LOW VOLTAGE DIRECTIVE TEST REPORT

For

Diode laser hair removal machine

Model: LC408, LC416, LC417, LC418, LC419, LC420, LC460, LC480, LC490, LC609, LC405, LC808, LC807, LC806, LC805, LC802

Brand Name: N/A

Report No.: ENC2206025GZ59L1

Date of Issue: May 2, 2022

Prepared For

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TEST REPORT

EN 60335-2-27

Household and similar electrical appliances - Part 2-27: Particular requirements for appliances for skin exposure to ultraviolet and infrared radiation

Report reference No. ..... :	ENC2206025GZ59L1
Tested by ..... :	Sam Liu
Review by (+ Signature). ..... :	Yemig
Approved by (+ signature) ..... :	Ray Zhou
Date of issue ..... :	May 2, 2022
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Testing laboratory

Name ..... :	East Notice Certification Service Co., Ltd.
Address ..... :	1/F, Haohui Commercial Building, Zhuji Street, Dongpu Town, Tianhe District, Guangzhou City, China
Testing location ..... :	Same as above

Application

Name.....:	Beijing LC-Techmed Development Corporation.,Ltd.
Address .....:	Room 101-26, 1st Floor, Biuilding 1, No. 11 Xinyu 3rd Street, Tongzhou District, Beijing

Manufacturer

Name.....:	Beijing LC-Techmed Development Corporation.,Ltd.
Address.....:	Room 101-26, 1st Floor, Biuilding 1, No. 11 Xinyu 3rd Street, Tongzhou District, Beijing

Test specification

Standard ..... :	EN 60335-2-27:2013+A1:2020+COR.1, EN 60335-1:2012+A11:2014+A13:2017+A1:2019+A14:2019+A2:2019+A15:2021, EN 62233:2008
Test procedure ..... :	CE-LVD
Procedure deviation ..... :	N/A
Non-standard test method ..... :	N/A

Test Report Form/blank test report

Test Report Form No. ..... :	ENC60335-2-27A21
TRF originator. ..... :	ENC

Test item

Description ..... :	Diode laser hair removal machine
Brand name ..... :	N/A
Model and/or type reference ..... :	LC808
Series models ..... :	LC408, LC416, LC417, LC418, LC419, LC420, LC460, LC480 LC490, LC609, LC405, LC808, LC807, LC806, LC805,
Rating(s) ..... :	100-240V～, 50/60Hz, 2500W

Test case verdicts

Test case does not apply to the test object.....: N(/A)

Test item does meet the requirement .....: P(ass)

Test item does not meet the requirement.....: F(ail)

Testing

Date of receipt of test item .....: Apr. 24, 2022

Date(s) of performance of test .....: Apr. 24, 2022 - May 2, 2022

General remarks

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

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

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

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

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

When determining the test result, measurement uncertainty has been considered.

Note:

This report shall not be altered, increase and deleted.

The results relate only to the items tested.

This report shall not be published as advertisement without the approval of ENC.

This report shall not be copied partly without the written approval of ENC.

Should any objections to the test reports occurred, should submit it to the Company within ten days since the issuing of the report, Fail to accept.

Special description:

1. All tests are basic on model LC808.
2. All models have same electrical structure as LC808, except for the different appearance and power.
3. Specified maximum ambient temperature is 40°C.

Summary of testing

All tests were found satisfactory in accordance with EN 60335-2-27:2013+A1:2020+COR.1, EN 60335-1: 2012+A11:2014+A13:2017+A1:2019+A14:2019+A2:2019+A15:2021, EN 62233:2008.

Marking on the appliance:

Diode laser hair removal machine

Model: LC808

Rated: 100-240V~, 50/60Hz, 2500W

Beijing LC-Techmed Development Corporation.,Ltd.

MADE IN CHINA

EN 60335-2-27			
Clause	**Requirement - Test**	**Result**	**Verdict**
5	**GENERAL CONDITIONS FOR THE TESTS**		**P**
	Tests performed according to cl. 5, e.g. nature of supply, sequence of testing, etc.		P
5.1	Appliances with UV emitters are tested as motor operated appliances.(EN 60335-2-27)		N
5.2	Appliances with IR emitters only are tested as heating appliances. (EN 60335-2-27)		P
6	**CLASSIFICATION**		**P**
6.1	Protection against electric shock: Class I, II, III ……:	Class I	--
6.2	Protection against harmful ingress of water	IPX0	--
6.101	Appliances shall be one of the following types with respect to the type of ultraviolet radiation: (EN 60335-2-27)		--
	– UV type 1 appliance;		--
	– UV type 2 appliance;		--
	– UV type 3 appliance;		--
	– UV type 4 appliance;		--
7	**MARKING AND INSTRUCTIONS**		**P**
7.1	Appliances shall be marked with the		P
	Rated voltage or voltage range(V)	100-240V	P
	Symbol for nature of supply	~	P
	Rated current(A)		N
	Rated frequency(Hz)	50/60Hz	P
	Rated power input (W)	2500W	P
	Name and /or trademark of the manufacturer or supplier:	See marking plate	P
	Model or type reference	LC808	P
	Symbol 5172 of IEC60417, for class II appliances only;	Class I	N
	IP number according to degree of protection against ingress of water, other than IPX0.	IPX0	N
	Symbol IEC 60417-5036, for the enclosure of electrically-operated water valves in external hosesets for connection of an appliance to the water mains		N
	Appliances having UV emitters shall be marked with the appropriate UV type number(EN 60335-2-27)		N
	Appliances having fluorescent UV lamps for tanning shall be marked with the fluorescent UV lamp equivalency code range. (EN 60335-2-27)		N

EN 60335-2-27			
Clause	**Requirement - Test**	**Result**	**Verdict**
	For UV emitters other than fluorescent UV lamps for tanning, the appliance shall be marked with the type reference of the emitters that are recommended for use. (EN 60335-2-27)		N
	Appliances having UV emitters shall be marked with the substance of the following: WARNING: Ultraviolet radiation may cause injury to eyes and skin, such as skin aging and eventually skin cancer. Read instructions carefully. Wear the protective goggles provided. Certain medicines and cosmetics may increase sensitivity. (EN 60335-2-27)		N
	UV type 4 appliances shall be marked with the substance of the following: WARNING: Only to be used following medical advice (EN 60335-2-27)		N
	Appliances having UV emitters with a luminance exceeding 100 000 cd/m² shall be marked with the substance of the following: WARNING: Intense light. Do not stare at the emitter. (EN 60335-2-27)		N
7.2	Warning for stationary appliances for multiple supply	Only one supply.	N
	Warning placed in vicinity of terminal cover		N
7.3	Range of rated values marked with the lower and upper limits separated by a hyphen.	100-240V	P
	Different rated values marked with the values separated by an oblique stroke		N
7.4	If the appliance can be adjusted for different rated voltages, the voltage to which the appliance is adjusted shall be clearly discernible.		N
7.5	Appliance with more than one rated voltages or more rated voltages, marked with rated input or rated current for each rated voltage or range, unless		N
	the power input is related to the mean value of the rated voltage range		N
	Relation between marking for upper and lower limits of rated power input or rated current and voltage is clear		N
7.6	Correct symbols used	V, Hz, W	P
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply		N
7.8	Except for type Z attachment, terminals used for connection to the supply mains shall be indicated as follows:		P
	- terminals intended exclusively for the neutral conductor shall be indicated by the letter N;		P
	- protective earthing terminals shall be indicated by symbol 5019 of IEC 60417.		P

EN 60335-2-27			
Clause	**Requirement - Test**	**Result**	**Verdict**
7.9	Marking or placing of switches which may cause a hazard.		P
7.10	The different positions of switches on stationary appliances and the different positions of controls on all appliances shall be indicated by figures, letters or other visual means.		P
	The figure 0 shall not be used for any other indication unless it is positioned		N
7.11	Indication for direction of adjustment of controls		N
7.12	Instructions for safe use provided.		P
	The instructions state that:		P
	- the appliance is not to be used by children or persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction		P
	- children being supervised not to play with the appliance		N
	The instructions shall give clear information with regard to the proper use of the appliance (EN 60335-2-27)		N
	UV appliances shall include a statement that nonusers, especially children, must not be present when the appliance is being operated. (EN 60335-2-27)		N
	The instructions for appliances having UV emitters shall contain the substance of the following information and precautions (EN 60335-2-27)		P
	For appliances having a lid that has to be opened in normal use, the instructions shall include a warning that the appliance must not be switched on with the lid in the closed position and that, before closing the lid for storage, the appliance must be disconnected from the supply and allowed to cool down. (EN 60335-2-27)		N
	The instructions for appliances having IR emitters shall include advice for the protection of the eyes against exposure to infrared radiation and advise that adequate precautions must be taken to safeguard the user against the dangers of excessive exposure. (EN 60335-2-27)		N
7.12.1	Sufficient details for installation supplied.		P

EN 60335-2-27			
Clause	**Requirement - Test**	**Result**	**Verdict**
7.12.2	Stationary appliance is not fitted with means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under overvoltage category III conditions, the instructions shall state that means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.		N
7.12.3	Insulation of the fixed wiring in contact with parts exceeding 50 K during clause 11; instructions stating that the fixed wiring must be protected.		N
7.12.4	Instructions for built-in appliances		N
	- dimensions of the space		N
	- dimensions and position of the means		N
	- minimum distances between the various parts and the surrounding structure;		N
	- minimum dimensions of ventilating openings and their correct arrangement;		N
	- connection of the appliance to the supply mains and the interconnection of any separate components;		N
	- allow disconnection of the appliance after installation, by accessible plug or a switch in the fixed wiring.		N
7.12.5	Replacement cord instructions, type X attachment with a specially prepared cord.	Type X attachment	P
	For appliances with type Y attachment		N
	For appliances with type Z attachment		N
7.12.6	Caution in the instructions for heating appliances with a non-self-resetting thermal cut-out		N
7.12.7	Instructions for fixed appliances stating how the appliance is to be fixed		N
7.12.8	Instructions for appliances connected to the water mains:		N
	- max. inlet water pressure (Pa)		N
	- min. inlet water pressure, if necessary (Pa)		N
	Instructions concerning new and old hose-sets for appliances connected to the water mains by detachable hose-sets		N
7.13	Instructions and other texts in an official language	English language.	P
7.14	Marking clearly legible and durable		P
7.15	Marking on a main part		P
	Marking clearly discernible from the outside, if necessary after removal of a cover		P

EN 60335-2-27			
Clause	**Requirement - Test**	**Result**	**Verdict**
	For portable appliances, cover can be removed or opened without a tool		N
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation		P
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions		N
	Indications for switches and controls placed on or near the components. Marking not on parts which can be positioned or repositioned in such a way that the marking is misleading		P
7.16	Marking of possible replaceable thermal link or fuse link clearly visible with regard to replacing the link.		N

8	**PROTECTION AGAINST ACCESS TO LIVE PARTS**		**P**
8.1	Adequate protection against accidental contact with live parts		P
8.1.1	Requirement applies for all positions, detachable parts removed		P
	Insertion or removal of lamps, protection against contact with live parts of the lamp cap		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 openings in class 0 appliances and class II appliances/ constructions: no contact with live parts	Class I appliances.	N
	Test probe 13 also applied through openings in earthed metal enclosures having a non-conductive coating: no contact with live parts		N
8.1.3	For appliances other than class II, use of test probe 41 of IEC 61032: no contact with live parts of visible glowing heating elements		N
8.1.4	Accessible part not considered live if:		--
	- safety extra-low a.c. voltage: peak value not exceeding 42,4 V		N
	- safety extra-low d.c. voltage: not exceeding 42,4 V		P
	- or separated from live parts by protective impedance		N
	If protective impedance: d.c. current not exceeding 2 mA, and a.c. peak value not exceeding 0,7 mA.		N
	- for peak values over 42,4 V up to and including 450 V, capacitance not exceeding 0,1µF.		N

EN 60335-2-27			
Clause	**Requirement - Test**	**Result**	**Verdict**
	- for peak values over 450 V up to and including 15 kV, discharge not exceeding 45μC.		N
8.1.5	Live parts protected at least by basic insulation before installation or assembly: (Check by inspection and the test of 8.1.1)		N
	- built-in appliances		N
	- fixed appliances		N
	- appliances delivered in separate units		N
8.2	Class II appliances and constructions constructed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only		N
	Only possible to touch parts separated from live parts by double or reinforced insulation		N
9	**STARTING OF MOTOR-OPERATED APPLIANCES**		**N**
	Requirements and tests are specified in part 2 when necessary	Not applicable.	N
10	**POWER INPUT AND CURRENT**		**P**
10.1	The following deviations apply: (EN 60335-2-27)	(See appended table)	P
	– appliances having UV emitters only: + 10 %; (EN 60335-2-27)		N
	– other appliances: -10%-+5% (EN 60335-2-27)		P
	The following deviations apply: (EN 60335-2-27)		P
10.2	– appliances having UV emitters only: + 10 %; (EN 60335-2-27)		N
	– other appliances: -10%-+5% (EN 60335-2-27)		P
11	**HEATING**		**P**
11.1	No excessive temperatures in normal use.		P
11.2	Appliances normally placed on a floor or table are placed on the floor of the test corner with their back as near as possible to one of the walls and away from the other wall. (EN 60335-2-27)		P
	If the direction of the radiation is adjustable, the appliance is adjusted to the most unfavourable position of normal use. (EN 60335-2-27)		P
	Appliances having fluorescent UV lamps for tanning shall be fitted with a fluorescent UV lamp having either a short mount electrode or long mount electrode, whichever provides the more unfavourable results. (EN 60335-2-27)		N

EN 60335-2-27			
Clause	**Requirement - Test**	**Result**	**Verdict**
11.3	Temperature rises, other than of windings, determined by thermocouples		P
	Temperature rises of windings determined by resistance method, unless		N
	the windings makes it difficult to make the necessary connections		N
11.4	Heating appliances operated under normal operation at 1,15 times rated power input		N
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage	1,06x240V=254,4V	P
11.6	Combined appliances operated under normal operation at most unfavourable voltage between 0.94 and 1,06 times rated voltage		N
11.7	The appliance is operated until steady conditions are established. (EN 60335-2-27)		P
11.8	The temperature rises shall not exceed the values given in table 3.	(see appended tables)	P
	Sealing compound does not flow out.		P
	Protective devices do not operate		P
13	**LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE**		**P**
13.1	Leakage current not excessive and electric strength adequate		P
	Heating appliances operated at 1.15 times rated power input :		N
	Motor-operated appliances and combined appliances supplied at 1.06 times rated voltage :	Tested at AC 254,4V	P
	Protective impedance and radio interference filters disconnected before carrying out the tests		N
13.2	Leakage current measured by means of the circuit described in figure 4 of IEC 60990		P
	Leakage current measurements	(see appended table)	P
13.3	Electric strength tests according to table 4		P
	No breakdown during the tests	(see appended table)	P
14	**TRANSIENT OVERVOLTAGES**		**N**
	Appliances withstand the transient overvoltages to which they may be subjected		N
	Clearances having a value less than specified in table 16 subjected to an impulse voltage test, the test voltage specified in table 6		N

EN 60335-2-27			
Clause	**Requirement - Test**	**Result**	**Verdict**
	No flashover during the test, unless of functional insulation		N
	In case of flashover of functional insulation, the appliance complies with clause 19 with the clearance short circuited		N
15	**MOISTURE RESISTANCE**		**P**
15.1	Enclosure provides the degree of moisture protection according to classification of the appliance	IPX0	P
	Compliance checked as specified in 15.1.1, taking into account 15.1.2, followed by the electric strength test of 16.3		N
	No trace of water on insulation which can result in a reduction of clearances and creepage distances below values specified in clause 29.		N
15.1.1	Appliances, other than IPX0, subjected to tests as specified in IEC 60529 .		N
	Water valves in external hoses for connection of an appliance to the water mains tested as specified for IPX7 appliances		N
15.1.2	Hand-held appliance turned continuously through the most unfavourable positions during the test		N
	Built-in appliances installed according to the instructions		N
	Appliances placed or used on the floor or table placed on a horizontal unperforated support		N
	Appliances normally fixed to a wall and appliances with pins for insertion into socket-outlets are mounted on a wooden board		N
	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
	However, for appliances normally used on the floor or table, the movement is limited to two times 90° for a period of 5 min, the support being placed at the level of the pivot axis of the oscillating tube		N
	Appliances normally fixed to a ceiling are mounted underneath a horizontal unperforated support, the pivot axis of the oscillating tube located at the level of the underside of the support		N

EN 60335-2-27			
Clause	**Requirement - Test**	**Result**	**Verdict**
	For IPX4 appliances, the movement of the tube is limited to two times 90 from the vertical for a period of 5 min		N
	Wall-mounted appliances, take into account the distance to the floor stated in the instructions		N
	Appliances with type X attachment fitted with a flexible cord as described		N
	Detachable parts tested as specified		N
15.2	Spillage of liquid does not affect the electrical insulation		P
	Appliances with type 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		P
	Detachable parts removed		P
	Overfilling test with additional amount of water, over a period of 1 min (l) :		P
	The appliance withstands the electric strength test of 16.3		P
	No trace of water on insulation that can result in a reduction of clearances and creepage distances below values specified in clause 29		P
15.3	Appliances proof against humid conditions		P
	Humidity test for 48 h in a humidity cabinet	30^0C, 95%, 48h	P
	The appliance withstands the tests of clause 16		P

16	**LEAKAGE CURRENT AND ELECTRIC STRENGTH**		**P**
16.1	Leakage current not excessive and electric strength adequate		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	240x1,06 = 254,4V	P
	Three-phase appliances: test voltage 1,06 times rated voltage divided by $\sqrt{3}$	Single-phase appliance	N
	Leakage current measurements	(see appended table)	P
16.3	Electric strength tests according to table 7	(see appended table)	P
	No breakdown during the tests	No breakdown	P

17	**OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS**	**N**

EN 60335-2-27			
Clause	**Requirement - Test**	**Result**	**Verdict**
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use		N
	Appliance supplied with 1,06 or 0,94 times rated voltage and the most unfavourable short-circuit or overload likely to occur in normal use applied		N
	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
18	**ENDURANCE**		**--**
	Requirements and tests are specified in part 2 when necessary	Not applicable.	N
19	**ABNORMAL OPERATION**		**--**
19.1	The risk of fire or mechanical damage under abnormal or careless operation obviated	(see appended table)	P
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe		P
	Appliances incorporating contactors or relays subjected to the test of 19.14, being carried out before the tests of 19.11		N
	Instead of the tests specified, appliances are subjected the tests of 19.4 to 19.12, 19.101 and 19.102,as applicable. (EN 60335-2-27)		P
	In addition, 19.2 and 19.3 are applicable for appliances having a lid but without a warning in the instructions that the appliance must not be switched on with the lid closed. (EN 60335-2-27)		P
19.2	The test is carried out under the conditions specified in Clause 11. Appliances having UV emitters are supplied at 0,94 times rated voltage and other appliances are operated at 0,85 times rated power input. (EN 60335-2-27)	$\sqrt{0.85}$ *240V	P
19.3	The test of 19.2 is repeated but appliances having UV emitters are supplied at 1,1 times rated voltage and other appliances are operated at 1,24 times rated power input.(EN 60335-2-27)	$\sqrt{1.24}$ *240V	P
19.4	Test conditions as in cl. 11, any control limiting the temperature during tests of cl. 11 short-circuited		N

EN 60335-2-27			
Clause	**Requirement - Test**	**Result**	**Verdict**
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		N
	The test repeated with reversed polarity and the other end of the heating element connected to the sheath		N
	The test is not carried out on appliances intended to be permanently connected to fixed wiring and on appliances where an all-pole disconnection occurs during the test of 19.4		N
19.6	Appliances with PTC heating elements tested at rated voltage, establishing steady conditions		N
	The working voltage of the PTC heating element is increased by 5% and the appliance is operated until steady conditions are re-established. The voltage is then increased in similar steps until 1.5 times working voltage or until the PTC heating element ruptures		N
19.7	Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque or locking moving parts of other appliances		P
	Locked rotor, motor capacitors open-circuited or short-circuited, if required		N
	Locked rotor, capacitors open-circuited one at a time		N
	Test repeated with capacitors short-circuited one at a time, if required		N
	Appliances with timer or programmer supplied with rated voltage for each of the tests, for a period equal to the maximum period allowed		P
	Other appliances supplied with rated voltage for a period as specified		P
	Winding temperatures not exceeding values specified in table 8		P
19.8	Three-phase motors operated at rated voltage with one phase disconnected	Single-phase appliance	N
19.9	Not applicable(EN 60335-2-27)	Not applicable	N
19.10	Series motor operated at 1,3 times rated voltage for 1 min		N
	During the test, parts not being ejected from the appliance		N
19.11	Electronic circuits, compliance checked by evaluation of the fault conditions specified in 19.11.2 for all circuits or parts of circuits, unless they comply with the conditions specified in 19.11.1		P

EN 60335-2-27			
Clause	**Requirement - Test**	**Result**	**Verdict**
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:		N
	- 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:		P
	a) short circuit of functional insulation if clearances or creepage distances are less than the values specified in 29		N
	b) open circuit at the terminals of any component		P
	c) short circuit of capacitors, unless they comply with IEC 60384-14		P
	d) short circuit of any two terminals of an electronic component, other than integrated circuits. This fault condition is not applied between the two circuits of an optocoupler		N
	e) failure of triacs in the diode mode		P
	f) failure of an integrated circuit		P
19.11.3	If the appliance incorporates a protective electronic circuit which operates to ensure compliance with clause 19, the relevant test is repeated with a single fault simulated, as indicated in a) to f) of 19.11.2		--
	During and after each test the following is checked:		N
	- 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		N
	- any current flowing through protective impedance not exceeding the limits specified in 8.1.4		N
	If a conductor of a printed board becomes open-circuited, the appliance is considered to have withstood the particular test, provided all three of the following conditions are met:		N
	- the material of the printed circuit board withstands the burning test of annex E		N

EN 60335-2-27			
Clause	**Requirement - Test**	**Result**	**Verdict**
	- any loosened conductor does not reduce the clearances or creepage distances between live parts and accessible metal parts below the values specified in cl. 29		N
	- the appliance withstands the tests of 19.11.2 with open-circuited conductor bridged		N
19.11.4	Appliances having a switch with an off position obtained by electronic disconnection, or 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.	The most unfvourable condition was tested in Cl 19.14	P
	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.		P
	The tests carried out with surge arresters disconnected, unless they incorporate spark gaps		P
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 appositive and ten discharges having a negative polarity and for 2 min with a negative polarity		P
19.11.4.2	The appliances is subjected to fields in accordance with IEC 61000-4-3, thet level 3 being applicable		P
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		P
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.		P
	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		P

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Clause	**Requirement - Test**	**Result**	**Verdict**
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		P
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
19.11.4.8	The appliance is supplied at rated voltage and operated under normal operation. After 60s the power supply is reduced to a level such that the appliance ceases to respond or parts controlled by the programmable component cease to operate		N
19.12	If the safety of the appliance for any of the fault conditions specified in 19.11.2 depends on the operation of a miniature fuse-link complying with IEC 60127, the test is repeated, measuring the current flowing through the fuse-link; measured current (A); rated current of the fuse-link (A)		N
19.13	During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts		P
	Temperature rises not exceeding the values shown in table 9	(see appended table)	P
	Winding temperatures not exceeding the values shown in table 8		P
	Enclosures not deformed to such an extent that compliance with cl. 8 is impaired		P
	If the appliance can still be operated it complies with 20.2		P
	Insulation, other than of class III appliance, withstand the electric strength test of 16.3, the test voltage specified in table 4:		P
	- basic insulation	1000V	P
	- supplementary insulation	1750V	P
	- reinforced insulation	3000V	P
	The appliance does not undergo a dangerous malfunction, and		P
	no failure of protective electronic circuits, if the appliance is still operable		P
	Appliances tested with an electronic switch in the off position or in the stand-by mode, do not become operational		P
19.14	Appliances operated under the conditions of Clause 11. Contactors or relays contacts operating under the conditions of clause 11 short-circuited		N

EN 60335-2-27			
Clause	**Requirement - Test**	**Result**	**Verdict**
19.15	For appliances with a mains voltage selector switch, the switch is set to the lowest rated voltage position and the highest value of rated voltage is applied		N
19.101	Appliances, other than those for mounting at a height more than 1,8 m above the floor, are supplied at rated voltage and operated as specified in Clause 11. The flannelette shall not smoulder or ignite within 10 s (EN 60335-2-27)		N
19.102	Appliances having discharge lamps are operated under the fault conditions specified in 12.5.1 a), d) and e) of IEC 60598-1, the appliance being supplied at rated voltage. (EN 60335-2-27)		N
	The temperatures of ballast or transformer windings shall not exceed the values specified in 12.5 of IEC 60598-1. (EN 60335-2-27)		N
20	**STABILITY AND MECHANICAL HAZARDS**		**P**
20.1	Adequate stability		P
	Tilting test through an angle of 10^0 (appliance placed on an inclined plane/horizontal plane); appliance does not overturn		P
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15^0		P
	Possible heating test in overturned position; temperature rise does not exceed values shown in table 9		N
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury	Fan	P
	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, by unexpected reclosure	No such device.	N
	Not possible to touch dangerous moving parts with test probe		P
21	**MECHANICAL STRENGTH**		**P**
21.1	Appliance has adequate mechanical strength and is constructed as to withstand rough handling		P
	Checked by applying blows to the appliance in accordance with test Ehb of IEC 60068-2-75, spring hammer test, impact energy 0,5 J		P

EN 60335-2-27			
Clause	**Requirement - Test**	**Result**	**Verdict**
	If necessary, supplementary or reinforced insulation subjected to the electric strength test of 16.3		N
	If necessary, repetition of groups of three blows on a new sample		N
	For emitters, including adjacent glass parts and any lens that protrude from the enclosure, the impact energy is reduced to 0,35 J. (EN 60335-2-27)		P
21.2	Accessible parts of solid insulation having strength to prevent penetration by sharp implements		P
	The insulation is tested as specified, unless		P
	the thickness of supplementary insulation is at least 1 mm and reinforced insulation is at least 2 mm		N
21.101	Guards intended to prevent inadvertent ignition of flammable material shall have adequate mechanical strength. (EN 60335-2-27)		P
21.102	Parts of the appliance that are intended to support a person shall have adequate mechanical strength. (EN 60335-2-27)		N

22	**CONSTRUCTION**		**P**
22.1	Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60529 are fulfilled	IPX0	P
22.2	Stationary appliance: means to provide all-pole disconnection from the supply provided, the following means being available:		P
	- a supply cord fitted with a plug		N
	- a switch complying with 24.3		N
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided		N
	- an appliance inlet		P
	Singe-pole switches and single-pole protective devices for the disconnection of heating elements in single-phase, permanently connected class 01 and class I appliances, connected to the phase conductor		N
22.3	Appliance provided with pins: no undue strain on socket-outlets		N
	Applied torque not exceeding 0.25 Nm		N
	Pull force of 50N to each pin after the appliance has being placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1mm		N

EN 60335-2-27			
Clause	**Requirement - Test**	**Result**	**Verdict**
	Each pin subjected to a torque of 0.4Nm; the pins are not rotating unless rotating does not impair compliance with the standard		N
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets		N
22.5	No risk of electric shock when touching the pins of the plug	0,2V	P
22.6	Electrical insulation not affected by condensing water or leaking liquid		P
	Electrical insulation of Class II appliances not affected in case of a hose rupture or seal leak		N
22.7	Adequate safeguards against the risk of excessive pressure in appliances provided with steam-producing devices		P
22.8	Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and that are likely to be cleaned in normal use		P
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances		P
22.10	Adequate insulating properties of oil or grease to which insulation is exposed		N
22.11	Location or protection of reset buttons of non-self-resetting controls is so that accidental resetting is unlikely		P
	Reliable fixing of non-detachable parts that provide the necessary degree of protection against electric shock, moisture or contact with moving parts		N
	Obvious locked position of snap-in devices used for fixing such parts		N
	No deterioration of the fixing properties of snap-in devices used in parts that are likely to be removed during installation or servicing		N
	Tests as described		P
22.12	Handles, knobs etc. fixed in a reliable manner		P
	Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible		N
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		P
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		P

EN 60335-2-27			
Clause	**Requirement - Test**	**Result**	**Verdict**
22.13	Unlikely that handles, when gripped as in normal use, make the operators hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only		N
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance		P
	No exposed pointed ends of self tapping screws etc., liable to be touched by the user in normal use or during user maintenance		N
22.15	Storage hooks and the like for flexible cords smooth and well rounded	No such device.	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 device.	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		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		N
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless material used is non-corrosive, non-hygroscopic and non-combustible		P
	Compliance is checked by inspection and, if necessary, by appropriate test		P
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless impregnated		P
22.22	Appliances not containing asbestos	No asbestos.	P
22.23	Oils containing polychlorinated biphenyl (PCB) not used		P
22.24	Bare heating elements shall be supported to prevent excessive displacement occurring during normal use. The rupture of a heating element shall not give rise to a hazard. (EN 60335-2-27)		N
	The heating element is cut in the most unfavourable place. The conductors shall not come into contact with accessible metal parts or fall out of the appliance. (EN 60335-2-27)		N
22.25	Sagging heating conductors cannot come into contact with accessible metal parts		N

EN 60335-2-27			
Clause	**Requirement - Test**	**Result**	**Verdict**
22.26	Insulation between parts operating at safety extra-low voltage and live parts complies with the requirements for double or reinforced insulation		P
22.27	Parts connected by protective impedance separated by double or reinforced insulation		N
22.28	Metal parts of Class II appliances conductively connected to gas pipes or in contact with water: separated from live parts by double or reinforced insulation		N
22.29	Class II appliances permanently connected to fixed wiring so constructed that the required degree of access to live parts is maintained after installation		N
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		N
	so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete		N
22.31	Clearances and creepage distances over supplementary and reinforced insulation not reduced below values specified in clause 29 as a result of wear		N
	Clearances and creepage distances between live parts and accessible parts not reduced below values for supplementary insulation, if wires, screws etc. become loose		N
22.32	Supplementary and reinforced insulation designed or protected against deposition of dirt or dust		N
	Supplementary insulation of natural or synthetic rubber resistant to ageing, or arranged and dimensioned so that creepage distances are not reduced below values specified in 29.2		N
	Ceramic material not tightly sintered, similar material or beads alone not used as supplementary or reinforced insulation		N
	Oxygen bomb test at 70^0C for 96 h and 16 h at room temperature		N
22.33	Conductive liquids that are or may become accessible in normal use are not in direct contact with live parts		N
	Electrodes not used for heating liquids		N
	For class II constructions, conductive liquids that are or may become accessible in normal use, not in direct contact with basic or reinforced insulation		N

EN 60335-2-27			
Clause	**Requirement - Test**	**Result**	**Verdict**
	For class II constructions, conductive liquids which are in contact with live parts, not in direct contact with reinforced insulation		N
22.34	Shafts of operating knobs, handles, levers etc. not live, unless the shaft is not accessible when the part is removed		P
22.35	Handles, levers and knobs, held or actuated in normal use, not becoming live in the event of an insulation fault		N
	Such parts being of metal, and their shafts or fixings are likely to become live in the event of an insulation fault, they are either adequately covered by insulation material, or their accessible parts are separated from their shafts or fixings by supplementary insulation		N
	This requirement does not apply to handles, levers and knobs on stationary appliances other than those of electrical components, provided they are either reliably connected to an earthing terminal or earthing contact, or separated from live parts by earthed metal		N
22.36	Handles continuously held in the hand in normal use are so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts, unless they are separated from live parts by double or reinforced insulation		P
22.37	Capacitors in Class II appliances not connected to accessible metal parts, unless complying with 22.42		N
	Metal casings of capacitors in Class II appliances separated from accessible metal parts by supplementary insulation, unless complying with 22.42		N
22.38	Capacitors not connected between the contacts of a thermal cut-out		N
22.39	Lamp holders used only for the connection of lamps		N
22.40	Motor-operated appliances and combined appliances intended to be moved while in operation, or having accessible moving parts, fitted with a switch to control the motor. The actuating member of the switch being easily visible and accessible	Not applicable	N
22.41	No components, other than lamps, containing mercury		N
22.42	Protective impedance consisting of at least two separate components		N
	Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited		N

EN 60335-2-27			
Clause	**Requirement - Test**	**Result**	**Verdict**
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		N
22.44	Appliances are not allowed to have an enclosure that is shaped and decorated so that the appliance is likely to be treated as a toy by children.		P
22.45	When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.4 due to deformation as a result of an external force applied to the enclosure		N
22.46	Software used in protective electronic circuits is software class B or C:		N
22.47	Appliances connected to the water mains withstand the water pressure expected in normal use.		N
22.48	Appliances connected to the water mains constructed to prevent backsiphonage of non-potable water		N
22.49	For remote operation, the duration of operation shall be set before the appliance can be started, unless		N
	the appliance switches off automatically or can operate continuously without hazard		N
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation		N
22.51	A control on the appliance being manually adjusted to the setting for remote operation before the appliance can be operated in this mode		N
	There is a visual indication showing that the appliance is adjusted for remote operation		N
	Manual setting and visual indication not necessary on appliances that can operate as follows, without giving rise to a hazard:		P
	- operate continuously,		P
	- operate automatically, or		N
	- be operated remotely		N
22.52	Socket-outlets on appliances accessible to the user in accordance with the socket-outlet system used in the country in which the appliance is sold		P
22.53	Class II appliances and class III appliances that incorporate functionally earthed parts have at least double insulation or reinforced insulation between live parts and the functionally earthed parts		N
22.54	Button cells and batteries designated R1 not accessible without the aid of a tool, unless	No batteries	N
	the cover of their compartment can only be opened after at least two independent movements have been applied simultaneously		N

EN 60335-2-27			
Clause	**Requirement - Test**	**Result**	**Verdict**
22.55	Devices that are operated by the user to stop the intended function of the appliance, if any, shall be distinguished from other manual devices by means of shape, or size, or surface texture, or position. This requirement concerning position does not preclude use of a push on push off switch.		P
	An indication when the device has been operated shall be given by:		--
	- tactile feedback from the actuator or tactile feedback from the appliance such as stopping of the vibration on the body of the appliance or of a part of it; or		N
	- reduction in heat output; or		N
	- audible and visible feedback.		P
22.56	Detachable power supply part shall be provided with the part of class III construction of the appliance.		N
22.57	The properties of non-metallic materials shall not degrade from exposure to UV-C radiation generated from UV sources provided for microbiological control within the appliance such that they no longer comply with this standard.		N
22.101	Appliances having a lid that has to be opened in normal use shall be constructed so that the lid does not close inadvertently. (EN 60335-2-27)		N
	The appliance is placed in any normal position of use on a plane inclined at an angle of 15° to the horizontal (EN 60335-2-27)		N
22.102	Appliances incorporating parts that are suspended or intended to be raised and lowered over a person shall incorporate a safety device to prevent injury if the suspension means fails or there is excessive travel of the part. (EN 60335-2-27)		N
22.103	UV emitters intended for full body exposure or used over a person shall be protected against accidental damage. (EN 60335-2-27)		N
22.104	Fixed appliances intended to be used over a person shall have means for fixing that are protected against loosening. (EN 60335-2-27)		N
22.105	Appliances having UV emitters intended to be used by a person lying down shall be constructed so that the emission of ultraviolet radiation is automatically stopped if the timer fails. (EN 60335-2-27)		N
	The appliance is supplied at rated voltage and operated under normal operation. A fault in the timer is simulated. The emission of ultraviolet radiation shall cease before the exposure time has exceeded 110 % of the set value. (EN 60335-2-27)		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
22.106	UV appliances shall incorporate a timer that terminates the emission of ultraviolet radiation and has a maximum setting up to (EN 60335-2-27) N – 60 min for UV type 1, UV type 2 and UV type 3 appliances; (EN 60335-2-27)		N
	¨C 30 min for UV type 4 appliances. (EN 60335-2-27)		N
22.107	Metal parts in contact with the skin and which support the body in normal use shall not be earthed. (EN 60335-2-27)		P
22.108	Appliances intended to be fixed to a wall by screws or other permanent fixing devices shall be constructed so that the method of fixing is obvious or specified in the installation instructions. (EN 60335-2-27)		N
22.109	Guards intended to prevent inadvertent ignition of flammable material shall be securely attached to the appliance so that it is not possible to detach them completely without the aid of a tool. (EN 60335-2- 27)		N
23	**INTERNAL WIRING**		**P**
23.1	Wire ways smooth and free from sharp edges		P
	Wires protected against contact with burrs, cooling fins etc.		N
	Wire holes in metal well rounded or provided with bushings.		N
	Wiring effectively prevented from coming into contact with moving parts.		P
23.2	Beads etc. on live wires cannot change their position, and are not resting on sharp edges or corners	No such device	N
	Beads inside flexible metal conduits contained within an insulating sleeve		N
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress.		N
	Flexible metallic tubes not causing damage to insulation of conductors		N
	Open-coil springs not used		N
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N
	No damage after 10 000 for conductors flexed during normal use or 100 for conductors flexed during user maintenance		N
	Electric strength test, 1000 V between live parts and accessible metal parts		N

EN 60335-2-27			
Clause	**Requirement - Test**	**Result**	**Verdict**
	The number of flexings for conductors that are only flexed when the appliance is stored is 5 000. The number of flexings for conductors flexed in normal use is increased to 50 000. (EN 60335-2-27)		N
23.4	Bare internal wiring sufficiently rigid and fixed	No bare internal wiring.	N
23.5	The insulation of internal wiring withstanding the electrical stress likely to occur in normal use	All internal wiring certified by UL	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.		N
23.7	The colour combination green/yellow used only for earthing conductors		P
23.8	Aluminium wires not used for internal wiring	No Aluminium wires used.	P
23.9	No lead-tin soldering of stranded conductors where they are subject to contact pressure, unless		P
	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).		P
24	**COMPONENTS**		**--**
24.1	Components comply with safety requirements in relevant IEC standards		P
	List of components	(see appended table)	P
	Components not tested and found to comply with relevant IEC standard for the number of cycles specified are tested in accordance with 24.1.1 to 24.1.5		P
	Components not tested and found to comply with relevant IEC standard, components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance		P
	Lampholders and starterholders that have not been previously tested and found to comply with the relevant IEC standard are tested as a part of the appliance and shall additionally comply with the gauging and interchangeability requirements of the relevant IEC standard under the conditions occurring in the appliance.	No such components	N

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Clause	**Requirement - Test**	**Result**	**Verdict**
	If the current flowing through the terminals of lampholders or ballasts exceeds the rated value, the terminal shall comply with 15.6 of IEC 60598-1. The current for the test is 1,1 times the current measured when the appliance is operated at rated voltage. (EN 60335-2-27)		N
24.1.1	Capacitors likely to be permanently subjected to the supply voltage and used for radio interference suppression or for voltage dividing, complying with IEC 60384-14, or		N
	tested according to annex F		N
24.1.2	Safety isolating transformers complying with IEC 61558-2-6, or		P
	tested according to annex G		P
24.1.3	Switches complying with IEC 61058-1, the number of cycles of operation being at least 10 000.		N
	tested according to annex H		N
24.1.4	Automatic controls complying with IEC 60730-1 with relevant part 2. The number of cycles of operation being:		N
	- thermostats: 10 000		N
	- temperature limiters: 1 000		N
	- self-resetting thermal cut-outs: 300		N
	- non-self-resetting thermal cut-outs: 30		N
	- timers: 3 000		N
	- energy regulators: 10 000		N
24.1.5	Appliance couplers complying with IEC 60320-1		P
	However, appliances classified higher than IPX0, the appliance couplers complying with IEC 60320-2-3		N
	Interconnection couplers complying with IEC 60320-2-2		N
24.1.6	Small lamp holders similar to E10 lampholders complying with IEC 60238, the requirements for E10 lampholders being applicable	No such parts.	N
24.1.7	If the remote operation of the appliance is via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is IEC 62151		N
24.1.8	The relevant standard for thermal links is IEC 60691. Thermal links not complying with IEC 60691 are considered to be an intentionally weak part for the purposes of Clause 19		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
24.1.9	Relays, other than motor starting relays, tested as part of the appliance		N
	They are also tested in accordance with Clause 17 of IEC 60730-1, the number of operations in 24.1.4 selected according to the relay function in the appliance		N
24.2	No switches or automatic controls in flexible cords		N
	No devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance		N
	No thermal cut-outs that can be reset by soldering		N
	Switches controlling a motor for raising or lowering part of the appliance, and switches of portable appliances having a rated current not exceeding 2 A, may be fitted in flexible cords. (EN 60335-2-27)		N
24.3	Switches intended for all-pole disconnection of stationary appliances are directly connected to the supply terminals and having a contact separation in all poles, providing full disconnection under overvoltage category III conditions		N
24.4	Plugs and socket-outlets for extra-low voltage circuits and heating elements, not interchangeable with plugs and socket-outlets listed in IEC 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1		N
24.5	Capacitors in auxiliary windings of motors marked with their rated voltage and capacitance and used accordingly	No such capacitor.	N
	Voltage across capacitors in series with a motor winding does not exceed 1,1 times rated voltage, when the appliance is supplied at 1,1 times rated voltage under minimum load		N
24.6	Working voltage of motors connected to the supply mains and having basic insulation that is inadequate for the rated voltage of the appliance, not exceeding 42V		N
	In addition, the motors are complying with the requirements of Annex I		N
24.7	Hose-sets for connection of appliances to the water mains, complying with IEC 61770 and supplied with the appliance		N
24.8	Motor running capacitors in appliances for which 30.2.3 is applicable and that are permanently connected in series with a motor winding, not causing a hazard in event of a failure		P
	One or more of the following conditions are to be met:		P

EN 60335-2-27			
Clause	**Requirement - Test**	**Result**	**Verdict**
	- the capacitors are of class P2 according to IEC 60252-1		N
	- the capacitors are housed within a metallic or ceramic enclosure		N
	- the distance of separation of the outer surface to adjacent non-metallic parts exceeds 50 mm		P
	- adjacent non-metallic parts within 50 mm withstand the needle-flame test of Annex E		N
	- adjacent non-metallic parts within 50 mm classified as at least V-1 according to IEC 60695- 11-10		N
25	**SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS**		**P**
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		P
	- pins for insertion into socket-outlets		N
25.2	The appliance consists of two or more completely independent units built together in one enclosure;	Only one supply.	N
	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 conductors 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 26.6		N
	Appliance provided with a set of terminals allowing the connection of a flexible cord		N
	Appliance provided with a set of supply leads accommodated in a suitable compartment		N
	Appliance provided with a set of terminals and cable entries, conduit entries, knock-outs or glands, allowing connection of appropriate type of cable or conduit		N
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimension according to table 10		N
	Introduction of conduit or cable does not reduce clearances or creepage distances below values specified in 29.1		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
25.5	Method for assemble supply cord with the appliance:		--
	- type X attachment	type X attachment	P
	- type Y attachment		N
	- type Z attachment, if allowed in part 2		N
	Type X attachment, other than those with a specially prepared cord, not used for flat twin tinsel cords		N
	Type Z attachment is allowed for appliances having a mass not exceeding 3 kg. (EN 60335-2-27)		N
25.6	Plugs fitted with only one flexible cord		N
25.7	Supply cord not lighter than:		N
	- braided cord (code designation 60245 IEC 51),		N
	- ordinary tough rubber sheathed cord (code designation 60245 IEC 53);		N
	- fat twin tinsel cord (code designation 60227 IEC 41).		N
	- light polyvinyl chloride sheathed cord (at least 60227 IEC 52), appliances not exceeding 3 kg H05RR-F.		N
	- ordinary polyvinyl chloride sheathed cord (at least 60227 IEC 53), other appliances	53(RVV)	P
	- the appliance is constructed so that the supply cord is not likely to touch such metal parts in normal use;		N
	- the supply cord is appropriate for higher temperatures. Type Y type Z attachment used		N
	Supply cords having a rubber sheath or a sheath of other material likely to be affected by ultraviolet radiation shall not be used. (EN 60335-2-27)		N
25.8	Cords having a nominal cross-sectional area of 0,5 mm^2 may be used, irrespective of their length.	3x0.75mm²	P
25.9	Supply cord not in contact with sharp points or edges		P
25.10	Green/yellow core for earthing purposes in Class I appliance	Class I appliances	N
25.11	Conductors of supply cords not consolidated by lead-tin soldering where they are subject to contact pressure, unless		N
	Clamping means so constructed that there is no risk of bad contacts due to cold flow of the solder.		N
25.12	Moulding the cord to part of the enclosure does not damage the insulation of the supply cord.		N
25.13	Inlet opening so shaped as to prevent damage to the supply cord		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
	Unless the enclosure at the inlet opening is of insulation material, a non-detachable lining or bushing complying with 29.3 for supplementary insulation provided		N
	If unsheathed supply cord, a similar additional bushing or lining is required, unless		N
	the appliance is class 0		N
25.14	Supply cords adequately protected against excessive flexing		N
	Flexing test:		--
	- applied force (N)		N
	- number of flexings		N
	The test does not result in:		---
	- short circuit between the conductors		N
	- breakage of more than 10% of the strands of any conductor		N
	- separation of the conductor from its terminal		N
	- loosening of any cord guard		N
	- damage, within the meaning of the standard, to the cord or the cord guard		N
	- broken strands piercing the insulation and becoming accessible		N
25.15	Conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorage		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
25.16	Cord anchorages for type X attachments constructed and located so that:		N
	- 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

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Clause	**Requirement - Test**	**Result**	**Verdict**
	- cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless separated from accessible metal parts by supplementary insulation		N
	- the cord is not clamped by a metal screw which bears directly on the cord		N
	- at least one part of the cord anchorage securely fixed to the appliance, unless part of a specially prepared cord		N
	- screws which have to be operated when replacing the cord do not fix any other component, if applicable		N
	- if labyrinths can be bypassed the test of 25.15 is nevertheless withstood		N
	- for Class 0, 0I and I appliances: they are of insulating material or are provided with an insulating lining, unless a failure of the insulation of the cord does not make accessible metal parts live		N
	- for Class II appliances: they are of insulating material, or if of metal, they are insulated from accessible metal parts by supplementary insulation		N
25.17	Adequate cord anchorages for type Y and Z attachment		N
25.18	Cord anchorages only accessible with the aid of a tool, or		N
	so constructed that the cord can only be fitted with the aid of a tool		N
25.19	Type X attachment, glands not used as cord anchorage in portable appliances		N
	Tying the cord into a knot or tying the cord with string not used		N
25.20	Conductors of the supply cord for type Y and Z attachment adequately additionally insulated		N
25.21	Space for supply cord for type X attachment or for connection of fixed wiring constructed to permit checking of conductors with respect to correct positioning and connection before fitting any cover, no risk of damage to the conductors when fitting the cover, no contact with accessible metal parts if a conductor becomes loose, etc.		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		N
25.22	Appliance inlet:		N
	- live parts not accessible during insertion or removal		N
	- connector can be inserted without difficulty		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
	- the appliance is not supported by the connector		N
	- is not for cold conditions if temp. rise of external metal parts exceeds 75 K, unless the supply cord is not likely to touch such metal parts		N
25.23	Interconnection cords comply with the requirements for the supply cord, except as specified		N
	If necessary, electric strength test of 16.3		N
25.24	Interconnection cords not detachable without the aid of a tool if compliance with the standard is impaired when they are disconnected		N
25.25	Dimensions of pins compatible with the dimensions of the relevant socket-outlet. Dimensions of pins and engagement face in accordance with the relevant plug in IEC 60083	VDE approved.	P

26	**TERMINALS FOR EXTERNAL CONDUCTORS**		**N**
26.1	Appliances provided with terminals or equally effective devices for connection of external conductors		N
	Terminals only accessible after removal of a non-detachable cover.		N
	However, earthing terminals may be accessible if a tool is required to make the connections and means are provided to clamp the wire independently from its connection		N
26.2	Appliances with type X attachment and appliances for connection to fixed wiring provided with terminals in which connections are made by means of screws, nuts or similar devices, unless the connections are soldered		N
	Screws and nuts serve only to clamp supply conductors, except		N
	internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N
	If soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone		N
	Soldering alone used, barriers provided, clearances and creepage distances satisfactory if the conductor becomes free at the soldered joint		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
26.3	Terminals for type X attachment and for connection to fixed wiring so constructed that the conductor is clamped between metal surfaces with sufficient contact pressure and without damaging the conductor		N
	Terminals for type X attachment and those for connection to fixed wiring so fixed that when tightening or loosening the clamping means:		--
	- the terminal does not loosen		N
	- internal wiring is not subjected to stress		N
	- clearances and creepage distances are not reduced below the values in 29		N
	Compliance checked by inspection and by the test of subclause 8.6 of IEC 60999-1, the torque applied being equal to two-thirds of the torque specified. Nominal diameter of thread (mm); screw category; torque (Nm)		N
26.4	Terminals for type X attachment, except those with a specially prepared cord, and those for connection to fixed wiring, no special preparation of conductors required, and so constructed or placed that conductors prevented from slipping out Specially prepared cord.		N
26.5	Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection to other parts that result in a hazard		N
	Stranded conductor test, 8 mm insulation removed		N
	No contact between live parts and accessible metal parts and, for class II constructions, between live parts and metal parts separated from accessible metal parts by supplementary insulation only		N
26.6	Terminals for type X attachment and for connection to fixed wiring suitable for connection of conductors with required cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm2)		N
	Terminals only suitable for a specially prepared cord		N
26.7	Terminals for type X attachment accessible after removal of a cover or part of the enclosure		N
26.8	Terminals for the connection to fixed wiring, including the earthing terminal, located close to each other		N
26.9	Terminals of the pillar type constructed and located as specified		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
26.10	Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless conductors ends fitted with a device suitable for screw terminals		N
	Pull test of 5 N to the connection		N
26.11	For type Y and Z attachment: soldered, welded, crimped and similar connections may be used		N
	For Class II 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, clearances and creepage distances satisfactory if the conductor becomes free		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 or contact of the appliance inlet		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		P
27.2	Clamping means adequately secured against accidental loosening		P
	Terminals used for the connection of external equipotential bonding conductors allow connection of conductors of 2.5 to 6 mm^2, and		P
	do not provide earthing continuity between different parts of the appliance		P
	Conductors cannot be loosened without the aid of a tool		P
27.3	For detachable parts that are plugged into another part of the appliance, and having an earth connection, the earth connection made before and separated after current-carrying connections when removing the part		P
	For appliances with supply cord, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		P
27.4	No risk of corrosion resulting from contact between metal of earthing terminal and other metal		P

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Clause	**Requirement - Test**	**Result**	**Verdict**
	Adequate resistance to corrosion of coated or uncoated parts providing earthing continuity, other than parts of a metal frame or enclosure		P
	Parts of steel providing earthing continuity provided at the essential areas with an electroplated coating, thickness at least 5μm		P
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		P
	In case of aluminium alloys precautions taken to avoid risk of corrosion		P
27.5	Low resistance of connection between earthing terminal and earthed metal parts		P
	This requirement does not apply to connections providing earthing continuity in the protective extra-low voltage circuit, provided that clearances of basic insulation are based on the rated voltage of the appliance		P
	Resistance not exceeding 0,1Ω at the specified low-resistance test	0,049Ω	P
27.6	The printed conductors of printed circuit boards not used to provide earthing continuity in hand held appliances		N
	They may be used in other appliances if:		N
	- at least two tracks are used with independent soldering points and the appliance complies with requirements of 27.5 for each circuit		N
28	**SCREWS AND CONNECTIONS**		**P**
28.1	Fixings, electrical connections and connections providing earthing continuity withstand mechanical stresses		P
	Screws not of soft metal liable to creep, such as zinc or aluminium		P
	Diameter of screws of insulating material min. 3 mm	No insulating screw used.	N
	Screws of insulating material not used for any electrical connection or connections providing earthing continuity		N
	Screws used for electrical connections or connections providing earthing continuity screw into metal		N
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation	No such screw.	N

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Clause	**Requirement - Test**	**Result**	**Verdict**
	Type X attachment, screws to be removed for replacement of supply cord or for user maintenance, not of insulating material if their replacement by a metal screw can impair basic insulation		N
	For screws and nuts; test as specified	(see appended table)	P
28.2	Electrical connections and connections providing earthing continuity constructed so that contact pressure not transmitted through insulating material liable to shrink or distort, unless shrinkage or distortion compensated	Mechanical connection	P
	This requirement does not apply to electrical connections in circuits carrying a current not exceeding 0.5A		P
28.3	Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together	No such screw	N
	Thread-cutting (self-tapping) screws and thread rolling screws only used for electrical connections if they generate a full form standard machine screw thread		N
	Such 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
	Thread-cutting, thread rolling and space threaded screws may be used in connections providing earthing continuity provided it is not necessary to disturb the connection:		N
28.4	Screws and nuts that make mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity		P
	Rivets for electrical connections or connections providing earthing continuity secured against loosening if subjected to torsion		N

29	**CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION**		**P**
	Clearances, creepage distances and solid insulation withstand electrical stress.	(see appended table)	P
	For coatings used on printed circuits boards to protect the microenvironment (Type 1) or to provide basic insulation (Type 2), annex J applies.		N
	The microenvironment is pollution degree 1 under		N
	No clearance or creepage distance requirements under		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
29.1	Clearances not less than the values specified in table 16, taking into account the rated impulse voltage for the overvoltage categories of table 15, unless		P
	for basic insulation and functional insulation they comply with the impulse voltage test of clause 14		P
	However, if the construction is affected by wear, distortion, movement of the parts or during assembly, the clearances for rated impulse voltages of 1500V and above are increased by 0,5 mm and the impulse voltage test is not applicable		P
	Impulse voltage test not applicable:		--
	- when the microenvironment is pollution degree 3		N
	- for basic insulation of class 0 and class 01 appliances		N
	Appliances are in overvoltage category II		P
	Clearances less than specified in table 16 not allowed for basic insulation of class 0 and class 0I 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 overvoltages, taking into account the rated impulse voltage		P
	Clearance at the terminals of tubular sheathed heating elements may be reduced to 1mm if the microenvironment is pollution degree 1		N
	Lacquered conductors of windings considered to be bare conductors		N
29.1.2	Clearances of supplementary insulation not less than those specified for basic insulation in table 16	(see appended table)	N
29.1.3	Clearances of reinforced insulation not less than those specified for basic insulation in table 16, but using the next higher step for rated impulse voltage	(see appended table)	N
29.1.4	For functional insulation, the values of table 16 are applicable, unless	(see appended table)	N
	the appliance complies with clause 19 with the functional insulation short-circuited		N
	Lacquered conductors of windings considered to be bare conductors		N
	However, clearances at crossover points are not measured		N
	Clearance between surfaces of PTC heating elements may be reduced to 1mm		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
29.1.5	Appliances having higher working voltage than rated voltage, the voltage used for determining clearances from table 16 is the sum of the rated impulse voltage and the difference between the peak value of the working voltage and the peak value of the rated voltage		N
	If the secondary winding of a step-down transformer is earthed, or if there is an earthed screen between the primary and secondary windings, clearances of basic insulation on the secondary side not less than those specified in table 16, but using the next lower step for rated impulse voltage		N
	Circuits supplied with a voltage lower than rated voltage, clearances of functional insulation based on the working voltage used as the rated voltage in table 15		N
29.2	Creepage distances not less than those appropriate for the working voltage, taking into account the material group and the pollution degree		P
	Pollution degree 2 applies, unless		P
	precautions taken to protect the insulation; pollution degree 1		N
	insulation subjected to conductive pollution; pollution degree 3		N
	Compliance is checked by inspection and measurements as specified		P
29.2.1	Creepage distances of basic insulation not less than specified in table 17		P
	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 and reinforced insulation having adequate thickness, or a sufficient number of layers, to withstand the electrical stresses		N
	Compliance checked by:		--

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Clause	**Requirement - Test**	**Result**	**Verdict**
	- measurement, in accordance with 29.3.1, or		N
	- an electric strength test in accordance with 29.3.2, or		N
	- an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3		N
29.3.1	Supplementary insulation having a thickness of at least 1 mm		N
	Reinforced insulation having a thickness of at least 2 mm		N
29.3.2	Each layer of material withstand the electric strength test of 16.3 for supplementary insulation		N
	Supplementary insulation consisting of at least 2 layers		N
	Reinforced insulation consisting of at least 3 layers		N
29.3.3	The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by		N
	the electric strength test of 16.3		N
	If the temperature rise during the tests of Clause 19 does not exceed the value specified in Table 3, the test of IEC 60068-2-2 is not carried out		N
30	**RESISTANCE TO HEAT AND FIRE**		**P**
30.1	External parts of non-metallic material,		P
	parts supporting live parts, and		N
	thermoplastic material providing supplementary or reinforced insulation,		N
	sufficiently resistant to heat		N
	Ball-pressure test according to IEC 60695-10-2		P
	External parts: at 40^{0}C plus the maximum temperature rise determined during the test of clause 11, or at 75^{0}C, whichever is the higher; temperature (^{0}C)	Enclosure	P
	Parts supporting live parts: at 40^{0}C plus the maximum temperature rise determined during the test of clause 11, or at 125^{0}C, whichever is the higher; temperature (^{0}C)	PCB	P
	Parts of thermoplastic material providing supplementary or reinforced insulation, 25^{0}C plus the maximum temperature rise determined during clause 19, if higher; temperature (^{0}C) ..... :		N
30.2	Relevant parts of non-metallic material adequately resistant to ignition and spread of fire		P

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Clause	**Requirement - Test**	**Result**	**Verdict**
30.2.1	Glow-wire test of IEC 60695-2-11 at 550 °C, unless		N
	the material is classified at least 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 FH3 material		N
30.2.2	For appliances that are operated while attended, parts of insulating material supporting current-carrying connections, and parts of insulating material within a distance of 3mm of such connections, are subjected to the glow-wire test of IEC 60695-2-11.		P
	- 750℃, for connections carrying a current exceeding 0,5A during normal operation		N
	- 650℃, for other conditions		P
	Test not applicable to conditions as specified		N
30.2.3	Appliances operated while unattended, tested as specified in 30.2.3.1and30.2.3.2.		N
	Test not applicable to conditions as specified		N
30.2.3.1	Part of insulating material supporting connections carrying a current exceeding 0.2A during normal operation, and		N
	Parts of insulating material within a distance of 3mm.		N
	Having a glow-wire flammability index of at least 850^0C according to IEC 60695-2-12.		N
30.2.3.2	Part of insulating material supporting current-carrying connections, and		N
	Parts of insulating material within a distance of 3mm.		N
	Subjected to glow-wire test of IEC 60695-2-11		N
	Test mot carried ort on material having a glow-wire ignition temperature according to IEC 60695-2-13 as specified.		N
	Glow-wire test of IEC 60695-2-11, the temperature being:		N
	-750℃, for connections carrying a current exceeding 0.2A during normal operation.		N
	-650℃, for other connections.		P
	Parts that during the test 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 connection, as specified, subjected to the needle-flame test of annex E, unless		N
	The material is classified as V-0 or V-1 according to IEC 60695-11-10.		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
30.2.4	Bade material of printed circuit boards subjected to needle-flame test of annex E.		N
	Test not applicable to conditions as specified.		N
31	**RESISTANCE TO RUSTING**		**P**
	Relevant ferrous parts adequately protected against rusting		P
32	**RADIATION, TOXICITY AND SIMILAR HAZARDS**		**P**
	Appliance does not emit harmful radiation		P
	Appliance does not present a toxic or similar hazard		P
32.101	Appliances shall not present a toxic or similar hazard. Appliances having UV emitters shall not emit radiation having a total effective irradiance exceeding 0,3 W/m2 weighted according to the erythema action spectrum of Figure 101. (EN 60335- 2-27)		N
	The appliance is provided with UV emitters that have been aged by supplying them at rated voltage for a period of approximately: (EN 60335-2-27)		N
	– 5 h for fluorescent lamps; (EN 60335-2-27)		N
	– 1 h for high-intensity discharge lamps. (EN 60335-2-27)		N
32.102	UV appliances shall be supplied with at least two pairs of protective goggles that ensure adequate front and side protection for the eyes and that provide enough luminous transmittance to make it possible to see through them.(EN 60335-2-27)		N
A	**ANNEX A (INFORMATIVE) ROUTINE TESTS**		**N**
	Description of routine tests to be carried out by the manufacturer		P
B	**ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES**		**N**
	The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance		N
	This annex does not apply to battery chargers		N
3.1.9	Appliance under the following conditions:		N
	- the appliance, supplied by its fully charged battery, is operated as specified in the relevant part2;		N
	- the battery is charged, the battery being initially discharged to such an extent that the appliance cannot operate;		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
	- if possible, the appliance is supplied from the supply mains through its battery charger, the battery being initially discharged to such an extent that the appliance cannot operate. The appliance is operated as specified in the relevant part2.		N
	- if the appliance incorporates inductive coupling between two parts that are detachable from each other, the appliance is supplied from the supply mains with the detachable part removed.		N
3.6.2	Part to be removed in order to discard the battery is not considered to be detachable.		N
5.101	Appliances supplied from the supply mains tested as specified for motor-operated appliances.		N
7.1	Battery compartment for batteries intended to be replaced b the user, marked with battery voltage and polarity of the terminals.		N
7.12	The instructions shall give information regarding charging.		N
	Details about how to remove batteries containing materials hazardous to the environment given.		N
7.15	Markings placed on the part of the appliance connected to the supply mains.		N
8.2	Appliances having batteries that according to the instruction may be replaced by the user need only have basic insulation between live parts and the inner surface of the battery compartment		N
	If the appliance can be operated without batteries, double or reinforced insulation required		N
11.7	The battery is charged for the period described		N
19.1	Appliances subjected to tests of 19.101, 19.102 and 19.103		N
19.101	Appliances supplied at rated voltage for 168 h, the battery being continually charged		N
19.102	Short-circuiting of the terminals of the battery, being fully charged, for appliances having batteries that can be removed without the aid of a tool.		N
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
21.101	Appliances having pins for insertion into socket-outlets have adequate mechanical strength, checked according to procedure 2 of IEC 68-2-32		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
	Part of the appliance incorporating the pins subjected to the free fall test, procedure 2, of IEC 60068-2-32, the number of falls being:		N
	- 100, the mass of part does not exceed 250 g		N
	- 50, the mass of part exceeds 250 g		N
	After the test, the requirements of 8.1, 15.1.1, 16.3 and clause 29 are met		N
22.3	Appliances having pins for insertion into socket-outlets tested as fully assembled as possible		N
25.13	An additional lining or bushing not required for interconnection cords operating at safety extra-low voltage		N
30.2	For parts of the appliance connected to the supply mains during the charging period, 30.2.3 applies		N
	For other parts, 30.2.2 applies		N
C	**ANNEX C (NORMATIVE) AGEING TEST ON MOTORS**		**--**
	Tests, as described, carried out when doubt with regard to the temperature classification of the insulation of a motor winding		N
D	**ANNEX D (NORMATIVE) THERMAL MOTOR PROTECTORS**		**--**
	Applicable to appliances having motors that incorporate thermal motor protectors		N
E	**ANNEX E (NORMATIVE) NEEDLE-FLAME TEST**		**--**
	Needle-flame test carried out in accordance with IEC 60695-11-5, with the following modifications:		--
7	Severities		P
	The duration of application of the test flame is 30 s±1 s		P
9	Test procedure		P
9.1	The specimen so arranged that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1		P
9.2	The first paragraph does not apply		N
	If possible, the flame is applied at least 10 mm from a corner		N
9.3	The test is carried out on one specimen		P
	If the specimen does not withstand the test, the test may be repeated on two additional specimens, both withstanding the test		P

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Clause	**Requirement - Test**	**Result**	**Verdict**
11	Evaluation of test results		P
	The duration of burning not exceeding 30 s		P
	However, for printed circuit boards, the duration of burning not exceeding 15 s		P
F	**ANNEX F (NORMATIVE) CAPACITORS**		--
	Capacitors likely to be permanently subjected to the supply voltage, and used for radio interference suppression or voltage dividing, comply with the following clauses of IEC 60384-14, with the following modifications:		N
1.5	Terminology		N
1.5.3	Class X capacitors tested according to subclass X2		N
1.5.4	This subclause is applicable		N
1.6	Marking		N
	Items a) and b) are applicable		N
3.4	Approval testing		N
3.4.3.2	Table II is applicable as described		N
4.1	Visual examination and check of dimensions		N
	This subclause is applicable		N
4.2	Electrical tests		N
4.2.1	This subclause is applicable		N
4.2.5	This subclause is applicable		N
4.2.5.2	Only table IX is applicable		N
	Values for test A apply		N
	However, for capacitors in heating appliances the values for test B or C apply		N
4.12	Damp heat, steady state		N
	This subclause is applicable		N
	Only insulation resistance and voltage proof are checked		N
4.13	Impulse voltage		N
	This subclause is applicable		N
4.14	Endurance		N
	Subclauses 4.14.1, 4.14.3, 4.14.4 and 4.14.7 applicable		N
4.14.7	Only insulation resistance and voltage proof are checked		N
	Visual examination, no visible damage		N
4.17	Passive flammability test		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
	This subclause is applicable		N
4.18	Active flammability test		N
	This subclause is applicable		N

G	**ANNEX G (NORMATIVE) SAFETY ISOLATING TRANSFORMERS**		**--**
	The following modifications to this standard are applicable for safety isolating transformers:		P
7	Marking and instructions		--
7.1	Transformers for specific use marked with:		--
	-name, trademark or identification mark of the manufacturer or responsible vendor		P
	-model or type reference		P
17	Overload protection of transformers and associated circuits		--
	Fail-safe transformers comply with subclause 15.5 of IEC 61558-1		P
22	Construction		--
	Subclauses 19.1 and 19.1.2 of IEC 61558-2-6 are applicable		P
29	Clearances, creepage distances and solid insulation		--
29.1, 29.2 and 29.3	The distances specified in items 2a, 2c and 3 in table 13 of IEC 61558-1 apply		P

H	**ANNEX H (NORMATIVE) SWITCHES**		**--**
	Switches comply with the following clauses of IEC 61058-1, as modified:		N
	-The tests of IEC 61058-1 carried out under the conditions occurring in the appliance		N
	-Before being tested, switches are operated 20 times without load		N
8	Marking and documentation		N
	Switches are not required to be marked		N
	However, switches that can be tested separately from the appliance marked with the manufacturer¡¯s name or trade mark and the type reference		N
13	Mechanism		N
	The tests may be carried out on a separate sample		N
15	Insulation resistance and dielectric strength		N
15.1	Not applicable		N
15.2	Not applicable		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
15.3	Applicable for full disconnection and micro-disconnection		N
17	Endurance		N
	Compliance is checked on three separate appliances or switches		N
	For 17.2.4.4, the number of cycles is 10 000, unless otherwise specified in 24.1.3 of the relevant part 2 of IEC 60335		N
	Switches for operation under no load and which can be operated only by a tool and switches operated by hand that are interlocked so that they cannot be operated under load, are not subjected to the tests		N
	Subclauses 17.2.2 and 17.2.5.2 not applicable		N
	The ambient temperature during the test is that occurring in the appliance during the test of Clause 11 in IEC 60335-1		N
	Temperature rise of the terminals not more than 30 K above the temperature rise measured in clause 11 of IEC 60335-1		N
20	Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies		N
	This clause is applicable to clearances and creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in table 24		N
I	**ANNEX I (NORMATIVE) MOTORS HAVING BASIC INSULATION THAT IS INADEQUATE FOR THE RATED VOLTAGE OF THE APPLIANCE**		--
	The following modifications to this standard are applicable for motors having basic insulation that is inadequate for the rated voltage of the appliance:		N
8	Protection against access to live parts		N
8.1	Metal parts of the motor are considered to be bare live parts		N
11	Heating		N
11.3	Temperature rise of the body of the motor is determined instead of the temperature rise of the windings		N
11.8	Temperature rise of the body of the motor, where in contact with insulating material, not exceeding values in table 3 for the relevant insulating material		N
16	Leakage current and electric strength		N
16.3	Insulation between live parts of the motor and its other metal parts not subjected to the test		N
19	Abnormal operation		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
19.1	The tests of 19.7 to 19.9 not carried out		N
19.101	Appliance operated at rated voltage with each of the following fault conditions:		N
	- short circuit of the terminals of the motor, including any capacitor incorporated in the motor circuit		N
	- short circuit of each diode of the rectifier		N
	- open circuit of the supply to the motor		N
	- open circuit of any parallel resistor, the motor being in operation		N
	Only one fault simulated at a time, the tests carried out consecutively		N
22	Construction		N
22.101	For class I appliances incorporating a motor supplied by a rectifier circuit, the d.c. circuit being insulated from accessible parts of the appliance by double or reinforced insulation		N
	Compliance checked by the tests specified for double and reinforced insulation		N

J	**ANNEX J (NORMATIVE) COATED PRINTED CIRCUIT BOARDS**		**--**
	Testing of protective coatings of printed circuit boards carried out in accordance with IEC 60664-3 with the following modifications:		N
5.7	Conditioning of the test specimens		N
	When production samples are used, three samples of the printed circuit board are tested		N
5.7.1	Cold		N
	The test is carried out at -25		N
5.7.3	Rapid change of temperature		N
	Severity 1 is specified		N
5.9	Additional tests		N
	This subclause is not applicable		N

K	**ANNEX K (NORMATIVE) OVERVOLTAGE CATEGORIES**		**--**
	The information on overvoltage categories is extracted from IEC 60664-1		P
	Overvoltage category is a numeral defining a transient overvoltage condition		P
	Equipment of overvoltage category IV is for use at the origin of the installation		N

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

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Clause	**Requirement - Test**	**Result**	**Verdict**
	- pollution degree 4: the pollution generates persistent conductivity caused by conductive dust or by rain or snow		N
N	**ANNEX N (NORMATIVE) PROOF TRACKING TEST**		--
	The proof tracking test is carried out in accordance with IEC 60112 with the following modifications:		P
O	**ANNEX O (INFORMATIVE) SELECTION AND SEQUENCE OF THE TESTS OF CLAUSE 30**		--
	Description of tests for determination of resistance to heat and fire		N
P	**ANNEX P (INFORMATIVE) GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN WARM DAMP EQUABLE CLIMATES**		--
	Modifications applicable for class 0 and 0I appliances having a rated voltage exceeding 150V, intended to be used in countries having a warm damp equable climate and that are marked WdaE		N
	Modifications may also be applied to class I appliances having a rated voltage exceeding 150V, intended to be used in countries having a warm damp equable climate and that are marked WDaE, if liable to be connected to a supply mains that excludes the protective earthing conductor		N
5	General conditions for the tests		N
5.7	The ambient temperature for the tests of Claused 11 and 13 is 40℃		N
7	Marking and instructions		N
7.1	The appliance marked with the letters WDaE		N
7.12	The instructions state that the appliance is to be supplied through a RCD having a rated residual operating current not exceeding 30 mA		N
	The instructions state that the appliance is considered to be suitable for use in countries having a warm damp equable climate, but may also be used in other countries		N
11	Heating		N
11.8	The values of Table 3 are reduced by 15 K		N
13	Leakage current and electric strength at operating temperature		N
13.2	The leakage current for class I appliances not exceeding 0,5 mA		N
15	Moisture resistance		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
15.3	The value of t is 37℃		N
16	Leakage current and electric strength		N
16.2	The leakage current for class I appliances not exceeding 0,5 mA		N
19	Abnormal operation		N
19.13	The leakage current test of 16.2 is applied in addition to the electric strength test of 16.3		N
Q	**ANNEX Q (INFORMATIVE) SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS**		--
	Description of tests for appliances incorporating electronic circuits		N
R	**ANNEX R (NORMATIVE) SOFTWARE EVALUATION**		--
	Software evaluated in accordance with the following clauses of Annex H of IEC 60730-1, as modified		N
H.2	Definitions		N
	Only definitions H.2.16 to H.2.20 applicable		N
H.7	Information		N
	Only footnotes 12) to 18) of Table 7.2, as modified, applicable		N
H.11.12	Controls using software		N
	All the subclauses of H.11.12, as modified, except H.11.12.6 and H.11.12.6.1, applicable		N
H.11.12.7	Delete text		N
H.11.12.7.1	For appliances using software class C having a single channel with self-test and monitoring structure, the manufacturer provides the measures necessary to address the fault/errors in safety related segments and data		N
H.11.12.8	Software fault/error detection occurs before compliance with 19.13 of IEC 60335-1 is impaired		N
	Replace text		N
H.11.12.13	Software and safety related hardware under its control initializes and terminates before compliance with 19.13 of IEC 60335-1 is impaired		N
S	**ANNEX S (NORMATIVE) BATTERY OPERATED APPLIANCES POWERED BY BATTERIES THAT ARE NON-RECHARGEABLE OR NOT RECHARGED IN THE APPLIANCE**		--

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Clause	**Requirement - Test**	**Result**	**Verdict**
	The following modifications to this standard are applicable for battery-operated appliances where the batteries are either non-rechargeable (primary batteries), or		N
	rechargeable batteries (secondary batteries) that are not recharged in the appliance		N

T	**ANNEX T (NORMATIVE) UV-C RADIATION EFFECT ON NON-METALLIC MATERIALS**		--
	Requirements for non-metallic materials subject to direct or reflected UV-C radiation exposure and whose mechanical and electrical properties are relied upon for compliance with the		N
	Does not apply to glass, ceramic and similar materials		N
	Tested as specified in ISO 4892-1 and ISO 4892-2, with the following modifications		N
	Modifications to ISO 4892-1:		N

EN 62233: 2008			
EMF	**ANNEX 1**		**Verdict**
	The Tested product also complies to the requirements of EN 62233: 2008		P
	Limit ……100%	Measured max.: 15,4%	P

10.1	**TABLE: Power input deviation**				**P**
Input deviation of/at:	P rated (W)	P measured (W)	dP	Required dP	Remark
240V/50Hz	2500	2310,7	-7,6%	±10%	P

11.8	**TABLE: Heating test, thermocouples (steam emission)**		**P**
	Ambient (^{0}C)	25,0^{0}C	--
	test voltage (V)	240×1,06=254,4V	--
temperature rise dT of part/at:		dT (K)	required dT (K)
Supply cord		29,4	75
Switch		29,0	60
Laser head		29,5	40
Key switch		28,5	55
Emergency switch		28,6	55
Inside wire		30,9	80
Enclosure of power supply		47,0	65

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Clause	**Requirement - Test**	**Result**	**Verdict**

Terminal	29,7	85
PCB near T1	36,6	105
Touch Screen	27,6	60
Enclosure	27,1	60
Ambient	26,7	Ref,

13.2	TABLE: LEAKAGE CURRENT MEASUREMENTS AT OPERATING TEMPERATURE		P
	heating appliances: at 1,15 times maximum rated input (W) .....:		--
	motor-operated and combined appliances: at 1,06 times rated voltage (V) .....:	240×1,06=254,4V	P
leakage current I between:		I (mA)	required I (mA)
L to enclosure		0,064	0,75
N to enclosure		0,057	0,75
L and Laser head		0,014	0,25
N and Laser head		0,011	0,25

13.3	TABLE: ELECTRIC STRENGTH MEASUREMENTS AT OPERATING EMPERATURE		P
test voltage applied between:		test voltage (V)	breakdown(Yes/No)
L/N to enclosure		1000	No
L/N to Laser head		3000	No

14	TABLE: Transient overvoltages					N
CLEARANCE BETWEEN	Cl (mm)	Required Cl (mm)	Rated impulse voltage (V)	Impulse test voltage (V)	Flashover (Yes/No)	
--	--	--	--	--	--	

16.2	TABLE: LEAKAGE CURRENT MEASUREMENTS		P
	at 1,06 times rated voltage (V) .....:	254,4V	--
leakage current I between:		I (mA)	required I (mA)
L to enclosure		0,064	0,75
N to enclosure		0,057	0,75
L and Laser head		0,014	0,25
N and Laser head		0,011	0,25

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Clause	**Requirement - Test**	**Result**	**Verdict**

16.3	**TABLE: ELECTRIC STRENGTH MEASUREMENTS**		**P**
test voltage applied between:		test voltage (V)	breakdown(Yes/No)
L/N to enclosure		1250	No
L/N to Laser head		3000	No

17.1	**TABLE: OVERLOAD PROTECTION, TEMPERATURE RISE MEASUREMENTS**		**N**
	at 1,06 or 0,94 times rated voltage (V) ..... :		--
Winding temperature	T ( )	Max temperature ( )	
--	--	--	

19.6	**TABLE: Abnormal operation: PTC heater over-voltage test**	**N**
Thermocouple locations	dT (K)	Max. dT (K)
--	--	--
--	--	--

19.7	**TABLE: Abnormal operation: The fan locking rotor**		**N**
	Ambient (^{0}C)		
	test voltage (V)		
Thermocouple locations		dT(^{0}C)	Max.(^{0}C)
--		--	--
--		--	--

19.13	**TABLE: Abnormal operation: temperature rises**						**P**
Thermocouple locations	dT(K)						Max.dT(K)
	19,2	19,3	19,4	19,5	19,6	19,7	
Test floor	--	--	--	--	--	6,4	150
Test wall	--	--	--	--	--	6,1	150
Enclosure	--	--	--	--	--	7,5	Clause 30.1
Remark: 19.7: Locking fan							

24.1	**TABLE: COMPONENTS**			**P**
Object/part No.	Manufacturer/trade mark	Type/model	Technical data	Mark(s) of conformity
Plug	CHELI	LC-08	10A, 250V~	VDE

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Clause	**Requirement - Test**	**Result**	**Verdict**

Power cord	CHELI	H05VV-F	3x0.75mm^2	VDE
Solid state relay	Scnulber	SSR-25 DA	24-380VAC; 3-32VDC 25A	CE
Pump	FDB	31600-0092	12V10A	CE
Cooling fan	ADDA	A70AL	0.3A	UL
808 Laser	Jenoptik	NA	808nm 1- 138J/cm^2	CE
Power Supply	CHMWDC	CH-086	12V1500W	CE
Switching Power Supply	CH	CJ25D-05S	5V, 5A	CE
Color touch screen	DWIN	DMG80600S104-02WT	10.4”	CE
Internal wiring	Various	VW-1	300V, 80℃	UL
PCB	Various	US419	V0, 130℃	UL
1) an asterisk indicates a mark which assures the agreed level of surveillance				

28.1	**TABLE: Threaded part torque test**			**P**
Threaded part identification		Diameter of thread(mm)	Column number (I, II, or III)	Applied torque (Nm)
Fixed enclosure		∮ 3,0	II	0,5

29.1	**TABLE: Clearances**					**P**
		Overvoltage category.....:		II		--
		Type of insulation:				--
Rated impulse voltage (V	Min. cl (mm)	Basic	Functional	Supplementary	Reinforced	Verdict / Remark
330	0,5	--	--	--	--	N
500	0,5	--	--	--	--	N
800	0,5	--	--	--	--	N
1500	0,5	--	--	--	--	N
2500	1,5	>2,0	>2,0	>2,0	>3,0	P
4000	3,0	--	--	--	--	N
6000	5,5	--	--	--	--	N
8000	8,0	--	--	--	--	N
10000	11,0	--	--	--	--	N

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Clause	**Requirement - Test**	**Result**	**Verdict**

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

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Clause	**Requirement - Test**						**Result**				**Verdict**
>1600≤2000	11,2	16,0	22,0	32,0	40,0	44,0	50,0	--	--	--	N
>2000≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	--	--	--	N
>2000≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	--	--	--	N
>2000≤2500	15,0	20,0	28,0	40,0	50,0	56,0	64,0	--	--	--	N
>2500≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	--	--	--	N
>2500≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	--	--	--	N
>2500≤3200	20,0	25,0	36,0	50,0	64,0	72,0	80,0	--	--	--	N
>3200≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	--	--	--	N
>3200≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	--	--	--	N
>3200≤4000	25,0	32,0	44,0	64,0	80,0	90,0	100,0	--	--	--	N
>4000≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	--	--	--	N
>4000≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	--	--	--	N
>4000≤5000	32,0	40,0	56,0	80,0	100,0	112,0	126,0	--	--	--	N
>5000≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	--	--	--	N
>5000≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	--	--	--	N
>5000≤6300	40,0	50,0	72,0	100,0	126,0	142,0	160,0	--	--	--	N
>6300≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	--	--	--	N
>6300≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	--	--	--	N
>6300≤8000	50,0	64,0	90,0	126,0	160,0	180,0	200,0	--	--	--	N
>8000≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	--	--	--	N
>8000≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	--	--	--	N
>8000≤10000	64,0	80,0	112,0	160,0	200,0	220,0	250,0	--	--	--	N
>10000≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	--	--	--	N
>10000≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	--	--	--	N
>10000≤12500	80,0	100,0	142,0	200,0	250,0	280,0	320,0	--	--	--	N
B=Basic, S=Supplementary and R=Reinforced											

29.2	TABLE: Creepage distances, functional							P
Working voltage (V)	Creepage distance (mm) Pollution degree							--
	1	2			3			--
		Material group			Material group			Verdict /Remark
		I	II	IIIa/IIIb	I	II	IIIa/IIIb	
≤50	0,2	0,6	0,8	1,1	1,4	1,6	1,8	N
>50≤125	0,3	0,7	1,0	1,4	1,8	2,0	2,2	N
>125≤250	0,4	1,0	1,4	2,0	2,5	2,8	**3,2**	L to

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Clause	**Requirement - Test**	**Result**	**Verdict**

								N>2,0mm
>250≤400	0,8	1,6	2,2	3,2	4,0	4,5	5,0	N
>400≤500	1,0	2,0	2,8	4,0	5,0	5,6	6,3	N
>500≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	N
>800≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	N
>1000≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	N
>1250≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	N
>1600≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	N
>2000≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	N
>2500≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	N
>3200≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	N
>4000≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	N
>5000≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	N
>6300≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	N
>8000≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	N
>10000≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	N

30.1	**TABLE: ball-pressure tests**			**P**
part	test temperature ( )	Impression diameter (mm)	Allowed impression diameter (mm)	
Enclosure	75,0	0,6	<2,0	

30.2	**TABLE: Glow-wire test**		**P**
Part	Test temperature ( )	Self-extingusished in the further 30s	--
Enclosure	650	Not burning	P
PCB	650	Not burning	P