepage distances and clearances over supplementary and reinforced insulation not reduced below values specified in 29.1 as a result of wear		P
	Creepage distances and clearances over supplementary or reinforced insulation not reduced to less than 50% of values specified in 29.1 if wires, screws etc. becomes loose		P
22.32	Supplementary and reinforced insulation designed or protected against deposition of dirt or dust		P
	Ceramic material not tightly sintered, similar material or beads alone not used as supplementary or reinforced insulation		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 29.1		P
	Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature		N
	Supplementary insulation and reinforced insulation in Class II curling irons shall be resistant to ageing (EN 60 335-2-23:03)		N
	Additional test for samples of insulation not mentioned in Table 3 (EN 60 335-2-23:03)		N
22.33	Conductive liquids which are or may become accessible in normal use are not in direct contact with live parts	No conductive liquids	N
	Conductive liquids are not in direct contact with basic insulation or reinforced insulation in Class II constructions		N
22.34	Shafts of operating knobs, handles, levers etc. not live, unless the shaft is not accessible when the part is removed		P
22.35	Handles, levers and knobs, held or actuated in normal use, not becoming live in the event of an insulation fault		P
	Such parts being of metal, and their shafts or fixings are likely to become live in the event of an		P

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	insulation fault, they are either adequately covered by insulation material, or their accessible parts are separated from their shafts or fixings by supplementary insulation		
	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		P
	For Class I appliances other than hand dryers and face dryers, metal parts which could be in contact with skin or hair in normal use shall be separated from live parts by double insulation or reinforced insulation and shall not be earthed (EN 60 335-2-23:03)		N
22.37	Capacitors in Class II appliances not connected to accessible metal parts, unless complying with 22.42	No such capacitor	P
	Metal casings of capacitors in Class II appliances separated from accessible metal parts by supplementary insulation, unless complying with 22.42	Separated	P
22.38	Capacitors not connected between the contacts of a thermal cut-out		P
22.39	Lamp holders only used for the connection of lamps	No lamp holder used	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 (EN 60 335-1:02)		N
	The actuating member of this switch shall be easily visible and accessible (EN 60 335-1:02)		N
	The switch in the off position shall disconnect		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	electronic circuits, unless compliance with Cl. 19 does not depend on the operation of a self-resetting thermal cut-out (EN 60 335-2-23:03)		
22.41	Mercury switches mounted according to the requirement	No such component	N
22.42	Protective impedance consisting of at least two separate components	No protective impedance	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		N
22.44	Appliance enclosure not shaped and decorated so that the appliance is likely to be treated as a toy by children (EN 60 335-1:02)		P
22.45	The appliance shall be constructed cannot be reduced values specified in 29.1.3 due to deformation.		P
22.46	Software used in protective electronic circuits shall be software class B or software class C		N
	NOTE1: Failure of software B in the presence of another fault in the appliance, or failure of software class C alone, could result in dangerous malfunction, electric shock, fire, mechanical or other hazards. Software class A denotes software used for functional purpose		N
	Compliance is checked by evaluating the software in accordance with Annex R.		N
	Note2: If the software program is modified, the evaluation and relevant tests are results of the test involving protective electronic circuits.		N
22.47	Appliances intended to be connected to the water mains withstand the water mains shall withstand the water pressure expected in normal use.		N
	Compliance is checked by connecting the appliance to a water supply having a static pressure equal to twice the maximum inlet water pressure or 1.2MPa, whichever is higher, for a period of 5 min		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	There shall be no leakage from any part, including any inlet water hose		N
22.48	Appliances intended to be connected to the water mains shall be constructed to prevent backsiphonage of non-portable water into the water mains.		N
	Compliance is checked by the relevant tests of IEC 61770		N
22.101	Appliances provided with steam-producing or spray-producing devices shall be constructed so that there is no spillage or unintentional burst of steam or water which is likely to cause a hazard (EN 60 335-2-23:03)		N
22.102	Curling rollers of permanent-wave appliances in which the heating elements are integral with the curling rollers and which are energized during use shall be supplied with safety extra-low voltage not exceeding 24 V (EN 60 335-2-23:03)		N
23	INTERNAL WIRING		--
23.1	Wire ways 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		N
	Wiring effectively prevented from coming into contact with moving parts		N
23.2	Beads etc. on live wires cannot change their position, and are not resting on sharp edges or corners	No such beads	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		P
	Flexible metallic tubes not causing damage to insulation of conductors	No such flexible metallic tubes	N
	Open-coil springs not used		P
	Adequate insulating lining provided inside a coiled	No such lining	N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	spring, the turns of which touch one another		
	No damage after 10 000 flexings		P
	Electric strength test, 1000 V between live parts and metal parts		P
	The number of flexings for conductors which are flexed only when the appliance is stored is 5000 (EN 60 335-2-23:03)		N
23.4	Bare internal wiring sufficiently rigid and fixed	No bare internal wiring	N
23.5	The basic insulation of internal wiring withstanding the electrical stress likely to occur in normal use (EN 60 335-1:02)		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
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	No earthed conductor	N
23.8	Aluminium wires not used for internal wiring		N
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		N
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
24	COMPONENTS		--
24.1	Components comply with safety requirements in relevant IEC standards (EN 60 335-1:02)		P
	List of components		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 24.1.6.		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	Components not tested and found to comply with relevant IEC standard for the number of cycles specified are tested in accordance with its marking, tested under the conditions occurring in the appliance.		N
24.1.1	Capacitors likely to be subjected to the supply mains voltage and used for radio interference suppression or voltage dividing, shall comply with Annex ZC (EN 60 335-1:02)		P
	Tested according to annex F		N
24.1.2	Safety isolating transformers comply with IEC 61558-2-6, or		N
	Tested according to annex G		N
24.1.3	Switches complying with IEC 61058-1, the number of cycles of operation being at least 10 000, or		P
	Tested according to annex H		P
	Switch incorporated in hand dryer are subjected to 50 000 cycles of operation		P
24.1.4	Automatic controls complying with IEC 730-1 with relevant part 2. the number of cycles of operation being:		--
	- thermostats: 10 000		P
	- temperature limiters: 1000		N
	- self-resetting thermal cut-outs: 300		N
	- voltage-maintained non-self-resetting thermal cut-outs: 300		N
	- other non-self-resetting thermal cut-outs: 30		N
	- energy regulators: 3000 (EN 60 335-1:02)		N
	- timers: 10 000 (EN 60 335-1:02)		N
	Thermal motor protectors are tested in combination with their motor under the conditions specified in annex D		N
	For water valves containing live parts and that are incorporated in external hoses for connection of an appliance to the water mains, the degree of protection provided by enclosures against harmful ingress of water declared for subclause 6.5.2 of IEC 60730-2-8 shall be IPX7		N
24.1.5	Appliance couplers compliance IEC 60320-1		N
	However, appliances classified higher than IPX0,		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	the appliance couplers complying with IEC 60302-2-3		
	The relevant standard for interconnection couplers is IEC 60320-2-2		N
24.1.6	Small lamp holder similar to E10 lampholders complying with IEC 60238, the requirements for E10 lampholders being applicable		N
24.2	No switches or automatic controls in flexible cords		P
	Helmet-type hairdryers and permanent-wave appliances may incorporate a switch in a flexible cord (EN 60 335-2-23:03)		N
	No devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance		N
	No thermal cut-outs which can be reset by soldering		N
24.3	Switch intended for all-pole disconnection of stationary appliances is directly connected to the supply terminals, having a contact separation in all poles, providing full disconnection under overvoltage category III conditions.		N
24.4	Plugs and socket-outlets for heating elements and extra-low voltage circuits, not interchangeable with plugs and		N
	socket-outlets or with connectors and appliance inlets complying with IEC 83 or IEC 320, respectively		N
24.5	Capacitors in auxiliary winding of motors marked with their rated voltage and capacitance and used accordingly		N
	Capacitors in appliances for which 30.2.3 is applicable and that are permanently connected in series with motor winding, are of class P1 or P2 of IEC 60252		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		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	inadequate for the rated voltage of the appliance, not exceeding 42V.		
	In addition, the motors are complying with the requirements of annex I		N
24.7	Hose –set for the connection of appliances to the water mains shall comply with IEC 61770. they shall be supplied with the appliance.		N

25	SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS		--
25.1	Appliance not intended for permanent connection to fixed wiring, means for connection to the supply:		--
	- supply cord fitted with a plug		P
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance	No inlet	N
	- pins for insertion into socket-outlets	No pins	N
25.2	Appliance not provided with more than one means of connection to the supply		P
	Stationary appliance for multiple supply may be provided with more than one means of connection, provided electric strength test of 1250 V for 1 min between each means of connection causes no breakdown		N
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		N
	Appliance provided with a set of terminals for the connection of cables or fixed wiring, cross-sectional areas specified in 26.3		N
	Appliance provided with a set of terminals allowing the connection of a flexible cord		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, dimensions according to Table 10		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	Introduction of conduit or cable does not affect the protection against electric shock or reduce creepage distances and clearances below values specified in 29.1		N
25.5	Method for assemble supply cord with the appliance:		--
	- type X attachment		N
	- type Y attachment	Type Y attachment	P
	Type Z attachment is allowed for (EN 60 335-2-23:03):		N
	- hand-held appliances (EN 60 335-2-23:03)		N
	- hairdryers with a flexible hood attachment (EN 60 335-2-23:03)		N
	- heaters for detachable curlers having not more than 10 curlers (EN 60 335-2-23:03)		N
	Type X attachment: specially prepared cord		N
	Type X attachment not used for flat twin tinsel cord		N
25.6	Plugs fitted with only one flexible cord		P
25.7	Appliance supply cord not lighter than:		--
	- braided cord (245 IEC 51)		N
	- ordinary tough rubber sheathed cord (245 IEC 53)	H03VV-F	P
	- ordinary polychloroprene sheathed flexible cord (245 IEC 57) (EN 60 335-1:94)		N
	- flat twin tinsel cord (227 IEC 41)		N
	- light polyvinyl chloride sheathed cord (227 IEC 52)		N
	- ordinary polyvinyl chloride sheathed cord (227 IEC 53)		N
	Temperature rise of external metal parts exceeding 75 K, PVC cord not used		N
	PVC cord used: appliance so constructed that the supply cord is not likely to touch external metal parts in normal use		N
	The temperature rise limit of 75 K is increased to 130 K if the temperature rise decreases to 75 K within 5 min after the appliance has been switched off (EN 60 335-2-23:03)		N
	PVC supply cord 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 ²) :	<6A, 0.75mm ²	P

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	For hand-held hairdryers having a supply cord not exceeding 2 m, the nominal cross-sectional area may be reduced to (EN 60 335-2-23:03):		--
	- 0,75 mm ² for rated current up to 10 A (EN 60 335-2-23:03)		P
	- 1,0 mm ² for rated current up to 16 A (EN 60 335-2-23:03)		N
25.9	Supply cord not in contact with sharp points or edges	Non - detachable supply cord, not contact sharp point or edges	P
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		P
	Clamping means so constructed that there is no risk of bad contacts due to cold flow of the solder		P
25.12	Moulding the cord to part of the enclosure does not damage the insulation of the supply cord	No such constructions	N
25.13	Inlet opening provided with a bushing, or is so constructed, that there is no risk of damage to the supply cord when introduced		P
	At inlet openings, the insulation between the conductor of a supply cord and the enclosure of the appliance is consisting of the insulation of the conductor, and in addition:		--
	The appliance is Class 0 .		N
25.14	Supply cords adequately protected against excessive flexing		--
	Flexing test; applied force (N); number of flexings :		N
	The test does not result in:		--
	- short-circuit between the conductors		P
	- breakage of more than 10% of the strands of any conductor		P
	- separation of the conductor from its terminal		P
	- loosening of any cord guard		P
	- damage, within the meaning of the standard, to the cord or the cord guard		P
	- broken strands piercing the insulation and becoming accessible		P
	Test for hand-held appliances, except appliances		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	incorporating a swivel connection (4000 flexings, 180°) (EN 60 335-2-23:03)		
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 (not on automatic cord reel) (Nm) :		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
	The swivel connection is not locked during the tests (EN 60 335-2-23:03)		N
25.16	Cord anchorages for type X attachments so constructed and located that:		--
	- replacement of the cord is easily possible		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		N
	- cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless separated from		N
	- 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		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	lining, unless a failure of the insulation of the cord does not make accessible metal parts live		
	- 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	Type Y attachment	P
25.18	Cord anchorages only accessible with the aid of a tool,		P
	or so constructed that the cord only can be fitted with the aid of a tool		P
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	Type Y attachment	P
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.	No such space	N
	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	Plastic enclosure	N
25.22	Appliance inlet:		--
	- live parts not accessible during insertion or removal	No inlet	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

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
25.23	Interconnection cords comply with the requirements for the supply cord, except as specified		N
	If necessary, electric strength test of 16.3		N
25.24	Interconnection cords not detachable without the aid of a tool		N
25.25	Interconnection cords shall not be detachable without the aid of a tool if compliance with the standard is when they are disconnected (EN 60 335-2-23:03)		N
25.101	Appliances incorporating a swivel connection shall be constructed so that during normal use there will be no electrical or mechanical failure which could impair compliance with this standard (EN 60 335-2-23:03)		P
	The appliance is operated under the condition as specified in 11.101, the number of revolutions being increased to 20 000 (EN 60 335-2-23:03)		P
	After this test, the swivel connection and the supply cord shall be fit for further use (EN 60 335-2-23:03)		P
	Live parts shall not have become accessible and the appliance shall withstand the electric strength test of 16.3 (EN 60 335-2-23:03)		P
26	TERMINALS FOR EXTERNAL CONDUCTORS		P
26.1	Appliances with type X attachment and appliances for connection to fixed wiring provided with terminals in which connection is made by means of screws, nuts or equally effective devices		N
	Screws and nuts serve only to clamp supply conductors, except		N
	Internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N
26.1.2	For type X attachment soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone		N
	Soldering alone used, barriers provided,		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	creepage distances and clearances satisfactory if the conductor becomes free		
	For type Y and Z attachment: soldered, welded, crimped and similar connections used		P
	For Class II appliances: the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone		N
	For Class II appliances: soldering, welding or crimping alone used, barriers provided, creepage distances and clearances satisfactory if the conductor becomes free		N
26.2	Terminals for type X attachment and for connection to fixed wiring suitable for connection of conductors with required cross-sectional area according to Table 11; rated current (A); nominal cross-sectional area (mm ²) :		N
	Terminals only suitable for a specially prepared cord		N
26.3	Terminals for the supply cord suitable for their purpose		N
	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
	Terminals for type X attachment in appliance incorporating a swivel connection, shall not allow the connection of a supply cord by means of screws and shall not be of the screwless type (EN 60 335-2-23:03)		N
26.4	Terminals for type X attachment and those for connection to fixed wiring so fixed that when tightening or loosening the clamping means:		--
	- the terminal does not loosen		N
	- internal wiring is not subjected to stress		N
	- creepage distances and clearances are not reduced below the values in 29.1		N
26.5	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		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	conductor		
26.6	Terminals for type X attachment, no special preparation of conductors required, and so constructed and placed that conductors prevented from slipping out, except those with a specially prepared cord and those for connection to fixed wiring		N
26.7	Terminals of the pillar type constructed and located as specified	No pillar type	N
26.8	Terminals for the connection to fixed wiring located close to each other, including the earthing terminal		N
26.9	Terminals for type X attachment accessible after removal of a cover or part of the enclosure		N
26.10	Terminals not accessible without the aid of a tool	Terminals are totally enclosed	P
26.11	Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection between live parts and accessible metal parts, and		N
	for Class II construction, between live parts and metal parts separated from accessible metal parts by supplementary insulation only		N
	Stranded conductor test, 8 mm insulation removed		N

27	PROVISION FOR EARTHING		P
27.1	Accessible metal parts of Class 0I and I appliances, permanently and reliably connected to an earthing terminal	Class I appliance	P
	Earthing terminals not connected to neutral terminal		P
	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
	Terminals used for the connection of external equipotential bonding conductors allow connection		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	of conductors of 2.5 to 6 mm ²		
	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	If a detachable part having an earth connection is plugged into another part of the appliance, the earth connection shall be made before the current-carrying connections are established. The current-carrying connections shall be separated before the earth connection 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	Class I appliance	P
	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.		P
	Resistance not exceeding 0,1 Ω at the specified low-resistance test		P
27.6	In hand-held appliances printed conductors of printed circuit boards not used to provide earthing		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	continuity		
	In other appliances at least two tracks are used with independent soldering points, and		N
	The appliance complies with the requirements of 27.5 for each circuit, and		N
	The material of the printed board complies with IEC 249-2-4 or IEC 249-2-5		N

28	SCREWS AND CONNECTIONS		P
28.1	Fixings and electrical connections withstand mechanical stresses		P
	Screws not of soft metal liable to creep, such as zinc or aluminium		P
	Diameter of screws of insulating material min. 3 mm	No insulating material screws	N
	Screws of insulating material not used for any electrical connection		N
	Screws transmitting electrical contact only screwing into metal		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
	Screws and nuts transmitting contact pressure subjected to torque test as specified, applying torque as shown in Table 14	The diameter of screw: 2.1mm, 0.4Nm, 10times	P
	The test is not carried out on screws and nuts transmitting contact pressure for earthing continuity provided at least two screws or nuts are used		N
28.2	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		P

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	exceeding 0,5 A		
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		N
	Thread-cutting (self-tapping) screws not used for electrical connection of current-carrying parts, unless generating a full form standard machine screw thread	Only for fixed enclosure	N
	Thread-cutting (self-tapping) screws not used if they are likely to be operated by the user or installer unless the thread is formed by a swaging action		N
	Use of thread-cutting and space-threaded screws for earthing continuity according to specification		N
28.4	Screws for current-carrying mechanical connection or screws providing earthing continuity secured against loosening ¹		N
	Rivets for current-carrying connections subject to torsion secured against loosening		N

29	CREEPAGE DISTANCES, CLEARANCES AND DISTANCES THROUGH INSULATION		--
	Clearances, creepage distances and solid insulation withstand electrical stress.	(see appended table)	P
	If coatings are used on printed circuit boards to protect the microenvironment (Type A coating) or to provide basic insulation (Type B coating), annex J applied. The microenvironment is pollution degree 1 under Type A coating. There are no under Type B coating		N
29.1	Clearances shall not be less than values specified in table 16, taking into account the rated impulse voltage for the overvoltage categories of table 15, unless, for basic insulation and functional insulation, they comply with the impulse voltage test of clause 14. however, if the construction is such that the distances could be affected by wear, by distortion, by movement of the parts or during assembly, the clearances of the rated impulse		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	voltage of 1500 V and above are increased by 0.5 mm and the impulse voltage test is not applicable		
	The impulse voltage test is not applicable when the microenvironment is pollution degree 3 or for basic insulation of class 0 appliances and class 01 appliances		N
	Appliances are in overvoltage category II		N
	Clearances less than specified in table 18 not allowed for basic insulation of class 0 and class 01 appliances		N
	Or if pollution degree 3 is applicable		N
	Compliance is checked by inspection and measurements as specified		P
29.1.1	Clearances of basic insulation withstand the overvoltage, 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		P
29.1.3	Clearances of referenced insulation not less than those specified for basic insulation in table 16, but using the next higher step for rated impulse voltage.		P
29.1.4	For functional insulation, the values of table 16 are applicable, unless		P
	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 lacquered conductors not measured		N
	Lacquered conductors of winding are considered to be bare conductors. However, clearances at crossover points are not measured		N
29.1.5	Appliances having higher working voltage than rated voltage, the voltage used for determining		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	clearances from table 16 is the sum of the rated impulse voltage and the difference between the peak value of the rated voltage		
	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		P
	Pollution degree 2 applies, unless		P
	Precautions taken to protect the insulation; pollution degree 3		N
	Compliance is checked by inspection and measurements as specified		P
29.2.1	Creepage distances of basic insulation not less than specified in table 17		N
	For pollution degree 1, 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 at least as specified for basic insulation in table 17		N
29.2.3	Creepage distances of reinforced insulation at least double as specified for basic insulation in table 17		N
29.2.4	Creepage distances of functional insulation not less than 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 insulation and reinforced insulation		P

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	shall have adequate thickness, or have a sufficient number of layers, to withstand the electrical stresses that can be expected during the use of the appliance.		
	For curing irons, the distance through insulation between metal parts separated by supplementary insulation may be reduced to 0.6 mm, provided that the distance through basic insulation is at least 1mm.		N
29.3.1	The thickness of the insulation shall be at least		--
	- 1 mm for supplementary insulation		N
	- 2 mm for reinforced insulation		P
29.3.2	Each layer of material shall withstand the electric strength test of 16,3 for supplementary insulation. Supplementary insulation shall consist of at least 2 layers of material and reinforced insulation of at least 3 layers		P
29.3.3	The insulation is subjected to the dry heat test of IEC 60068-2-2 FOR 48 h at temperature of 50 K in excess of the maximum temperature rise measured during the test of clause 19. At the end of the period, the insulation is subjected to the electric strength test of 16.3 at the conditioning temperature and also after it has cooled down to room temperature.		N
	If the temperature rise of the insulation measured 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

30	RESISTANCE TO HEAT, FIRE AND TRACKING		--
30.1	External parts of non-metallic material,		P
	Parts supporting live parts and parts providing supplementary or reinforced insulation sufficiently resistant to heat		P
	Ball-pressure test with a force of 20 N, diameter of impression not exceeding 2 mm		P
	External parts: at 40 plus the maximum temperature rise determined during the test during	Enclosure	P

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	the test of clause 11, or at 75°C, whichever is higher, temperature (°C)		
	Parts supporting live parts at 40 plus the maximum temperature rise determined during the test during the test of clause 11, or at 125°C, whichever is higher, temperature (°C)	Swivel connector holder PCB	P
	Parts of thermoplastic material providing supplementary or reinforced insulation, 25°C plus the the maximum temperature rise determined during clause 19, if higher; temperature (°C) :	Enclosure	P
	For hand dryers and hairdryers, the temperature rise occurring during the tests of Cl. 19 are not taken into account (EN 60 335-2-23:03)		N
30.2	Relevant parts of non-metallic material adequately resistant to ignition and spread of fire		N
	For helmet-type hairdryers compliance is also checked by the test of 30.101 (EN 60 335-2-23:03)		N
	For heaters for detachable curlers, 30.2.3 is applicable (EN 60 335-2-23:03)		N
	For other appliances, 30.2.2 is applicable (EN 60 335-2-23:03)		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 HB40 according to IEC 60695-11-10		N
	Parts for which the glow-wire test cannot be carried out meet the requirements in ISO9772 for category HBF material		N
30.2.2	Appliances operated while attended, parts of insulating material supporting connections and parts within a distance of 3 mm subjected to tes glow-wire test of IEC 60695-2-11 at a temperature of:		N
	- 750 °C for connections carrying a current exceeding 0,5 A in normal operation,		N
	- 650 °C for other conditions		N
	Test not applicable to conditions as specified		P
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

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
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 3 mm.		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 connections, and		N
	Parts of insulating material within a distance of 3 mm.		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 60695-2-11		N
	Glow-wire test of IEC 60695-2-11, the temperature being:		N
	- 750 °C, for connections carrying a current exceeding 0.2A during normal operation		N
	- 650 °C, for other conditions		N
	Parts that during longer the than produce a flame persisting longer than 2 s, tested as specified		N
	If a flame persists longer than 2 s during the test, parts above the condition, 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
30.101	For helmet-type hairdryers the needle-flame test of Annex M is applied to (EN 60 335-2-23:03):		N
	- parts of non-metallic material enclosing the heating element and other electrical components (EN 60 335-2-23:03)		N
	- non-metallic parts within the enclosure (EN 60 335-2-23:03)		N
31	RESISTANCE TO RUSTING		--
	Relevant ferrous parts adequately protected		P

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict

	against rusting		
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32	RADIATION, TOXICITY AND SIMILAR HAZARDS		--
	Appliance does not emit harmful radiation	No radiation	P
	Appliance does not present a toxic or similar hazard P		P

A	ANNEX A NORMATIVE REFERENCES		--
	The annex contains a list of standards which are referred to, and thus become part of, this standard		P

B	ANNEX B, TESTING OF APPLIANCES POWERED BY RECHARGEABLE BATTERIES (IEC 335-1:91, A1:94)		--
B.2	Definitions		N
B.2.2.9	Appliances operated under the following conditions:		--
	- the appliance supplied by its fully charged battery is operated as specified in part 2		N
	- the appliance is charged, the battery being initially discharged to such an extent that the appliance cannot operate		N
	- 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 part 2		N
B.2.7.2	If a part has to be removed in order to discard the battery before scrapping the appliance, this part is not considered		N
B.4	General conditions for the tests		N
B.4.101	Unless otherwise specified, appliances supplied from the supply mains are tested as specified for motor-operated appliances		N
B.7	Marking and instructions		N
B.7.1	Battery compartment for batteries intended to be replaced		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	by the user, marked with battery voltage and polarity of the terminals		
B.7.12	The instructions for appliances incorporating batteries intended to be replaced by the user, include required information		N
	Details given about how to remove batteries containing materials hazardous to the environment		N
	Materials which are hazardous to the environment are mercury, cadmium or lead (EN 60 335-1:02, A1:04)		N
B.7.15	Markings placed on the part connected to the supply mains		N
B.8	Protection against access to live parts		N
B.8.2	Basic insulation between live parts and parts accessible during and after removal of the battery		N
B.11	Heating		N
B.11.7	Charging time for the battery		N
B.19	Abnormal operation		N
B.19.101	Charging time at rated voltage		N
B.19.102	B.19.102 Short-circuiting of the battery, fully charged, for appliances having batteries which can be removed without the aid of a tool		N
B.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		N
B.21	Mechanical strength		N
B.21.101	Appliances having pins for insertion into socket-outlets, checked according to procedure 2 of IEC 68-2-32		N
	Mass of part not exceeding 250 g, 100 falls		N
	Mass of part exceeding 250 g, 50 falls		N
B.22	Construction		N
B.22.3	Appliances having pins for insertion into socket-outlets are tested as fully assembled as possible		N
B.25	Supply connection and external flexible cords		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
B.25.13.2	The requirement is not applicable to interconnection cords subjected to safety extra-low voltage		N
B.30	Resistance to heat, fire and tracking		N
B.30.2	For parts connected to the supply mains during the charging period, 30.2.3 applies		N
	For other parts, 30.2.2 applies		N
C	ANNEX C AGEING TEST ON MOTORS		P
	Test carried out when doubt with regard to the classification of the insulating system of a motor winding		P
D	ANNEX D, ALTERNATIVE REQUIREMENTS FOR PROTECTED MOTOR UNITS		--
	Test of 19.7 carried out on a separate motor protector according to the specification		N
E	ANNEX M, NEEDLE-FLAME TEST		--
	The needle-flame test is made in accordance with IEC 695-2-2 (clause numbers between parentheses refer to IEC 695-2-2)		--
(4)	Description of the apparatus: the sixth paragraph is replaced		N
(5)	Severities: the duration of application of the test flame is (30 ± 1) s		N
(8)	Test procedure: some changes in the test specifications		N
(10)	Evaluation of the test results: addition in the test specification		N
F	ANNEX F CAPACITORS		--
	The following clauses and subclauses of IEC 384-14 apply to capacitors likely to be permanently subjected to the supply mains voltage and used for radio interference suppression or for voltage dividing purposes with the following modifications		N
	SECTION ONE - GENERAL		--
1.5	Terminology		N
1.5.3	Applicable. Class X capacitors tested according to sub-Class X2		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.4	Applicable		N
1.6	Marking		N
	Items a) and b) are applicable		N
	SECTION THREE - QUALITY ASSESSMENT PROCEDURES		--
3.4.3.2	Tests		N
	Table II is applicable as follows:		--
	- group 0: subclause 4.1, 4.2 and 4.2.5		N
	- group 1A: subclause 4.1.1		N
	- group 2: subclause 4.1		N
	- group 3: subclause 4.13 and 4.14		N
	- group 6: subclause 4.17		N
	- group 7: subclause 4.18		N
	SECTION FOUR - TEST AND MEASUREMENT PROCEDURES		--
4.1	Visual examination and check of dimensions		N
	Applicable		N
4.2	Electrical tests		N
4.2.1	Applicable		N
4.2.5	Applicable		N
4.2.5.2	Only Table IX applicable. Values for test A apply, for capacitors in heating appliances the values for test B or C apply		N
4.12	Applicable, only insulation resistance and voltage proof are checked (see Table XIII)		N
4.13	Applicable, when capacitors are used for voltage dividing purposes, the impulse voltage is applied to the terminals of the appliance		N
4.14	Applicable, together with subclauses 4.14.1, 4.13.1 and 4.14.7		N
4.17	Applicable		N
4.18	Applicable		N
G	ANNEX G, SAFETY ISOLATING TRANSFORMERS		--
	Safety isolating transformers, tested with the appliance, comply with this standard and the following additional requirements		N
7	Marking and instructions		--
7.1	Marking of transformers for specific use:		--
	- name		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	- trademark/identification mark of manufacturer or responsible vendor		N
	- model or type reference		N
17	Overload protection of transformers and associated equipment		--
	The temperature limits specified for the windings do not apply to fail-safe transformers		N
	Such transformers comply with 14.5 of EN 60 742		N
22	Construction		--
22.501	Subclause 8.6 of EN 60 742 applicable		N
29	Creepage distances, clearances and distances through insulation		--
29.1	The distances specified in Table XV of EN 60 742, items 1a, 1c and 2 apply		N

H	ANNEX H SWITCHES		--
	Switches tested with the appliance comply with this standard and the following clauses of IEC 1058-1, as modified		--
	- the tests of IEC 1058-1 carried out under the conditions occurring in the appliance, unless		N
	- otherwise specified, the tests are carried out on the switch incorporated in the appliance		N
	- before being tested in the appliance, switches are operated 20 times without load		N
8	Marking and documentation		--
	Switches are not required to be marked except, that incorporated switches shall be marked with the manufacturer's name or trademark and the type reference		N
13	Mechanism		--
	Applicable		N
15	Insulation resistance and electric strength		--
15.1	Not applicable		N
15.2	Not applicable		N
15.3	Applicable for full disconnection micro-disconnection		N
17	Endurance		--
	Applicable, at the end of the tests, temperature rise of the terminals not increased by more than 30 K		N
20	Clearances, creepage distances and distances through insulation		--
	Applicable for creepage distances and clearances		

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	for live parts of different potential only, as stated in table 18 for operational insulation, and across full disconnection and micro-disconnection		
I	ANNEX I, MOTORS NOT ISOLATED FROM THE SUPPLY MAINS AND HAVING BASIC INSULATION NOT DESIGNED FOR THE RATED VOLTAGE OF THE APPLIANCE		--
	Motors having a working voltage not exceeding 42 V, not being isolated from the supply mains, and having basic insulation not designed for the rated voltage of the appliance are tested according to this annex	No motors	N
	All clauses of this standard apply, unless otherwise specified in this annex		N
F.8	Protection against accessibility to live parts		N
F.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
F.16	Leakage current and electric strength		N
F.16.3	The insulation between live parts of the motor and its other metal parts is not subjected to this test		N
F.19	Abnormal operation		--
	The test of 19.7 to 19.9 are not to make		N
F.19.101	Appliance operated at rated voltage with each of the following defects:		--
	- short-circuit of the terminals of the motor, including any capacitor incorporated in the motor circuit		N
	- open circuit of the supply to the motor		N
	- open circuit of any shunt resistor during operation of the motor		N
F.22	Construction		N
F.22.101	Class I appliance incorporating a motor supplied by a rectifier circuit, the d.c. circuit being insulated from accessible parts of the appliance by double or reinforced insulation		N
J	ANNEX J, COATED PRINTED CIRCUIT BOARDS		--
	Testing of protective coatings of printed circuit boards carried out in accordance with IEC 60334-3		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	with the following modifications		
k	ANNEX k, overvoltage categories		--
	The information on overvoltage categories is extracted from IEC 60664-1		N
I	ANNEX I MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES		--
M	ANNEX M, pollution degree		--
	The information on pollution degrees is extracted from IEC 60664-1		N
N	ANNEX N, PROOF TRACKING TEST		--
	The proof tracking test is made in accordance with IEC 112 (clause numbers between parentheses refer to IEC 112)		P
(3)	Test specimen: the last sentence of the first paragraph does not apply		N
(5)	Test apparatus: some changes in the subclauses		N
(6)	Procedure: adjustments of the test specifications		N
O	ANNEX O, SELECCTION AND SEQUENCE OF THE TESTS OF CLAUSE 30		--
	Description of tests for determination of resistance to heat and fire		P
P	ANNEX P, guidance for the applaincation of this standard to applainces used in warm damp equable climates		--
Q	ANNEX Q, sequence of tests for the evaluation of electronic circuits		--
	Description of test for appliances incorporating electronic circuits		--
R	SOFTWARE EVALLUATION		--
ZA	ANNEX ZA, SPECIAL NATIONAL CONDITIONS (EN 60 335-1:02)		--
7.12	DENMARK: requirements regarding marking tag of power supply cord and connecting of earthing wire		N
19.5	NORWAY: the test is also applicable to appliances intended to be permanently connected to fixed wiring		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
19.11.2	AUSTRIA: requirements regarding appliances having circuits which under fault conditions may cause earth-leakage currents having a d.c. component exceeding 5 mA and exceeding 20% of the total earth-leakage		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		N
25.6	BELGIUM, FRANCE, GREECE, UNITED KINGDOM: plugs according to Standard Sheet C2b not allowed		N
	AUSTRIA, GERMANY, FINLAND, ICELAND, IRELAND, ITALY, LUXEMBOURG, NETHERLANDS, NORWAY, PORTUGAL, SPAIN, SWEDEN, SWITZERLAND, UNITED KINGDOM: plugs according to Standard C3b not allowed		N
	DENMARK: Supply cords of single-phase portable appliances having a rated current not exceeding 10 A provided with a plug according to the following:		--
	Class I appliances: Section 107-2-DI Standard Sheet DK2-1a		N
	For appliances covered by a Part 2 of EN 60 335, also plugs in accordance with IEC 83, Standard Sheet C2b, C3b or C4 are allowed		N
	Class II appliances: IEC 83, Standard Sheet C5 or C6		N
	Stationary single-phase appliances, having a rated current not exceeding 10 A, and provided with a plug, the plug is in accordance with the requirements above		N
	Multi-phase appliances and single-phase appliances having a rated current exceeding 10 A, and provided with a plug, the plug is in accordance with the requirements below:		--
	Class I appliances: Section 107-2-D1, Standard Sheet DK6-1a/EN 60 309-2, Standard Sheet 2-II, 2-IV		N
	Class II appliances: Section 107-2-D1, Standard Sheet DK6-1a/2-II, 2-IV		N
	IRELAND: plug is in accordance with Standard		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	Sheets B1 (15A), B2 and C2b		
	SPAIN: appliances having a rated current not exceeding 6 A, provided with a plug complying with UNE 20 315:		--
	for Class I appliances: figure 7C		N
	for Class II appliances: figure 15A		N
	Class I appliances having a rated current not exceeding 16 A, provided with a plug complying with Standard UNE 20 315 figure 7B		N
	SWITZERLAND: supply cords of portable household and similar electrical appliances, rated current not exceeding 10 A, provided with a plug complying with SEV 1011 or IEC 884-1 and one of the following dimension sheets:		--
	SEV 6532-2:1991 plug type 15 3P+N+PE 250/400 V, 10 A		N
	SEV 6532-2:1991 plug type 11 L+N 250 V, 10 A		N
	SEV 6532-2:1991 plug type 12 L+N+PE 250 V, 10 A		N
	UNITED KINGDOM: plug according to Standard Sheet B2 or C5 used (refer to Annex ZB)		N
25.8	IRELAND, UNITED KINGDOM: replacement of figures (rated current/cross-sectional area) in the table		N
ZB	ANNEX ZB, A-DEVIATIONS (EN 60 335-1:02)		--
3	SWITZERLAND: information about batteries		N
7.1	ITALY: the voltage is 220 V/380 V		N
	SPAIN: the voltages are 127 V/220 V and 220 V/380 V		N
7.12	IRELAND: information about required label attached to the supply cord, concerning the colour code of the wires		N
22.22	GERMANY: the amount of asbestos in the mass containing asbestos not exceeding 0,1%	No asbestos	P
	FINLAND: certain types of asbestos not used		P
24	SWEDEN: components containing mercury not used		P
25.6	UNITED KINGDOM: regulations concerning plugs to be fitted to domestic appliances		N

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict

1.5.1	TABLE: list of critical components				P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard	Certification No.
Circuit Breaker	CHNT	D247-60C20	6000A, 50Hz, Ui:400V	EN60947-2	CE
Start Switch	ONPOW	LASO-L	Ui:500V Ith:10A	EN60947-5-1	CE
Emergency Stop Switch	ONPOW	HB22	Ui:600V Ith:10A	EN60947-5-1	CE
Temperature Controller	Aitehua	AT8001	Ui:220V Ith:10A	EN60730-1 EN60730-2-7 EN69730-2-9	CE
Electrical Wire	CACS	RVV	4mm ² 300/500V	IEC52	CE
Switching Power	Honghai	HT120-12	12V-10A	EN60950-1	CE
(Alternative)	Honghai	HT70-07	7V-10A	EN60950-1	CE
(Alternative)	Honghai	HT360-24	24V-15A	EN60950-1	CE
(Alternative)	MW	SE1500-24	1500W-24V	EN60950	CE
Solid-state Relay	Magar	D4825	480V-25A	EN60749-1	CE
(Alternative)	Magar	DD220D25	220V-25A	EN60749-1	CE

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict

1.6.2	TABLE: Electrical data (in normal conditions)					P
Fuse #	I rated (A)	U (V)	P (W)	I (A)	I fuse (A)	Condition/status
F1	--	99V/50Hz	1200	12.12	12.12	
F1	20	110V/50Hz	1215	11.05	11.05	
F1	20	220V/50Hz	1287	5.85	5.85	
F1	--	242V/50Hz	1296	5.35	5.35	
F1	--	99V/60Hz	1201	12.13	12.13	
F1	20	110V/60Hz	1219	11.06	11.06	
F1	20	220V/60Hz	1298	5.90	5.90	
F1	--	242V/60Hz	1300	5.37	5.37	

10	TABLE: INPUT DEVIATION MEASUREMENTS				P
input deviation Dp of/at:	Prated (W)	P (W)	Dp	required Dp	remark
/	1200	1300	7%	10%	

11.8	TABLE: TEMPERATURE RISE MEASUREMENTS		P
	room temperature t1 (°C)	--	--
	room temperature t2 (°C)	--	--
	test condition	1.15X240V=276V	--
temperature rise Dt of part/at:		Dt (K)	required Dt (K)
Input Cord		30.8	80
Internal wire		54.1	80
Enclosure outside		46.3	75
PCB		61.9	125
Heating shrinkable tube		34.1	125
Connector		34.8	100

EN 60 335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
T1 core		85.4	110
T1 winding		88.3	110
Enclosure outside near heater		76.1	100
Note: If the temperature rise limits are exceeded in appliance incorporating motors, transformers or electronic circuits and the power input is lower than the rated power input, the test is repeated with the appliance supplied at 1.06 times rated voltage			

13.3	TABLE: ELECTRIC STRENGTH MEASUREMENTS AT OPERATING TEMPERATURE		P
	test voltage applied between:	test voltage (V)	breakdown
	Between live part and metal foil attached on enclosure	3000V, 50Hz, 1min	No
	L to metal enclosure	3000V, 50Hz, 1min	No
	N to metal enclosure	3000V, 50Hz, 1min	No

16.2	TABLE: LEAKAGE CURRENT MEASUREMENTS		P
	at 1,06 times rated voltage (V) :	242.0V	--
	leakage current I between:	I (mA)	required I (mA)
	Between live part and metal foil attached on enclosure	0.003	0.25
	L to metal enclosure	0.005	0.25
	N to metal enclosure	0.005	0.25

16.3	TABLE: ELECTRIC STRENGTH MEASUREMENTS AT OPERATING TEMPERATURE		P
	insulation resistance R between:	test voltage (V)	breakdown
	Between live part and metal foil attached on enclosure	3000	No
	L to N	1250	No

19	TABLE: abnormal operation tests		P
	ambient temperature (°C)	25.3	--

EN 60 335-2-23					
Clause	Requirement + Test			Result - Remark	Verdict
No.	component No.	fault	test voltage (V)	test time	result
1	C2	s-c	242	1s	The unit shuts down immediately. No hazard
2	T1	s-c	242	1min	The unit shuts down at 1 min. No hazard
3	L1	s-c	242	1s	The unit shuts down immediately. No hazard
4	IC1 Pin1-Pin4	s-c	242	1s	The unit shuts down immediately. No hazard
5	IC1 Pin5-Pin8	s-c	242	1s	The unit shuts down immediately. No hazard
6	D1	s-c	242	1s	The unit shuts down immediately. No hazard
7	Cooling Fan	Blockedc	242	30Min	Normal operation, But measured Max. temp of: T1 Core=89.5 °C ; T1 winding=95.7°C

24.1	TABLE: list of critical components and materials					P
Component	Manufacturer / trademark	Type / model	Value / rating	Standard	Marks of conformity	
EU Plug	WUHAN SK EILY PHOTOELECTRIC TECHNOLOGY CO., LTD.	YF1	AC 250V,2.5A	EN50075	WSCT12060286S	
Circuit Breaker	CHNT	D247-60C20	6000A, 50Hz, Ui:400V	EN60947-2	CE	
Start Switch	ONPOW	LASO-L	Ui:500V ith:10A	EN60947-5-1	CE	
Emergency Stop Switch	ONPOW	HB22	Ui:600V ith:10A	EN60947-5-1	CE	
Temperature Controller	Aitehua	AT8001	Ui:220V lth:10A	EN60730-1 EN60730-2-7 EN69730-2-9	CE	
Electrical Wire	CACS	RVV	4mm ² 300/500V	IEC52	CE	
Switching	Honghai	HT120-12	12V-10A	EN60950-1	CE	

EN 60 335-2-23					
Clause	Requirement + Test			Result - Remark	Verdict
Power					
(Alternative)	Honghai	HT70-07	7V-10A	EN60950-1	CE
(Alternative)	Honghai	HT360-24	24V-15A	EN60950-1	CE
(Alternative)	MW	SE1500-24	1500W-24V	EN60950	CE
Solid-state Relay	Magar	D4825	480V-25A	EN60749-1	CE
(Alternative)	Magar	DD220D25	220V-25A	EN60749-1	CE
AC Inlet	WUHAN SK EILY PHOTOELECTRIC TECHNOLOGY CO., LTD.	DB-8-5	2.5A,250V	IEC/EN 62320	VDE 40032028
Plastic enclosure	WUHAN SK EILY PHOTOELECTRIC TECHNOLOGY CO., LTD.	FR60 (GG)	V-0, 125°C, Min. thickness 2.0mm,	UL 94	UL

29.1	TABLE: CREEPAGE DISTANCE AND CLEARANCE THROUGH INSULATION MEASUREMENTS						P
clearance cl and creepage distance dcr at/of:	Up(V)	U r.m.s. (V)	required cl (mm)	cl (mm)	required dcr (mm)	dcr (mm)	
L to N	339	240	2,0	4.3	2,5	4.3	
Fuse	339	240	2,0	7.5	2,5	7.5	

30.1	TABLE: BALL-PRESSURE TESTS			P
part	test temperature (°C)		impression diameter (mm)	
Enclosure	125		1.6	
PCB	125		1.2	

30.2	TABLE: GLOW WIRE TEST		P
part	test temperature (°C)		Result
Enclosure	550		Not burning
PCB	650		Not burning

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*** End of Report ***