LOW VOLTAGE DIRECTIVE TEST REPORT

For

Diode laser hair removal + pico laser system

Model: DY.L101C, 201, 301, 401, 501, 601, 701, 801, 901, 1001, 1101, 1201, 1301, 1401, 1501

Brand Name: N/A

Report No.: ENC2503203GZ47L1

Date of Issue: Mar. 20, 2025

Prepared For

Guangzhou Weilimei Beauty Equipment Co., Ltd.

Room B1029, 3/F, No. 22-1, Lane 7, Yongtai Zhihe Street, Yongping Street, Baiyun District, Guangzhou, China

Prepared By

East Notice Certification Service Co., Ltd.

1/F, Haohui Commercial Building, Zhuji Street, Dongpu Town, Tianhe District, Guangzhou City, China

E-mail: enc@enc-lab.com

Web: www.enc-lab.com

TEST REPORT

EN IEC 60335-2-113

Household and similar electrical appliances - Safety - Part 2-113: Particular requirements for cosmetic and beauty care appliances incorporating lasers and intense light sources

Report reference No.	:	ENC2503203GZ47L1
Tested by	:	Sam Liu
Review by (+ Signature).	:	Yemig
Approved by (+ signature)	:	Ray Zhou
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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	:	Guangzhou Weilimei Beauty Equipment Co., Ltd.
Address	:	Room B1029, 3/F, No. 22-1, Lane 7, Yongtai Zhihe Street, Yongping Street, Baiyun District, Guangzhou, China

Manufacturer

Name	:	Guangzhou Weilimei Beauty Equipment Co., Ltd.
Address	:	Room B1029, 3/F, No. 22-1, Lane 7, Yongtai Zhihe Street, Yongping Street, Baiyun District, Guangzhou, China

Test specification

Standard	:	EN IEC 60335-2-113:2023+A11:2023, EN IEC 60335-1:2023+A11:2023, EN 62233:2008
Test procedure	:	CE-LVD
Non-standard test method	:	N/A

Test Report Form/blank test report

Test Report Form No.	:	ENC60335-2-113A23
Test Report Form(s) Originator	:	ENC

Test item

Description	:	Diode laser hair removal + pico laser system
Brand name	:	N/A
Model and/or type reference	:	DY.L101C, 201, 301, 401, 501, 601, 701, 801, 901, 1001, 1101, 1201, 1301, 1401, 1501
Rating(s)	:	220-240V~, 50Hz, 1800W

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 ……..……..: Mar. 12, 2025

Date(s) of performance of test ……..: Mar. 12, 2025 - Mar. 20, 2025

General remarks

"(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 DY.L101C.
2. All models have same electrical structure as DY.L101C, 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 IEC 60335-2-113:2023+A11:2023, EN IEC 60335-1: 2023+A11:2023, EN 62233:2008.

Marking on the appliance:

Diode laser hair removal + pico laser system
Model: DY.L101C
Rated Voltage: 220-240V~, 50Hz
Rated Power: 1800W

Guangzhou Weilimei Beauty Equipment Co., Ltd.
MADE IN CHINA

Remark:

The height of mark shall be at least 7mm.

The additional markings which do not give rise to misunderstanding maybe added.

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
5	**GENERAL CONDITIONS FOR THE TESTS**		**--**
	Tests performed according to cl. 5, e.g. nature of supply, sequence of testing, etc.		P
5.2	The additional test of 25.14 for hand-held appliances is carried out on a separate appliance. (EN IEC 60335-2-113)		N
5.101	Beauty care appliances are tested as a motor-operated appliance. (EN IEC 60335-2-113)		P
5.102	Where a test specification requires testing on skin or artificial skin, the artificial skin shall be similar in softness, heat capacity and reflection conditions of human skin. (EN IEC 60335-2-113)		P
	For appliances with interlock system using a capacitive detection, the artificial skin shall also be similar in dielectric constant condition of human skin. (EN IEC 60335-2-113)		P
6	**CLASSIFICATION**		**--**
6.1	Protection against electric shock: Class 0, 0I, I, II, III:	Class I appliance	--
6.2	Protection against harmful ingress of water	IPX0	--
7	**MARKING AND INSTRUCTIONS**		**--**
7.1	Appliances shall be marked with the		P
	Rated voltage or voltage range(V)		P
	Single-phase appliances: 230 V covered	220-240V	P
	Multi-phase appliances: 400 V covered		N
	Nature of supply	~	P
	Rated frequency or frequency range (Hz)	50Hz	P
	Rated input or rated current	1800W	P
	Manufacturer's or responsible vendor's name, trademark or identification mark	Guangzhou Weilimei Beauty Equipment Co., Ltd.	P
	Model or type reference	DY.L101C	P
	Symbol 5172 of IEC60417, for class II appliances only;		N
	IP number	IPX0	N
	Appliances shall also be marked with the following, if applicable: (EN IEC 60335-2-113)		P
	- a warning that intense visible and invisible optical radiation emitted from the device may cause eye injury; (EN IEC 60335-2-113)	⚠	P
	- indication to avoid eye exposure; (EN IEC 60335-2-113)		P

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
	- for Class 1C laser product appliances; (EN IEC 60335-2-113)		--
	· sign shown in Figure 101; or (EN IEC 60335-2-113)		N
	· warning sign ISO 7010-W004 (2019-07) and the substance of the following: Laser radiation. Follow instructions. Class 1C laser product. (EN IEC 60335-2-113)		P
	- warning symbol ISO 7010-W027 (2011-05), for appliances incorporating an ILS; (EN IEC 60335-2-113)		N
	- symbol ISO 7000-0790 (2004-01) to indicate the need to consult the user manual. (EN IEC 60335-2-113)		P
7.2	Warning for stationary appliances for multiple supply		N
	Warning placed in vicinity of terminal cover		N
7.3	Range of rated values correctly marked	220-240V	P
	Different rated values marked with the values separated by an oblique stroke.		N
7.4	Voltage setting clearly discernible		N
7.5	Marking of rated input for each rated voltage		N
	The power input is related to the mean value of the rated voltage range.		N
	Marking for upper and lower limits of rated input		N
7.6	Correct symbols used	V; Hz; W	P
	 [warning sign ISO 7010-W004 (2019-07)] Warning: Laser beam (EN IEC 60335-2-113)	 Class 4	P
	 [warning sign ISO 7010-W027 (2019-07)] Warning; Optical radiation (EN IEC 60335-2-113)		N
7.7	Correct connection diagram, fixed to the appliance		N
7.8	Not for type Z attachment:		--
	- marking of terminals for the neutral conductor (N)		P
	- marking of earthing terminals		P
	- marking not placed on removable parts		P
7.9	Marking or placing of switches which may cause a hazard.		P

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
7.10	Indications of switches and regulating devices by use of figures, letters or other		P
	The figure 0 indicates only OFF position, unless no confusion with the OFF position	ON/OFF	P
7.11	Indication for direction of adjustment of controls		P
7.12	Instructions for safe use provided (EN IEC 60335-2-113)		P
	The instructions shall include the substance of the following warnings, if applicable: (EN IEC 60335-2-113)		P
	WARNING. Possible eye injury (potentially leading to loss of vision) or skin injury if instructions are not followed. Read and follow the instructions. (EN IEC 60335-2-113)		P
	WARNING. Only use disposable and consumable materials recommended by the manufacturer. (EN IEC 60335-2-113)		P
	WARNING. Damage of the skin may occur after prolonged or repeated surface application on one site. (EN IEC 60335-2-113)		P
	WARNING. Misuse can lead to eye damage. Protect the eye from exposure. Do not use the appliance over the eye lids or close to the eye. (EN IEC 60335-2-113)		P
	WARNING. Do not override the safety mechanisms inherent to the device. (EN IEC 60335-2-113)		P
	WARNING. If taking a photosensitizing medication or herbal remedy, seek medical advice prior to application of the appliance as use may harm the skin. (EN IEC 60335-2-113)		P
	The instructions shall include the substance of the following, if applicable: (EN IEC 60335-2-113)		P
	- do not use the appliance in areas where skin integrity has been impaired (for example, in the presence of burns, lesions, blisters, scars, cuts, open wounds, active skin disease, recent sun tan or sun burn, and/ or infection); (EN IEC 60335-2-113)		P
	- this appliance is not intended for the treatment of medical conditions. Medical advice should be sought to address, for example, moles, skin rash, itchy skin, skin fungus or infection, skin bumps, or skin tags; (EN IEC 60335-2-113)		P
	- indications for how to use on various skin colour pigmentations, hair colours and hair thicknesses; (EN IEC 60335-2-113)		P
	- these appliances are not to be used on children; (EN IEC 60335-2-113)		P
	- avoid over-usage which includes excessive passes, stacking of pulses and/or increased frequency of use; (EN IEC 60335-2-113)		P

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
	- verify that there is no visible damage to the emission optic or the appliance housing. If there is damage, do not use appliance; (EN IEC 60335-2-113)		P
	- a description of how to test the skin reaction prior to the full area treatment; (EN IEC 60335-2-113)		P
	- a description of how to prepare the skin before application, e.g. by applying lotions or removal of make-up; (EN IEC 60335-2-113)		P
	- information concerning handling, disinfection, cleaning, care and storage of the device; (EN IEC 60335-2-113)		P
	- information on use in the presence of injectable filler and toxins; (EN IEC 60335-2-113)		P
	- a list of possible side effects, including blistering, pain, and scarring; (EN IEC 60335-2-113)		P
	- when to seek medical advice prior to or during a use cycle; (EN IEC 60335-2-113)		P
	- white or grey hair cannot be epilated; (EN IEC 60335-2-113)		P
	- how to prepare the hair prior to use. (EN IEC 60335-2-113)		P
	The instructions of appliances that use disposable parts or consumable materials shall list these products and give advice on the safe disposal of them after use. (EN IEC 60335-2-113)		P
	For appliance incorporating lasers, the instructions shall additionally provide specific information about: (EN IEC 60335-2-113)		P
	- the maximum laser output delivered to the skin; (EN IEC 60335-2-113)		P
	- the laser product class, wavelength/s, pulse duration, pulse repetition rate, output radiant power or radiant energy; (EN IEC 60335-2-113)		P
	- irradiance in W/m^2 or radiant exposure in J/m^2 for each output setting of the device; (EN IEC 60335-2-113)		P
	- the anticipated effects of the laser radiation on the skin; (EN IEC 60335-2-113)		N
	- repairs and, if applicable, recommended replacement components and accessories compatible with the product. (EN IEC 60335-2-113)		P
	For appliances incorporating ILS the instructions shall additionally provide specific information about: (EN IEC 60335-2-113)		N
	- the appliance optical output, wavelength range, pulse duration, pulse repetition rate, output irradiance or radiance; (EN IEC 60335-2-113)		N

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
	- repairs and, if applicable, recommended replacement components and accessories that are compatible with the product, including lamps, timers, reflectors, and filters. (EN IEC 60335-2-113)		N
	If warning sign ISO 7010-W004, sign shown in Figure 101 or warning sign ISO 7010-W027 (2019-07) is used, its meaning shall be explained. (EN IEC 60335-2-113)		P
7.12.1	Sufficient details for installation supplied		N
	For an appliance intended to be permanently connected to the water mains and not connected by a hose-set, this is stated		N
	If different rated voltages or different rated frequencies are marked, the instructions state what action to be taken to adjust the appliance		N
7.12.2	Means for disconnection with contact separation at least 3 mm		N
	Stationary appliance with supply cord and plug: statement in the instructions that the appliance is so positioned that the plug is accessible	Fittled with a supply cord and a plug	N
7.12.3	Insulation in contact with parts exceeding 50 K; instruction		N
7.12.4	Instructions for built-in appliances		N
	- dimensions of the space		N
	- dimensions and position of the means		N
	- ventilation openings		N
	- connection/interconnection plug accessible		N
	- necessity to allow disconnection of the appliance from the supply after installation, unless the appliance incorporates a switch complying with		N
	The disconnection may be achieved by having the plug accessible or by incorporating a switch in fixed wiring in accordance with the wiring rules		N
7.12.5	Replacement cord, type X attachment	Type X attachment	P
	Replacement cord, type Y attachment		N
	Replacement cord, type Z attachment		N
7.12.6	The instructions for heating appliances incorporating a non-self-resetting thermal cut-out that is reset by disconnection of the supply mains shall contain the substance of the following:		N
	CAUTION: In order to avoid a hazard due to inadvertent resetting of the thermal cutout, this appliance must not be applied through an external switching device, such as a timer, or connected to a circuit that is regularly switched on and off by the utility		N

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
7.12.7	The instructions for fixed appliances shall state how the appliance is to be fixed to its support		N
7.12.8	The instructions connected to the water mains shall state		--
	- the maximum inlet water pressure, in pascals;		N
	- the minimum inlet water pressure, in pascals, if this is necessary for the correct operation of the appliance.		N
	The instructions for appliances connected to the water mains by detachable house-sets shall state that the new hose sets supplied with the appliance are to be used and that old hose-sets should not be reused.		N
7.12.9	Instructions specified in 7.12 and from 7.12.1 to7.12.8 are in hard copy form and appear together before any other instructions supplied with the appliance		P
	Alternatively, these instructions may be supplied with the appliance separately from any functional use booklet		N
	They may follow the description of the appliance that identifies parts, or follow the drawings/sketches common to the languages of the instructions		N
	They may follow the description of the appliance that identifies parts, or follow the drawings/sketches		N
	In addition, instructions are also available in an alternative format such as on a website or on request in a format such as a DVD	Website	P
7.13	Instructions and other texts in an official language	English version.	P
7.14	Marking clearly legible and durable		P
	The height of the triangle in warning sign ISO 7010-W004, height of the sign shown in Figure 101, and the height of the triangle in warning sign ISO 7010-W027 (2019-07) shall be at least 10 mm. (EN IEC 60335-2-113)		P
7.15	Marking on a main part	The marking plate is stuck on the main enclosure	P
	Marking clearly discernible from the outside, if necessary after removal of a cover		P
	For portable appliances, cover can be removed or opened without a tool		N
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation		N
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions		P
	Indication for switches and controls in vicinity of components; not on removable parts if misleading		P

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
	Warnings on the housing shall be permanently fixed, legible, and clearly visible during use, maintenance, and service. They shall be so positioned that they can be read without the necessity for human exposure to laser radiation in excess of the AEL for Class 1 laser product or optical radiation in excess of the emission limits of the exempt group. (EN IEC 60335-2-113)		P
7.16	Marking of possible replaceable thermal link or fuse link clearly visible with regard to replacing the link.		P
8	**PROTECTION AGAINST ACCESS TO LIVE PARTS**		**--**
8.1	Adequate protection against accidental contact with live parts		P
8.1.1	All positions; detachable parts removed		P
	Removal of lamps: protection against contact with live parts		N
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	The test probe can not touch any live with 20N forces	P
	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	Not applicable		--
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
	- for peak values over 450 V up to and including 15 kV, discharge not exceeding 45µC.		N
	The quantity of electricity in the discharge is measured using a resistor having a nominal non-inductive resistance of 2000Ω		N
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		P
	- built-in appliances		N
	- fixed appliances		N
	- appliances delivered in separate units		P

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
8.2	Class II appliances and constructions constructed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only		P
	Only possible to touch parts separated from live parts by double or reinforced insulation		P
8.3	For battery-operated appliances with a functional earth or supply connection, parts within a battery compartment only accessible if:		N
	- class I, 0I and II appliances: separated from live parts by double and reinforced insulation		N
	- class 0 appliances: separated from live parts by basic insulation		N
	- battery compartment of class III construction, and basic insulation in addition to supply at SELV, if limits in 8.1.4 exceeded		N
	The test probes are only applied to built-in appliances and fixed appliances after installation		N
9	**STARTING OF MOTOR-OPERATED APPLIANCES**		--
	Requirements and tests are specified in part 2 when necessary		P
10	**POWER INPUT AND CURRENT**		--
10.1	Power input at normal operating temperature, rated voltage and normal operation not deviating from rated power input by more than shown in table 1	(See appended table)	P
10.2	Current at normal operating temperature, rated voltage and normal operation not deviating from rated current by more than shown in table 2		N
11	**HEATING**		--
11.1	No excessive temperatures in normal use.		P
11.2	Placing and mounting of appliance as described		P
	Appliances intended to be used on a stand or attached to a support are placed to give the most unfavourable results. (EN IEC 60335-2-113)		N
11.3	Temperature rises, other than of windings, determined by thermocouples	Thermocouples	P
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

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
11.6	Combined appliances are operated as heating appliances		N
11.7	Appliances without a timer are operated (EN IEC 60335-2-113)		N
	- for 30 min, for hand-held appliances and appliances with hand-held applicators; (EN IEC 60335-2-113)		N
	- until steady conditions are established, for other appliances. (EN IEC 60335-2-113)		N
	Appliances incorporating a timer are operated in cycles until steady conditions are established. Each cycle consists of the maximum operating time of the timer followed by either the programmed rest period, or a minimum rest period of 5 s. (EN IEC 60335-2-113)		P
11.8	The temperature rises shall not exceed the values given in table 3.	(see appended tables)	P
	Protective devices do not operate		P
	Sealing compound not flowing out		N
13	**LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE**		**--**
13.1	Leakage current not excessive and electric strength adequate		P
	Heating appliances operated at 1.15 times rated power input :		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		P
	Compliance is also checked by the test of 13.101. (EN IEC 60335-2-113)		P
13.2	Leakage current measured by means of circuit described in Annex G		P
	Leakage current measurements	(see appended table)	P
	For an applicator intended to make contact with the human body, the allowable limit for leakage current is 0,1 mA. (EN IEC 60335-2-113)		P
13.3	The appliance is disconnected from the supply and the insulation is immediately subjected to a voltage having a frequency of 50Hz or 60 Hz for 1 min, in accordance with IEC 61180-1.	(see appended table)	P
	The high-voltage source used for the test is to be capable of supplying a short circuit current is between the terminals after the output voltage has been adjusted to the output voltage has been adjusted to the appropriate test voltage,		P

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
	The overload release of the circuit is not to be operated by any current below the tripping current Ir. The values if Is and Ir are given in the 5 for various high-voltage sources,		P
	No breakdown during the test		P
13.101	The leakage current for the applicator intended to make contact with the human body shall also be measured between the part in contact with the human body and the poles of the supply with each supply conductor interrupted one at a time and shall not exceed 0,5 mA. (EN IEC 60335-2-113)		P
14	**TRANSIENT OVERVOLTAGES**		**--**
	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
	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**		**--**
15.1	Enclosure provides the degree of moisture protection according to classification of the appliance	IPX0	N
	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, as follows		N
	Water valves containing lives parts and that are incorporated in external hoses for connection of an appliance to the water mains are subjected to the test specified for IPX7 appliances		N
	- IPX1 appliances as described in 14.2.1		N
	- IPX2 appliances as described in 14.2.2		N
	- IPX3 appliances as described in 14.2.3		N
	- IPX4 appliances as described in 14.2.4		N
	- IPX5 appliances as described in 14.2.5		N
	- IPX6 appliances as described in 14.2.6		N

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
	- IPX7 appliances as described in 14.2.7		N
	For this test the appliance is immersed in water containing 1% NaCl.		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
	Wall-mounted appliances, take into account the distance to the floor stated in the instructions		N
	Detachable parts tested as specified		N
15.2	Spillage of liquid does not affect the electrical insulation		N
	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		N
	Detachable parts removed		N
	Overfilling test with additional amount of water, over a period of 1 min (l) :		N
	The appliance withstands the electric strength test of 16.3		N
	No trace of water on insulation that can result in a reduction of clearances and creepage distances below values specified in clause 29		N
15.3	Appliances proof against humid conditions		--
	Humidity test for 48 h in a humidity cabinet	25°C, 93%RH	P
	The appliance withstands the tests of clause 16		P
16	**LEAKAGE CURRENT AND ELECTRIC STRENGTH**		**--**

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
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		P
17	**OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS**		--
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use	(see appended table)	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		P
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe		P
19.2	Test of appliance with heating elements with restricted heat dissipation; test voltage (V): power input of 0.85 times rated power input		N
19.3	Test of 19.2 repeated; test voltage (V): power input of 1,24 times rated power input		N
19.4	Test conditions as in cl. 11, any control limiting the temperature during tests of cl. 11 short-circuited	No control limited the temperature operated during test of Cl.11	N

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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 as specified. Supplied at rated voltage, establishing steady conditions, then the voltage increased in steps by 5% until 1,5 times rated voltage is reached or until the heating element ruptures		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		--
	Locked rotor, motor capacitors open-circuited or short-circuited, if required	Locked fan	P
	Locked rotor, capacitors open-circuited one at a time		P
	Test repeated with capacitors short-circuited one at a time, if required		P
	Appliances with timer or programmer supplied with rated voltage for each of the tests, for a period equal to the maximum period allowed		N
	Other appliances supplied with rated voltage for a period as specified		N
	Winding temperatures not exceeding values specified in table 8		P
	- hand-held appliances		N
	- appliances which have to be kept switched on by hand		N
	- appliances provided with a timer		N
19.8	Three-phase motors operated at rated voltage with one phase disconnected		N
19.9	Not applicable		--
19.10	Series motor operated at 1,3 times rated voltage for 1 min		N
	Parts shall not be ejected from the appliance		N
19.11	Electronic circuits, compliance checked by evaluation of the fault conditions specified in 19.11.2 for all circuits or parts of circuits, unless they comply with the conditions specified in 19.11.1		P
	Appliances incorporating a protective electronic circuit are subjected to tests of 19.11.3 and 19.11.4		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
	Appliances having a switch with an off position obtained by electronic disconnection or a switch that can place the appliance in stand-by mode, are subjected to the test of 19.11.4		N
19.11.1	Before applying the fault conditions a) to f) in 19.11.2, it is checked if circuits or parts of circuit meet both of the following conditions:		--
	- the electronic circuit is a low-power circuit, that is, the maximum power at low-power points does not exceed 15 W according to the tests specified		N
	- the protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction in other parts of the appliance does not rely on the correct functioning of the electronic circuit		N
19.11.2	Fault conditions applied one at a time, the appliance operated under conditions specified in cl. 11, but supplied at rated voltage, the duration of the tests as specified:		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	Comply IEC 60384-14	N
	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		P
	e) failure of triacs in the diode mode		N
	f) failure of an integrated circuit. In this case the possible hazardous situations of the appliance are assessed to ensure that safety does not rely on the correct functioning of such a component		N
	In the case, the test is ended if a non-self-resetting interruption of the supply occurs within the appliance.		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		N
	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
	- live parts not accessible to the test finger or test pin as specified in Cl. 8		N
	- any current flowing through protective impedance not exceeding the limits specified in 8.1.4		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
	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		P
	- 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		P
	- the appliance withstands the tests of 19.11.2 with open-circuited conductor bridged		P
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	N
	Appliance incorporating a protective electronic circuit are subjected to the tests of 19.11.4 to 19.11.7. The tests carried out after the protective electronic circuit has operated during the relevant tests of clause 19 except 19.2, 19.6 and 19.11.3. however, appliances that are operated for 30s or 5 min during test of 19.7 are not subjected to the tests for electromagnetic phenomena.		N
	The tests carried out with surge arresters disconnected, unless they incorporate spark gaps		N
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		N
19.11.4.2	The appliances is subjected to fields in accordance with IEC 61000-4-3, thet level 3 being applicable		N
19.11.4.3	The appliance is subjected to fast transient bursts in accordance with IEC 64000-4-4. Test level 3 s applicable for signal and control lines. The test level 4 is applicable for the power supply lines. The bursts are applied for 2 min with positive polarity and for 2 min with a negative polarity		N
19.11.4.4	The power supply terminals of the appliance are subjected to voltage surges in accordance with IEC 61000-4-5, five positive impulses and five negative impulses being applied at the selected points. The level 3 is applicable for the line-to-line coupling mode, a generator having a source impedance of 12 Ω being used.		N
	Earthed heating elements in class I appliances are disconnected during this test		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
	For appliances having surge arresters incorporating spark gaps, the test is repeated at a level that is 95% of the flashover voltage		N
19.11.4.5	The appliance is subjected to injected currents in according with IEC 61000-4-6, test level 3 being applicable. During the test, all frequencies between 0.15 MHz to 80 MHz are covered		N
19.11.4.6	The appliance is subjected to voltage dips and interruptions in accordance with IEC 61000-4-11. the durations specified in table 1 of IEC 61000-4- 11 are applied to each test level, the dips and interruptions being applied at zero crossing of the supply voltage		N
19.11.4.7	The appliance is subjected to mains signals in accordance with IEC 61000-4-13, test level class 2 being applicable.		N
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)	The fuse-link considered as intentionally weak part	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
	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
	The appliance shall not undergo a dangerous malfunction, and there shall be 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, shall not become operational		P
	Appliance, other than Class III, withstands the electric strength test of 16.3, however, the test voltage being:		P
	- basic insulation	1000V	P
	- supplementary insulation	1750V	P
	- reinforced insulation	3000V	P
	During and after the tests, if the appliance is operational, it shall comply with Clause 32. (EN IEC 60335-2-113)		P

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Clause	**Requirement - Test**	**Result**	**Verdict**
19.14	Appliances operated under the conditions of clause 11, any contactor or relay contact operating under the conditions of clause 11 being short-circuited		N
	For a relay or contactor with more than one contact, all contacts are short-circuited at the same time		N
	A relay or contactor operating only to ensure the appliance is energized for normal use is not shortcircuited		N
	If more than one relay or contactor operates in clause 11, they are short-circuited in turn		N
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
19.16	Appliances having mains connection and replaceable batteries supplied at rated voltage and operated under normal operation but with batteries removed or in any position allowed by construction		N
19.17	For battery-operated appliances incorporating a battery using metal-ion chemistry, the battery system is operated according to the instructions and tested under the following conditions		N
20	**STABILITY AND MECHANICAL HAZARDS**		--
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		N
	Possible heating test in overturned position; temperature rise does not exceed values shown in table 9		N
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury		N
	Protective enclosures, guards and similar parts are non-detachable		N
	Adequate mechanical strength and fixing of protective enclosures		N
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard, by unexpected reclosed		N
	Not possible to touch dangerous moving parts with test probe		N
21	**MECHANICAL STRENGTH**		--

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
21.1	Appliance has adequate mechanical strength and is constructed as to withstand rough handling		P
	No damage after three blows applied to various parts of the enclosure, impact energy 0,5 ± 0,04 Nm		P
	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
	Hand-held appliances and hand-held parts of the appliance are also subjected to the test of 21.101. (EN IEC 60335-2-113)		P
21.2	Accessible parts of solid insulation shall have sufficient strength to prevent penetration by sharp implements		P
	Compliance is checked by subjecting the insulation to the following test unless the thickness of supplementary insulation is at least 1 mm and that of reinforced insulation is at least 2 mm.		P
	The insulation is raised to the temperature measured during the test of clause 11.		N
	The surface of insulation is then scratched by means of a hardened steel pin, the end of which has the form of a cone with angle of 40º its tip is rounded with a radius of 0.25 mm ± 0.20mm		N
	The pin is held at an angle of 80º -85º to the horizontal and loaded so that the force exerted along its axis is 10 N ± 0.5N.		N
	The scratched are made by drawing the pin along the surface of the insulation at a speed of approximately 20 mm/s. two parallel scratched are made.		N
	Two similar scratches are made at 90º to the first pair without crossing them.		N
	The test fingernail of figure 7 is then applied to the scratched surface with a force of approximately 10 N. No further damage, such as separation of the material, shall occur. The insulation shall then withstand the electric strength test of 16.3		N
	The hardened steel pin is then applied perpendicularly with a force of 30 N ± 0.5N to an unscratched part of the surface. The insulation shall then withstand the electric strength test of 16.3 with the pin still applied and used as one of the electrodes.		N
21.3	Appliances with pins for insertion into socket-outlets with a rotating plug part are provided with a mechanical stop to prevent rotation having adequate mechanical strength and constructed to withstand rough handling		N

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
	Application of a torque of 2 Nm for 1 min does not result in rotation of the plug part after rotating it until the mechanical stop prevents further rotation, both directions checked		N
21.101	The appliance is placed on a horizontal surface positioned 700 mm above a rigidly supported hardwood board and operated while supplied at rated voltage. (EN IEC 60335-2-113)		P
	It is pulled from the surface by its supply cord and allowed to drop freely. The test is carried out five times, the appliance being placed on the horizontal surface in different positions likely to occur. (EN IEC 60335-2-113)		P
	The appliance shall not be damaged to such an extent that compliance with this standard is impaired. In particular, the requirements of Clauses 8 and 29 shall be fulfilled. (EN IEC 60335-2-113)		P
21.102	The enclosure of a detachable power supply part used in a flexible cord shall have adequate mechanical strength against crushing. (EN IEC 60335-2-113)		N
	The appliance is operated under the conditions of Clause 11 with the detachable power supply part placed on the floor of the test corner. (EN IEC 60335-2-113)		N
	After steady conditions are established， a compression force of 1 350 N is applied to the detachable power supply part enclosure. The compression force is applied for one minute using a flat surface 100 mm × 250 mm and repeated with the detachable power supply part placed in all possible different orientations. (EN IEC 60335-2-113)		N
	The detachable power supply part shall not be damaged to such an extent that compliance with 8.1 and Clause 29 is impaired and it shall not emit flames or molten metal. (EN IEC 60335-2-113)		N
21.103	The enclosure of a detachable power supply part used in a flexible cord shall have adequate mechanical strength against dropping. (EN IEC 60335-2-113)		N
	The detachable power supply part is placed in a sling that is constructed by tying together the four corners of a single layer of cheesecloth. The lowest point of the sling is suspended at a height of 900 mm above a concrete or similar hard surface. (EN IEC 60335-2-113)		N
	The detachable power supply part in the sling is dropped from a stationary position. The test is carried out a total of five times with the detachable power supply part being positioned so that it falls onto the concrete surface in five different orientations.		N
	The detachable power supply part shall not be damaged to such an extent that compliance with 8.1 and Clause 29 is impaired. (EN IEC 60335-2-113)		N

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
22	**CONSTRUCTION**		**--**
22.1	Appliance marked with the first numeral of the IP system: relevant requirements of IEC 529 are fulfilled	IPX0	N
22.2	Stationary appliance: means to provide all-pole disconnection from the supply provided, the following means being available:		--
	- a supply cord fitted with a plug		N
	- a switch complying with 24.3		N
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided		N
	- an appliance coupler		N
	Single-phase Class I appliance with heating elements, intended to be permanently connected to fixed wiring, incorporating single-pole switches or single-pole protective devices for the disconnection of the heating element(s): the switches/devices being connected in the phase conductor		N
22.3	Appliance provided with pins: no undue strain on socket-outlets		N
	Applied torque not exceeding 0.25 Nm		N
	Pull force of 50N to each pin after the appliance has being placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1mm		N
	Each pin subjected to a torque of 0.4Nm; the pins are not rotating unless rotating does not impair compliance with the standard		N
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets	No heating liquids	N
22.5	The appliance is supplied at rated voltage. Any switch is then placed in the off position and the appliance is disconnection from the supply mains at instant of voltage peak, one second after disconnection, the voltage between the pins of the plug is measured with an instrument that does not appreciably affect the value to be measured.		P
	No risk of electric shock when touching the pins of the plug	0,3V	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		N

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
	This requirement also applies to negative pressure. (EN IEC 60335-2-113)		N
22.8	Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and that are likely to be cleaned in normal use		N
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances		P
	Adequate insulating properties of oil or grease to which insulation is exposed		N
22.10	It shall not be possible to reset voltage-maintained non-self thermal cut-outs by the operation of an automatic switching device incorporated within the appliance.		N
	NOTE1 Voltage-maintained controls will automatically reset if they become energized		N
	Non-self-resetting thermal motor protectors shall a trip-free action unless they are voltage maintained.		N
	NOTE2 Trip-free is an automatic action that is independent of manipulation or position of the actuating member.		N
	Reset buttons of non-self-resetting controls shall located or protected so that their accidental resetting is unlikely to occur if this could result in a hazards.		N
	NOTE3 For example, this requirement precludes the location of reset buttons on the back of an appliance, which could result in them being reset by pushing the appliance against a wall.		N
22.11	Reliable fixing of non-detachable parts 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		N
22.12	Handles, knobs etc. fixed in a reliable manner		P
	Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible		P
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied	15N is applied to the switch	P
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
22.13	Unlikely that handles, when gripped as in normal use, make the operators hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only		N
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance		P
	No exposed pointed ends of self tapping screws etc., liable to be touched by the user in normal use or during user maintenance		P
22.15	Storage hooks and the like for flexible cords smooth and well rounded		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		N
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless impregnated	No such materials	P
22.22	Appliances not containing asbestos		P
22.23	Oils containing polychlorinated biphenyl (PCB) not used		P
22.24	Bare heating elements adequately supported		N
	In case of rupture, the heating conductor is unlikely to come in contact with accessible metal parts		N
	The heating element shall also be unlikely to come into contact with the skin or hair if it ruptures		N
22.25	Sagging heating conductors cannot come into contact with accessible metal parts		N
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

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Clause	**Requirement - Test**	**Result**	**Verdict**
22.28	Metal parts of Class II appliances conductively connected to gas pipes or in contact with water: separated from live parts by double or reinforced insulation		N
22.29	Class II appliances permanently connected to fixed wiring so constructed that the required degree of access to live parts is maintained after installation		N
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		P
	so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete		P
22.31	Clearances and creepage distances over supplementary and reinforced insulation not reduced below values specified in clause 29 as a result of wear		P
	Clearances and creepage distances between live parts and accessible parts not reduced below values for supplementary insulation, if wires, screws etc. become loose		P
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°C for 96 h and 16 h at room temperature		N
	Supplementary insulation and reinforced insulation in Class II curling irons shall be resistant to ageing		N
	Additional test for samples of insulation not mentioned in Table 3		N
22.33	Conductive liquids that are or may become accessible in normal use are not in direct contact with live parts	No conductive liquids	N
	Conductive liquids are not in direct contact with basic insulation or reinforced insulation in Class II constructions		N
22.34	Shafts of operating knobs, handles, levers etc. not live, unless the shaft is not accessible when the part is removed		N
22.35	Handles, levers and knobs, held or actuated in normal use, not becoming live in the event of an insulation fault		N

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
	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		N
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		N
	The actuating member of this switch shall be easily visible and accessible		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
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	The appliance shall be constructed cannot be reduced values specified in 29.1.3 due to deformation.		P
22.46	Software used in protective electronic circuits is software class B or C:		P
22.47	Appliances connected to the water mains withstand the water pressure expected in normal use.		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
	Compliance is checked by connecting the appliance to a water supply having a static pressure equal to twice the maximum inlet water pressure or 1.2MPa, whichever is higher, for a period of 5 min		N
	There shall be no leakage from any part, including any inlet water hose		N
22.48	Appliances connected to the water mains constructed to prevent backsiphonage of non-potable water		N
	Compliance is checked by the relevant tests of IEC 61770		N
22.49	Appliances provided with steam-producing or spray-producing devices shall be constructed so that there is no spillage or unintentional burst of steam or water which is likely to cause a hazard		N
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation		N
22.51	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:		N
	- operate continuously,		N
	- operate automatically, or		N
	- be operated remotely		N
22.52	Socket-outlets on appliances accessible to the user shall be in accordance with the socket-outlet system used in the country in which the appliance is sold.		N
22.53	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
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:		--

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Clause	**Requirement - Test**	**Result**	**Verdict**
	- 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
22.58	Appliances connected to the supply mains by an appliance inlet are provided with a cord set or a connector for attachment to a suitable flexible cord, except from		P
	- appliances complying with IEC 60320-3，or		P
	- single phase appliances having a rated current exceeding 16 A, connected to mains by an appliance inlet complying with IEC 60309-2，or		N
	- multi-phase appliances connected to mains by an appliance inlet complying with IEC 60309-2		N
22.59	Protective extra-low voltage circuits separated by at least supplementary insulation from circuits operating at safety extra-low voltage		N
22.60	Functional earthing terminals and functional earthing contacts not connected to the neutral terminal		P
22.61	Appliance outlets complying with the standard sheets in IEC 60320-3 accessible tothe user and socket outlets accessible to the user are single phase		P
22.62	Remote communication through public networks does not impair compliance with this standard		N
22.101	Appliances incorporating rechargeable non-sealed batteries shall be ventilated. Compliance is checked by inspection. (EN IEC 60335-2-113)		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 IEC 60335-2-113)		P
22.103	Foot-operated control devices shall be able to support the weight of a person. (EN IEC 60335-2-113)		P

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
	Compliance is checked by applying to the foot-operated control device, in its position of normal use, an actuating force of 1 350 N for 1 min. The force is applied over an area of 625 mm^2. There shall be no damage to the device that is likely to cause a hazard. (EN IEC 60335-2-113)		P
22.104	Foot-operated control devices and hand-held control devices shall not change their control setting when inadvertently placed in an unintended position. (EN IEC 60335-2-113)		P
	Compliance is checked by turning the device in all positions where the control device can be activated or kept activated under the weight of the control and placing it on a supporting surface. There shall not be any inadvertent change of control setting that is likely to cause a hazard. (EN IEC 60335-2-113)		P
22.105	Appliances using vacuum or pressure aperture shall be constructed so that (EN IEC 60335-2-113)		N
	- gas flow, by means of cooling gas supply, shall not exceed an output pressure of 20 kPa; (EN IEC 60335-2-113)		N
	- the suction applicators or probes shall not induce a vacuum exceeding 75 kPa. (EN IEC 60335-2-113)		N
22.106	Any appliance incorporating (EN IEC 60335-2-113)		P
	- a laser product, other than a Class 1 laser product, Class 1M laser product, Class 2 laser product, Class 2M laser product; or (EN IEC 60335-2-113)	Class 4	P
	- an ILS other than those classified as exempt group in 6.1.1 of IEC 62471:2006 or classified as risk group 1 in 6.1.2 of IEC 62471:2006 (EN IEC 60335-2-113)		N
	shall give a visible, audible or tactile signal when the interlock system senses good contact with the skin and enables the appliance for emission. (EN IEC 60335-2-113)		P
22.107	If an appliance incorporates (EN IEC 60335-2-113)		P
	- a laser product that emits above the AEL of a Class 3B laser product in IEC 60825-1:2014; or (EN IEC 60335-2-113)		P
	- an ILS classified as risk group 3 as defined in 6.1.4 of IEC 62471:2006(continuous wave light source) or in 6.2 of IEC 62471:2006 (pulsed light source) (EN IEC 60335-2-113)		N
	it shall have means to assess the skin pigmentation level and means to adjust the output according to the skin pigmentation level so that damage to the bulk tissue is avoided. (EN IEC 60335-2-113)		P

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
22.108	Appliances incorporating a laser product other than a Class 1 laser product shall be equipped with an interlock system which is capable of detecting whether good contact with the human skin is established. (EN IEC 60335-2-113)		P
	If continuous action by the user is required to maintain the enabled status (for example an activation button is continuously depressed) the appliance shall keep emitting, unless good contact with the skin is lost. While this continuous action is maintained by the user, any loss of good contact shall be detected by the interlock system and the laser emission shall shut off. (EN IEC 60335-2-113)		P
	The time interval between loss of good contact with the skin and disabling the triggering of laser emission shall not exceed 0,1 s. For pulsed systems, the time between loss of good contact and disabling of emissions shall be less than the minimum pulse interval. (EN IEC 60335-2-113)		P
	The emission may resume automatically if good contact is re-established within 10 s. When the loss of good contact exceeds 10 s the appliance shall require active retriggering by the user in order to resume emission. (EN IEC 60335-2-113)		P
	The function of the interlock system shall be tested with a cylindrical test specimen, designed to simulate human skin, with the following properties: (EN IEC 60335-2-113)		P
	- a cylindrical rod with an outer diameter exceeding the maximal dimension of the applicator footprint by 40 mm and having a smooth surface, made of a flexible material with a Shore hardness not exceeding 25; (EN IEC 60335-2-113)		P
	- the material shall simulate the optical properties of the skin with regard to absorption, reflection and scattering, in order to assess the stray optical radiation; (EN IEC 60335-2-113)		P
	- the surface of the artificial skin used for detecting the skin contact is modified in turn as follows: (EN IEC 60335-2-113)		P
	·dry skin is simulated using the artificial skin without any modification; (EN IEC 60335-2-113)		P
	·the presence of dried sweat is simulated by using a 0,9 g/l saline solution on the artificial skin surface, that is then air dried; (EN IEC 60335-2-113)		P
	·the presence of sebum is simulated by using petroleum jelly on the artificial skin surface. (EN IEC 60335-2-113)		P

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
	For appliances using an auxiliary material such as a gel as specified in the instructions as the contact means for normal operation, the test shall be performed with and without this material. (EN IEC 60335-2-113)		P
	The reaction time of the interlock system is tested by placing the output window of the appliance applicator on the test specimen, subsequently removing the applicator from the test specimen and the emission of light shall cease within a time interval of 0,1 s. (EN IEC 60335-2-113)		P
	The output window of the appliance applicator shall be placed on the test specimen and rotated, tilted and raised to test whether the sensors in the interlock system correctly detect good contact with the test specimen. (EN IEC 60335-2-113)		P
	If stray optical radiation from the target skin occurs it shall be measured by placing the appliance applicator in contact with the test specimen at varying positions of orientation. The stray optical radiation shall not exceed the AEL of Class 1 as specified in Table 3 and Table 4 of IEC 60825-1:2014 for an emission duration of 10 s, unless the appliance emission is limited to a shorter emission duration. (EN IEC 60335-2-113)		P
	If compliance with the requirement of this subclause relies on the operation of an electronic circuit, the appliance is further tested as follows. (EN IEC 60335-2-113)		P
	a) The appliance is supplied at rated voltage and operated under normal operation. (EN IEC 60335-2-113)		P
	The electromagnetic phenomena tests of 19.11.4.1 to 19.11.4.7 are then applied. The tests are carried out with surge protective devices disconnected，unless they incorporate spark gaps. (EN IEC 60335-2-113)		P
	The emission level shall be below the limit of Class 1 laser products after the loss of good contact with the skin. (EN IEC 60335-2-113)		P
	The stray optical radiation shall not exceed the AEL of Class 1 as specified in Table 3 and Table 4 of IEC 60825-1:2014 for an emission duration of 10 s, unless the appliance emissions limited to a shorter emission duration, after the loss of good contact with the skin. (EN IEC 60335-2-113)		P
	b) The appliance is supplied at rated voltage and operated under normal operation. (EN IEC 60335-2-113)		P
	The fault conditions in a) to g) of 19.11.2 are then considered and, if necessary, applied one at a time to the electronic circuit monitoring the interlock. (EN IEC 60335-2-113)		P

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
	The stray optical radiation shall not exceed the AEL of Class 1 as specified in Table 3 and Table 4 of IEC 60825-1:2014 for an emission duration of 10 s, unless the appliance emissions limited to a shorter emission duration, after the loss of good contact with the skin. (EN IEC 60335-2-113)		P
	If the electronic circuit is programmable, the software shall contain measures to control the fault/error conditions specified in Table R.1 and it is evaluated in accordance with the relevant requirements of Annex R. (EN IEC 60335-2-113)		P
22.109	For appliances incorporating ILS, other than those classified as exempt group in 6.1.1 of IEC 62471:2006 or classified as risk group 1 in 6.1.2 of IEC 62471:2006, the appliance shall be equipped with an interlock system, which is capable of detecting whether good contact with the human skin is established. (EN IEC 60335-2-113)		N
22.110	Excessive application of skin preparation products intended for use with the appliance shall not cause a radiation hazard. (EN IEC 60335-2-113)		P
23	**INTERNAL WIRING**		**--**
23.1	Wire ways smooth and free from sharp edges		P
	Wires protected against contact with burrs, cooling fins etc.		P
	Wire holes in metal well rounded or provided with bushings.		N
	Wiring effectively prevented from coming into contact with moving parts.		N
23.2	Beads etc. on live wires cannot change their position, and are not resting on sharp edges or corners		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 IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
	The number of flexings for conductors that are only flexed when the appliance is stored is 5 000. (EN IEC 60335-2-113)		N
23.4	Bare internal wiring sufficiently rigid and fixed		N
23.5	The insulation of internal wiring withstanding the electrical stress likely to occur in normal use		P
	No breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation		P
23.6	Sleeving used as supplementary insulation on internal wiring retained in position by positive means.		P
23.7	The colour combination green/yellow used only for earthing conductors		P
23.8	Aluminium wires not used for internal wiring		P
23.9	No lead-tin soldering of stranded conductors where they are subject to contact pressure, unless		N
	clamping means so constructed that there is no risk of bad contact due to cold flow of the solder		N
23.10	The insulation and sheath of internal wiring, incorporated in external hoses for the connection of an appliance to the water mains, shall be at least equivalent to that of light polyvinyl chloride sheathed flexible cord (code designation 60227 IEC 52		N
24	**COMPONENTS**		**--**
24.1	Components comply with safety requirements in relevant IEC standards		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		N
24.1.1	Capacitors likely to be subjected to the supply mains voltage and used for radio interference suppression or voltage dividing, shall comply with Annex ZC		N
	tested according to annex F		N
24.1.2	Safety isolating transformers complying with IEC 61558-2-6, or		N
	tested according to annex G		P
24.1.3	Switches complying with IEC 61058-1, the number of cycles of operation being at least 6 000.		P
	tested according to annex H		N

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
	Switch incorporated in hand dryer are subjected to 50 000 cycles of operation		N
24.1.4	Automatic controls complying with IEC 60730-1 with relevant part 2. The number of cycles of operation being:		--
	- thermostats: 10 000		N
	- temperature limiters: 1 000		N
	- self-resetting thermal cut-outs: 300		N
	- voltage-maintained on-self-resetting thermal cutouts: 300		N
	- non-self-resetting thermal cut-outs: 30		N
	- timers: 3 000		N
	- energy regulators: 10 000		N
	Thermal motor protectors are tested in combination with their motor under the conditions specified in annex D		N
	For water valves containing live parts and that are incorporated in external hoses for connection of an appliance to the water mains, the degree of protection provided by enclosures against harmful ingress of water declared for subclause 6.5.2 of IEC 60730-2-8 shall be IPX7		N
24.1.5	Appliance couplers complying with IEC 60320-1		N
	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 that do not comply with IEC 60691 are considered to be an intentionally weak part for the purposes of Clause 19.		P
24.1.9	Relays, other than motor starting relays, are tested as part of the appliance. However, they are also tested in accordance with Clause 17 of IEC 60730-1 under the maximum load conditions occurring in the appliance for at least the number of operations in 24.1.4 selected according to the relay function in the appliance.		N
24.2	No switches or automatic controls in flexible cords		P

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
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 winding of motors marked with their rated voltage and capacitance and used accordingly		N
	Capacitors in appliances for which 30.2.3 is applicable and that are permanently connected in series with motor winding, are of class P1 or P2 of IEC 60252		N
	Voltage across capacitors in series with a motor winding does not exceed 1.1 times rated voltage, when the appliance is supplied at 1.1 times rated voltage under minimum load		N
24.6	Working voltage of motors connected to the supply mains and having basic insulation that is 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		N
	One or more of the following conditions are to be met:		N
	- 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		N
	- 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**		**--**
25.1	Appliance not intended for permanent connection to fixed wiring, means for connection to the supply:		--

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
	- 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;	Single supply mains	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
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 for		N
25.6	Plugs fitted with only one flexible cord		P
25.7	Supply cord not lighter than:		--
	- braided cord (code designation 60245 IEC 51),		N
	- ordinary tough rubber sheathed cord (code designation 60245 IEC 53);		N
	- ordinary polychloroprene sheathed flexible cord (245 IEC 57)		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

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
	- ordinary polyvinyl chloride sheathed cord (at least 60227 IEC 53), other appliances	H05VV-F	P
	Temperature rise of external metal parts exceeding 75 K, PVC cord not used		N
	PVC cord used: appliance so constructed that the supply cord is not likely to touch external metal parts in normal use		P
	The temperature rise limit of 75 K is increased to 130 K if the temperature rise decreases to 75 K within 5 min after the appliance has been switched off		N
	PVC supply cord appropriate for higher temperatures, type Y or type Z attachment used		N
25.8	Cords having a nominal cross-sectional area of 0,5 mm^2 may be used, irrespective of their length.		P
	- 0,75 mm^2 for rated current up to 10 A	3x1.0mm^2	P
	- 1,0 mm^2 for rated current up to 16 A		N
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	P
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 provided with a bushing, or is so constructed, that there is no risk of damage to the supply cord when introduced		P
	At inlet openings, the insulation between the conductor of a supply cord and the enclosure of the appliance is consisting of the insulation of the conductor, and in addition:		--
	The appliance is Class 0.		N
25.14	Supply cords adequately protected against excessive flexing		N
	Flexing test:		N
	- applied force (N)		N
	- number of flexings		N
	The test does not result in:		N
	- 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

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
	- 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
	Test for hand-held appliances, except appliances incorporating a swivel connection (4000 flexings, 180°)		N
	The force applied to the supply cord of appliances provided with a swivel connection is (EN IEC 60335-2-113)		N
	- 20 N, for cords having a nominal cross-sectional area exceeding 0,75 mm^2; (EN IEC 60335-2-113)		N
	- 10 N, for other cords. (EN IEC 60335-2-113)		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
	The swivel connection is not locked during the tests (EN IEC 60335-2-113)		N
25.16	Cord anchorages for type X attachments constructed and located so that:		--
	- replacement of the cord is easily possible		N
	- it is clear how the relief from strain and the prevention of twisting are obtained		N
	- they are suitable for different types of cord		N
	- cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless separated from 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

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
	- 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	Type X attachment	N
25.18	Cord anchorages only accessible with the aid of a tool		N
	or, 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	Type X attachment	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.		P
	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		P
25.22	Appliance inlet:		--
	- live parts not accessible during insertion or removal		P
	- connector can be inserted without difficulty		P
	- the appliance is not supported by the connector		P
	- 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		P
	If necessary, electric strength test of 16.3		N
25.24	Interconnection cords not detachable without the aid of a tool		N
25.25	Interconnection cords shall not be detachable without the aid of a tool if compliance with the standard is when they are disconnected		N
25.101	Swivel connections shall be adequate for normal use of the appliance. (EN IEC 60335-2-113)		N

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
	The appliance is positioned with its major axis horizontal, the supply cord hanging vertically. (EN IEC 60335-2-113)		N
	A pull force of 1 N is applied to the supply cord. (EN IEC 60335-2-113)		N
	The appliance is supplied at rated voltage, the current being 1,25 times rated current obtained by rendering interlocks inoperative and replacing any light source with a resistor. (EN IEC 60335-2-113)		N
	The appliance is rotated about its major axis at a rate of approximately 50 r/m, the direction of rotation being reversed every 20 revolutions. The test is carried out for 20 000 revolutions. (EN IEC 60335-2-113)		N
	After this test, the swivel connection and the supply cord shall be fit for further use. Live parts shall not have become accessible and the appliance shall withstand the electric strength test of 16.3. (EN IEC 60335-2-113)		N
26	**TERMINALS FOR EXTERNAL CONDUCTORS**		**--**
26.1	Appliances with type X attachment and appliances for connection to fixed wiring provided with terminals in which connection is made by means of screws, nuts or equally effective devices		N
	Screws and nuts serve only to clamp supply conductors, except		N
	Internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N
26.1.2	For type X attachment soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone		N
	Soldering alone used, barriers provided, creepage distances and clearances satisfactory if the conductor becomes free		N
	For type Y and Z attachment: soldered, welded, crimped and similar connections 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, creepage distances and clearances satisfactory if the conductor becomes free		N
26.2	Terminals for type X attachment and for connection to fixed wiring suitable for connection of conductors with required cross-sectional area according to Table 11; rated current (A); nominal cross-sectional area (mm²)		N
	Terminals only suitable for a specially prepared cord		N

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
26.3	Terminals for the supply cord suitable for their purpose		N
	Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless conductors ends fitted with a device suitable for screw terminals		N
	Pull test of 5 N to the connection		N
	Terminals for type X attachment in appliance incorporating a swivel connection, shall not allow the connection of a supply cord by means of screws and shall not be of the screwless type		N
26.4	Terminals for type X attachment and those for connection to fixed wiring so fixed that when tightening or loosening the clamping means:		N
	- the terminal does not loosen		N
	- internal wiring is not subjected to stress		N
	- creepage distances and clearances are not reduced below the values in 29.1		N
26.5	Terminals for type X attachment 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
26.6	Terminals for type X attachment and for connection to fixed wiring suitable for connection of conductors with required cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm^2)		N
	Terminals only suitable for a specially prepared cord		N
26.7	Terminals for type X attachment accessible after removal of a cover or part of the enclosure		N
26.8	Terminals for the connection to fixed wiring, including the earthing terminal, located close to each other		N
26.9	Terminals of the pillar type constructed and located as specified		N
26.10	Terminals not accessible without the aid of a tool		N
	Terminals with screw clamping and screwless terminals shall not be used for type X attachments in appliances incorporating a swivel connection. (EN IEC 60335-2-113)		N
26.11	Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection between live parts and accessible metal parts, and		N
	for Class II construction, between live parts and metal parts separated from accessible metal parts by supplementary insulation only		N
	Stranded conductor test, 8 mm insulation removed		N

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
27	**PROVISION FOR EARTHING**		**--**
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		P
	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		N
	do not provide earthing continuity between different parts of the appliance		N
	Conductors cannot be loosened without the aid of a tool		N
27.3	For detachable parts that are plugged into another part of the appliance, and having an earth connection, the earth connection made before and separated after current-carrying connections when removing the part		N
	For appliances with supply cord, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		N
27.4	No risk of corrosion resulting from contact between metal of earthing terminal and other metal		N
	Adequate resistance to corrosion of coated or uncoated parts providing earthing continuity, other than parts of a metal frame or enclosure		N
	Parts of steel providing earthing continuity provided at the essential areas with an electroplated coating, thickness at least 5µm		N
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		N
	In case of aluminium alloys precautions taken to avoid risk of corrosion		N
27.5	Low resistance of connection between earthing terminal and earthed metal parts		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		N
	Resistance not exceeding 0,1Ω at the specified low-resistance test	0,032Ω	P

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Clause	**Requirement - Test**	**Result**	**Verdict**
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**		**--**
28.1	Fixings, electrical connections and connections providing earthing continuity withstand mechanical stresses		P
	Screws not of soft metal liable to creep, such as zinc or aluminium		P
	Diameter of screws of insulating material min. 3 mm		N
	Screws of insulating material not used for any electrical connection or connections providing earthing continuity		P
	Screws used for electrical connections or connections providing earthing continuity screw into metal		P
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		N
	Type X attachment, screws to be removed for replacement of supply cord or for user maintenance, not of insulating material if their replacement by a metal screw can impair basic insulation		N
	Screws and nuts transmitting contact pressure subjected to torque test as specified, applying torque as shown in Table 14		P
	The test is not carried out on screws and nuts transmitting contact pressure for earthing continuity provided at least two screws or nuts are used		N
28.2	Electrical connections and connections providing earthing continuity constructed so that contact pressure not transmitted through insulating material liable to shrink or distort, unless shrinkage or distortion compensated		N
	This requirement does not apply to electrical connections in circuits carrying a current not exceeding 0.5A		P
28.3	Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together		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

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Clause	**Requirement - Test**	**Result**	**Verdict**
	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		N
	Rivets for electrical connections or connections providing earthing continuity secured against loosening if subjected to torsion		N
29	**CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION**		**--**
	Clearances, creepage distances and solid insulation withstand electrical stress.	(see appended table)	P
	If coatings are used on printed circuit boards to protect the microenvironment (Type A coating) or to provide basic insulation (Type B coating), annex J applied. The microenvironment is pollution degree 1 under Type A coating. There are no under Type B coating		N
29.1	Clearances 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
	The impulse voltage test is not applicable when the microenvironment is pollution degree 3 or for basic insulation of class 0 appliances and class 01 appliances		N
	Appliances are in overvoltage category II		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		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
	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)	P
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)	P
29.1.4	For functional insulation, the values of table 16 are applicable, unless	(see appended table)	P
	the appliance complies with clause 19 with the functional insulation short-circuited		N
	Lacquered conductors of windings considered to be bare conductors		P
	However, clearances at crossover points are not measured		P
	Clearance between surfaces of PTC heating elements may be reduced to 1mm		N
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		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	(see appended table)	P

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
	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	(see appended table)	P
29.2.3	Creepage distances of reinforced insulation at least double as specified for basic insulation in table 17	(see appended table)	P
29.2.4	Creepage distances of functional insulation not less than specified in table 18	(see appended table)	P
	Creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited		N
29.3	Supplementary insulation and reinforced insulation shall have adequate thickness, or have a sufficient number of layers, to withstand the electrical stresses that can be expected during the use of the appliance.		P
	For curing irons, the distance through insulation between metal parts separated by supplementary insulation may be reduced to 0.6 mm, provided that the distance through basic insulation is at least 1mm.		N
29.3.1	The thickness of the insulation shall be at least		P
	- 1 mm for supplementary insulation	Min thickness of enclosure is 3,0 mm	P
	- 2 mm for reinforced insulation		P
29.3.2	Each layer of material withstand the electric strength test of 16.3 for supplementary insulation		P
	Supplementary insulation consisting of at least 2 layers		P
	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**		**--**
30.1	External parts of non-metallic material,		P
	Parts supporting live parts and parts providing supplementary or reinforced insulation sufficiently resistant to heat		P
	Ball-pressure test with a force of 20 N, diameter of impression not exceeding 2 mm		P

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
	External parts: at 40°C plus the maximum temperature rise determined during the test of clause 11, or at 75°C, whichever is the higher; temperature (°C)		P
	Parts supporting live parts: at 40°C plus the maximum temperature rise determined during the test of clause 11, or at 125°C, whichever is the higher; temperature (°C)		N
	Parts of thermoplastic material providing supplementary or reinforced insulation, 25°C plus the maximum temperature rise determined during clause 19, if higher; temperature (°C)		N
30.2	Relevant parts of non-metallic material adequately resistant to ignition and spread of fire		P
	- for beauty care appliances incorporating lasers or intense light sources, 30.2.2 is applicable. (EN IEC 60335-2-113)		P
30.2.1	Glow-wire test of IEC 60695-2-11 at 550 °C, unless		P
	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 °C for connections carrying a current exceeding 0,5 A in normal operation,		N
	- 650 °C for other conditions		P
	Test not applicable to conditions as specified		N
30.2.3	Appliances that are operated while unattended are tested as specified in 30.2.3.1 and30.2.3.2.		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°C 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

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
	Glow-wire test of IEC 60695-2-11, the temperature being:		N
	-750°C, for connections carrying a current exceeding 0.2A during normal operation.		N
	-650°C, for other connections.		N
	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
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**		**--**
	Relevant ferrous parts adequately protected against rusting		P
32	**RADIATION, TOXICITY AND SIMILAR HAZARDS**		**--**
	Appliance does not emit harmful radiation		P
	Appliance does not present a toxic or similar hazard		P
32.101	Appliances incorporating lasers shall be constructed so that stray optical radiation is limited. (EN IEC 60335-2-113)		P
	The appliance is supplied at rated voltage and operated under normal operation using the artificial skin. (EN IEC 60335-2-113)		P
	The laser radiation is measured in accordance with 5.2 of IEC 60825-1:2014. (EN IEC 60335-2-113)	(Laser) Wavelength: 808nm+1064nm+ 532nm+755nm; max 400mj	P
	The stray optical radiation shall not exceed the AEL of Class 1 as specified in Table 3 and Table 4 of IEC 60825-1:2014 for an emission duration of 10 s. (EN IEC 60335-2-113)		N
32.102	Appliances incorporating ILS shall be constructed so that stray optical radiation is limited. (EN IEC 60335-2-113)		N
	The appliance is supplied at rated voltage and operated under normal operation using the artificial skin. (EN IEC 60335-2-113)		N
	The optical radiation is measured in accordance with 5.2 of IEC 62471:2006. (EN IEC 60335-2-113)		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
	The stray optical radiation shall not exceed the emission limits of the exempt group specified in Table 6.1 of IEC 62471:2006 for continuous wave lamps. For pulsed wave systems, the stray optical radiation shall not exceed the emission limits of the exempt group when evaluated in accordance with 6.2 of IEC 62471:2006. (EN IEC 60335-2-113)		N
A	**ANNEX A (INFORMATIVE) ROUTINE TESTS**		--
	Description of routine tests to be carried out by the manufacturer		P
B	**ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES**		--
	The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance		N
	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
	- 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

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Clause	**Requirement - Test**	**Result**	**Verdict**
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		P
	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:		P
	- 100, the mass of part does not exceed 250 g		N
	- 50, the mass of part exceeds 250 g		P
	After the test, the requirements of 8.1, 15.1.1, 16.3 and clause 29 are met		P
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

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
E	**ANNEX E (NORMATIVE) NEEDLE-FLAME TEST**		**--**
	The needle-flame test is made in accordance with IEC 695-2-2 (clause numbers between parentheses refer to IEC 695-2-2)		--
(4)	Description of the apparatus: the sixth paragraph is replaced		N
(5)	Severities: the duration of application of the test flame is (30 ± 1) s		N
(8)	Test procedure: some changes in the test specifications		N
(10)	Evaluation of the test results: addition in the test specification		N
F	**ANNEX F (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

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Clause	**Requirement - Test**	**Result**	**Verdict**
	This subclause is applicable		N
4.14	Endurance		N
	Subclauses 4.14.1, 4.14.3, 4.14.4 and 4.14.7 applicable		N
4.14.7	Only insulation resistance and voltage proof are checked		N
	Visual examination, no visible damage		N
4.17	Passive flammability test		N
	This subclause is applicable		N
4.18	Active flammability test		N
	This subclause is applicable		N
G	**ANNEX G (NORMATIVE) SAFETY ISOLATING TRANSFORMERS**		**--**
	The following modifications to this standard are applicable for safety isolating transformers:		P
7	Marking and instructions		P
7.1	Transformers for specific use marked with:		P
	-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		P
	Fail-safe transformers comply with subclause 15.5 of IEC 61558-1		N
22	Construction		P
	Subclauses 19.1 and 19.1.2 of IEC 61558-2-6 are applicable		P
29	Clearances, creepage distances and solid insulation		P
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:		P
	-The tests of IEC 61058-1 carried out under the conditions occurring in the appliance		P
	-Before being tested, switches are operated 20 times without load		P
8	Marking and documentation		P
	Switches are not required to be marked		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
	However, switches that can be tested separately from the appliance marked with the manufacturer's name or trade mark and the type reference		P
13	Mechanism		P
	The tests may be carried out on a separate sample		P
15	Insulation resistance and dielectric strength		P
15.1	Not applicable		P
15.2	Not applicable		P
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		P
	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		P
	Subclauses 17.2.2 and 17.2.5.2 not applicable		P
	The ambient temperature during the test is that occurring in the appliance during the test of Clause 11 in IEC 60335-1		P
	Temperature rise of the terminals not more than 30 K above the temperature rise measured in clause 11 of IEC 60335-1		P
20	Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies		P
	This clause is applicable to clearances and creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in table 24		P

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

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Clause	**Requirement - Test**	**Result**	**Verdict**
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
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
K	**ANNEX K (NORMATIVE) OVERVOLTAGE CATEGORIES**		**--**
	The information on overvoltage categories is extracted from IEC 60664-1		P
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		N

EN IEC 60335-2-113			
Clause	**Requirement - Test**	**Result**	**Verdict**
N	**ANNEX N (NORMATIVE) PROOF TRACKING TEST**		--
	The proof tracking test is carried out in accordance with IEC 60112 with the following modifications:		P
(3)	Test specimen: the last sentence of the first paragraph does not apply		N
(5)	Test apparatus: some changes in the subclauses		N
(6)	Procedure: adjustments of the test specifications		N
O	**ANNEX O (INFORMATIVE) SELECTION AND SEQUENCE OF THE TESTS OF CLAUSE 30**		--
	Description of tests for determination of resistance to heat and fire		P
P	**ANNEX P (INFORMATIVE) GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN WARM DAMP EQUABLE CLIMATES**		--
Q	**ANNEX Q, SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS**		--
	Description of test for appliances incorporating electronic circuits		--
R	**SOFTWARE EVALLUATION**		--
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 validated in accordance with the requirements of this annex		P
R.1	Programmable electronic circuits using software		P
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 constructed so that the software does not impair compliance with the requirements of this standard		P
R.2	Requirements for the architecture		P
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 use measures to control and avoid software-related faults/errors in safety-related data and safety-related segments of the software		P
R.2.1.1	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.2 have one of the following structures:		P
	- single channel with periodic self-test and monitoring		P

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Clause	**Requirement - Test**	**Result**	**Verdict**
	- dual channel (homogenous) with comparison		N
	- dual channel (diverse) with comparison		N
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 have one of the following structures:		P
	- single channel with functional test		P
	- single channel with periodic self-test		N
	- dual channel without comparison		N
R.2.2	Measures to control faults/errors		P
R.2.2.1	When redundant memory with comparison is provided on two areas of the same component, the data in one area is stored in a different format from that in the other area		P
R.2.2.2	Programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.2 and that use dual channel structures with comparison, have additional fault/error detection means for any fault/errors not detected by the comparison		P
R.2.2.3	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, means are provided for the recognition and control of errors in transmissions to external safety-related data paths		P
R.2.2.4	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the programmable electronic circuits incorporate measures to address the fault/errors in safety-related segments and data indicated in table R.1 and R.2 as appropriate		P
R.2.2.5	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in Table R.1 or Table R.2, detection of a fault/error shall occur before compliance with Clause 19, 22.107 and 22.108 is impaired. (EN IEC 60335-2-113)		P
R.2.2.6	The software is referenced to relevant parts of the operating sequence and the associated hardware functions		P
R.2.2.7	Labels used for memory locations are unique		P
R.2.2.8	The software is protected from user alteration of safety-related segments and data		P
R.2.2.9	The software and safety-related hardware under its control shall be initialized and shall terminate before compliance with Clause 19, 22.107 and 22.108 is impaired. (EN IEC 60335-2-113)		P

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Clause	**Requirement - Test**	**Result**	**Verdict**
R.3	Measures to avoid errors		P
R.3.1	General		P
	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the following measures to avoid systematic fault in the software are applied		P
	Software that incorporates measures used to control the fault/error conditions specified in table R.2 is inherently acceptable for software required to control the fault/error conditions specified in table R.1		P
R.3.2	Specification		P
R.3.2.1	Software safety requirements:	Software Id:	P
	The specification of the software safety requirements includes the descriptions listed		P
R.3.2.2	Software architecture		P
R.3.2.2.1	The specification of the software architecture includes the aspects listed - techniques and measures to control software faults/errors (refer to R.2.2); - interactions between hardware and software; - partitioning into modules and their allocation to the specified safety functions; - hierarchy and call structure of the modules (control flow); - interrupt handling; - data flow and restrictions on data access; - architecture and storage of data; - time-based dependencies of sequences and data	Document ref. No:	P
R.3.2.2.2	The architecture specification is validated against the specification of the software safety requirements by static analysis		P
R.3.2.3	Module design and coding		P
R.3.2.3.1	Based on the architecture design, software is suitably refined into modules		P
	Software module design and coding is implemented in a way that is traceable to the software architecture and requirements		P
R.3.2.3.2	Software code is structured		P
R.3.2.3.3	Coded software is validated against the module specification by static analysis		P
	The module specification is validated against the architecture specification by static analysis		P
R.3.3.3	Software validation		P
	The software is validated with reference to the requirements of the software safety requirements specification		P

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Clause	**Requirement - Test**	**Result**	**Verdict**
	Compliance is checked by simulation of:		P
	- input signals present during normal operation		P
	- anticipated occurrences		P
	- undesired conditions requiring system action		P
S	**ANNEX S (NORMATIVE) BATTERY OPERATED APPLIANCES POWERED BY BATTERIES THAT ARE NON-RECHARGEABLE OR NOT RECHARGED IN THE APPLIANCE**		--
	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
5.8.1	If the supply terminals for the connection of the battery have no indication of polarity, the more unfavourable polarity is applied		N
5.S.101	Appliances intended for use with a battery box are tested with the battery box supplied with the appliance or with the battery box recommended in the instructions		N
5.S.102	Appliances are tested as motor-operated appliances.		N
7.1	Appliances marked with the battery voltage (V) and the polarity of the terminals, unless		N
	the polarity is irrelevant		N
	Appliances also marked with:		N
	– name, trade mark or identification mark of the manufacturer or responsible vendor		N
	– model or type reference		N
	– IP number according to degree of protection against ingress of water, other than IPX0		N
	– type reference of battery or batteries		N
	If relevant, the positive terminal is indicated by the symbol IEC 60417-5005 and the negative terminal by the symbol IEC 60417-5006		N
	If appliances use more than one battery, they are marked to indicate correct polarity connection of the batteries		N
7.6	Additional symbols		N
	The instructions contain the following, as applicable: N – the types of batteries that may be used		N
	– how to remove and insert the batteries		N
	– non-rechargeable batteries are not to be recharged		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
	– rechargeable batteries are to be removed from the appliance before being charged		N
	– different types of batteries or new and used batteries are not to be mixed		N
	– batteries are to be inserted with the correct polarity		N
	– exhausted batteries are to be removed from the appliance and safely disposed of		N
	– if the appliance is to be stored unused for a long period, the batteries are removed		N
	– the supply terminals are not to be short-circuited		N
11.5	Appliances are supplied with the most unfavourable supply voltage between		N
	– 0,55 and 1,0 times the battery voltage, if the appliance can be used with non-rechargeable batteries		N
	– 0,75 and 1,0 times battery voltage, if the appliance is designed for use with rechargeable batteries only		N
	The values specified in Table S.101 for the internal resistance per cell of the battery is taken into account		N
19.1	The tests are carried out with the battery fully charged unless otherwise specified		N
	The battery does not rupture or ignite		N
19.S.101	Appliances are supplied with the voltage specified in 11.5. The supply terminals having an indication of polarity are connected to the opposite polarity, unless		N
	such a connection is unlikely to occur due to the construction of the appliance		N
19.S.102	For appliances with provision for multiple batteries, one or more of the batteries are reversed and the appliance is operated, if reversal of batteries is allowed by the construction		N
25.5	The flexible leads or flexible cord used to connect an external battery or battery box in is connected to the appliance by a type X attachment		N
25.13	This requirement is not applicable to the flexible leads or flexible cord connecting external batteries or a battery box with an appliance		N
25.S.101	Appliances have suitable means for connection of the battery. If the type of battery is marked on the appliance, the means of connection is suitable for this type of battery		N
26.5	Terminal devices in an appliance for the connection of the flexible leads or flexible cord connecting an external battery or battery box are so located or shielded that there is no risk of accidental connection between supply terminals		N
30.2.3.2	There is no battery in the area of the vertical cylinder used for the consequential needle flame test, unless		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
	the battery is shielded by a barrier that meets the needle flame test of Annex E, or		N
	that comprises material classified as V-0 or V-1 according to IEC 60695-11-10		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
5.1	Light source		N
5.1.6	The UV-C emitter is a low pressure mercury lamp with a quartz envelope having a continuous spectral irradiance of 10 W/m2 at 254 nm		N
	Sub-clause 5.1.6.1 and Table 1 are not applicable		N
5.2	Temperature		N
5.2.4	The black-panel temperature shall be 63 °C ±3 °C		N
5.3	Humidity and wetting		N
5.3.1	Humidification of the chamber air is specified in part 2 when necessary		N
9	Test report		N
	This clause is not applicable		N
	Modifications to ISO 4892-2:		N
7	Procedure		N
7.1	General		N
	At least three test specimens are tested		N
	Ten samples of internal wiring is tested		N
7.2	Mounting the test specimens		N
	The specimens are attached to the specimen holders such that they are not subject to any stress		N
7.3	Exposure		N
	Apparatus prepared as specified		N
	The test specimens and, if used, the irradiance-measuring instrument are exposed for 1 000 h		N
7.4	Measurement of radiant exposure		N

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Clause	**Requirement - Test**	**Result**	**Verdict**
	If used, a radiometer is mounted and calibrated such that it measures the irradiance at the exposed surface of the test specimen		N
7.5	Determination of changes in properties after exposure		N
	Material properties and test methods for parts providing mechanical support or impact resistance as specified in Table T.1		N
	Material properties and test method for electrical insulation of internal wiring as specified in Table T.2		N
8	Exposure report		N
	This clause is not applicable		N

EN 62233			
EMF	**ANNEX 1**		**Verdict**
	The Tested product also complies to the requirements of EN 62233:2008		P
	Limit 100%	Measured max.: 8,15%	P

10.1	**TABLE: Power input deviation**				**P**
Input deviation of/at:	P rated (W)	P measured (W)	dP	Required dP	Remark
240V~/50Hz	1800	1722,6	-4,30%	±10%	P

11.8	**TABLE: Heating test, thermocouples (steam emission)**		**P**
	Ambient (°C)	25,0°C	--
	test voltage (V)	240×1,06=254,4V	--
temperature rise dT of part/at:		dT (K)	required dT (K)
AC inlet		10,5	65
Power cord		11,2	75
Plug		9,5	70
Internal wire		32,5	95
Emergency switch		11,8	65
Key switch		11,0	65
Power switch		10,4	65
PCB		39,8	130
Fan		31,8	130
Touch screen		13,8	60
Power supply		41,1	105
Handheld parts		13,7	40

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

Outside enclosure near control circuit	10,8	65
Ambient	5,7	--

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/N to enclosure		0,038	0,75
L/N to air outlet/cover of induction		0,012	0,25
Applicator intended to make contact with the human body		0,005	0,1

13.3	**TABLE: ELECTRIC STRENGTH MEASUREMENTS AT OPERATING EMPERATURE**	**P**
test voltage applied between:	test voltage (V)	breakdown(Yes/No)
Between live parts and the conductive accessible parts	1250	No
Between live parts and the earthing terminal	1250	No
Primary winding of transformer to secondary winding of transformer	3000	No
Primary winding of transformer to core of transformer	1250	No
Secondary winding of transformer to core of transformer	3000	No
Between the L&N and enclosure covered with a metal foil.	1250	No
Between the L&N and earthing terminal	1250	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/N to enclosure		0,038	0,75
L/N to air outlet/cover of induction		0,012	0,25

EN IEC 60335-2-113			
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		3000	No
Between live parts and the conductive accessible parts		1250	No
Between live parts and the earthing terminal		1250	No
Primary winding of transformer to secondary winding of transformer		3000	No
Primary winding of transformer to core of transformer		1250	No
Secondary winding of transformer to core of transformer		3000	No
Between the L&N and enclosure covered with a metal foil.		1250	No
Between the L&N and earthing terminal		1250	No

17	TABLE: overload protection of transformers and associated circuits		N
Temperature rise of part/at:		dT (K)	Max. dT (K)
Insulation of the conducts of safety extra-low voltage			
Winding temperature		temperature (dT (K))	Max temperature (Max. dT (K))
--		--	--

19	TABLE: Abnormal operation conditions						P
Operational characteristics				**YES/NO**	**Operational conditions**		
Are there electronic circuits to control the appliance operation?				YES			
Are there “off” or “stand-by” position?				YES			
The unintended operation of the appliance results in dangerous malfunction?				NO			
Sub-clause	Operating conditions description	Test results description	PEC description	EMP 19.11.4	Software type required	19.11.3 PEC	Final result
19.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.7	Work in 240, lock the fan	Internal protect, temperature of the windings not exceed the relevant value	N/A	P	N/A	N/A	P
19.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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Clause	**Requirement - Test**			**Result**			**Verdict**
19.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.11.2	Input: 240V	No hazard	N/A	P	N/A	N/A	P
19.11.4.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A

19.7	**TABLE: Abnormal operation, locked rotor/moving parts**					**P**
	Ambient, t1 (°C)	21,3				--
	Ambient, t2 (°C)	21,1				--
	Test voltage (V)	240V				--
Temperature of winding		**R1 (Ω)**	**R2 (Ω)**	**Δ T (K)**	**T (°C)**	**Max. T (°C)**
Winding of fan (locked rotor)		--	--	--	78,1	215
Supplementary information:						

19.13	**TABLE: Abnormal operation: temperature rises**	**P**
	dT (K)	Max. dT (K)
Power cord	20,6	150
Room temperature	11,6	150
Floor temperature	11,7	150
Supplementary information: N/A		

24.1	**TABLE: components**			P
Object/part No.	Manufacturer/trade mark	Type/model	Technical data	Mark(s) of conformity[1)]
Plug	King Cord Co., Ltd.	KC-015	250Vac, 16A	VDE
Power cord	King Cord Co., Ltd.	H05VV-F	3x1.0mm^2	VDE
Fuse	Littelfuse	0218010	250V~, 15A	VDE
Appliance inlet	Pronic Electronics (Shenzhen) Co., Ltd.	PST-101	250Vac, 10A	VDE
Power supply	MEAN WELL ENTERPRISES CO LTD	LRS-600-12	Input: 100-240Va.c., 50/60Hz, 4.5-1.6A Output: 12Vd.c.27A	UL
Alt.	MEAN WELL ENTERPRISES CO LTD	LRS-600-48	Input:100-240V, 50/60Hz,Output: 48Vdc.	UL

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

X capacitor	Sunil Electronics Ind. Co., Ltd.	463D	Rated 0.33uF, 275V, X2	Interteck
Y capacitor	Murata Mfg. Co., Ltd.	KY	Rated 3300uF, 250V, Y2	VDE
AC contactor	Ningbo Ousheng Electric Appliance Co., Ltd.	ST3	250V~ 10A	VDE
Relays	DELIXI	F4-11	16A, 690V	VDE
Leakage switch	CHNT	NXB-63 C16 /NXBLE-32 C16	250V-50Hz,6000A	CQC
Key switch	ONPOW push button manufacture Co., Ltd.	LAS1-A GQ16-11Y/S	10A, 250Va.c.	VDE
Emergency switch	ONPOW push button manufacture Co., Ltd.	LAS1-A Y090-10-Y	10A, 250Va.c.	VDE
Cooling fan	MINEBEAMITSUMI INC.	3110KL-04W-B59	12Vd.c, 0.23A	VDE
Foot switch	MDF	MDFS01	10A, L250V~	VDE
Laser	Guangzhou Weilimei Beauty Equipment Co., Ltd.	DY.L101C	808nm+1064nm+ 532nm+755nm; max 400mj	Test with appliance
Screen	DWIN	DMG80600S104-02WT	V0, 105°C	UL
Internal wire	Zhongshan City Mingliang Wire Co Ltd	1015	Min. 18AWG, 600V, 105°C	UL
Alt.	Foshan Shunde Pantai Special Wire Rod Electronics Co Ltd	1015	Min. 26AWG, 300V, 80°C	UL
Pump	Jabsco	31600-0092	12V10A	VDE
Particulate filter	NBW	F20	≤20um	VDE
PCB	Various	DY.L101C	V0, 105°C	UL
Plastic enclosure	CHI MEI CORPORATION	PA-763	V-1, 60°C, Min.	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		4,8	II	2,0

29.1	TABLE: Clearances	P

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

		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	--	P
4000	3,0	--	--	--	>3,5	P
6000	5,5	--	--	--	--	N
8000	8,0	--	--	--	--	N
10000	11,0	--	--	--	--	N

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

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

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

		I	II	IIIa/IIIb	I	II	IIIa/IIIb	/Remark
≤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**	P
>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 (°C)	Impression diameter (mm)	Allowed impression diameter (mm)	
Switch	125	0,88	<2	
Enclosure	75	0,82	<2	

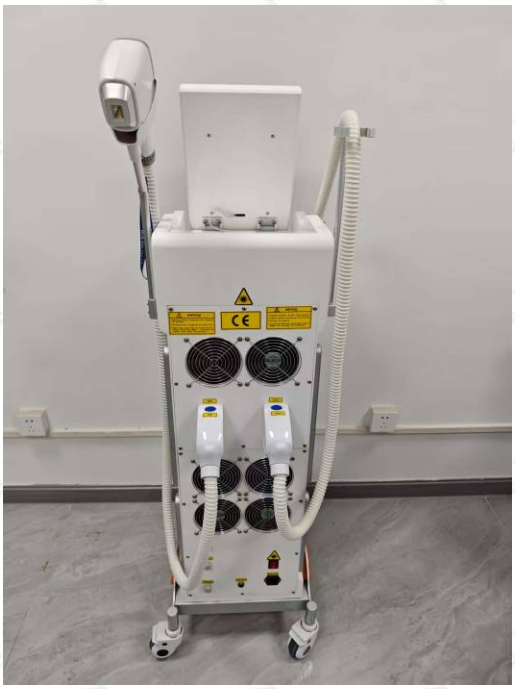
30.2	TABLE: Glow-wire test		P
Part	Test temperature (°C)	Self-extingusished in the further 30s	--
Switch	550	Not burning	P
Enclosure	550	Not burning	P
PCB	650	Not burning	P

APPENDIX A

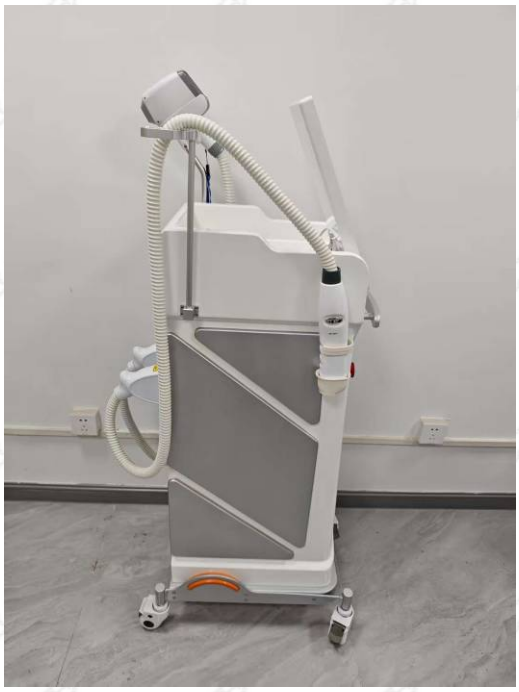
PHOTO(S) OF PRODUCT

Front View

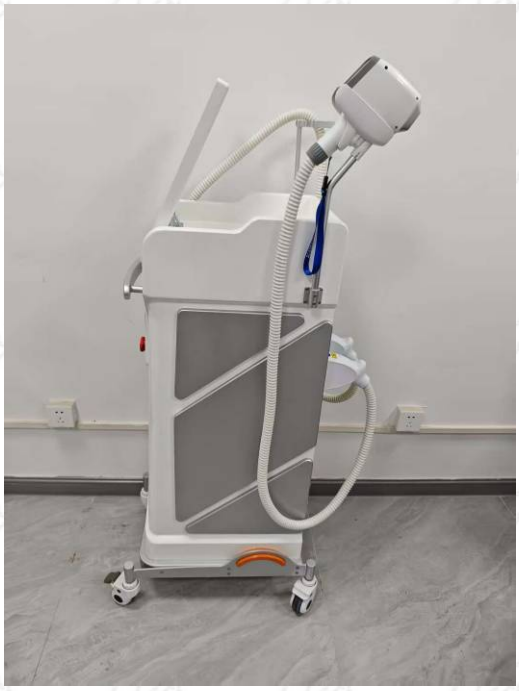
Back View



Left View



Right View



----- End of Report -----