



**TEST REPORT**

**IEC 60335-1 & IEC 60335-2-85**

**Safety of household and similar electrical appliances  
Part 2-85: Particular requirements for fabric steamers**

**Report Number**.....: BCTC-LH190100010S  
**Date of issue**.....: Jan. 07, 2019  
**Total number of pages**.....: 83  
**Testing Laboratory**.....: **Shenzhen BCTC Testing Co., Ltd.**  
**Address**.....: BCTC Building & 1-2F, East of B Building, Pengzhou Industrial,  
 Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an  
 District, Shenzhen, China

**Applicant's name**.....: Shenzhen Cadoch Technology Co.,Ltd.  
**Address**.....: 1 Fl, Hongdu Science Park, Lezhujiao, Xixiang, Baoan District,  
 Shenzhen, Guangdong

**Test specification**  
**Standard**.....: IEC 60335-2-85:2002+A1:2008 in conjunction with  
 IEC 60335-1:2010+A1:2013  
 EN 60335-2-85:2003+A1:2008 in conjunction with  
 EN 60335-1: 2012+A11:2014

**Test procedure** .....: CE-LVD  
**Non-standard test method** .....: N/A

**Test Report Form** .....: IEC60335\_2\_85D  
**Test Report Form No.**.....: SLG  
**Master TRF** .....: Dated 2014-04

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**Test item description** .....: Handheld Garment Steamer  
**Trademark** .....: N/A  
**Manufacturer**.....: Shenzhen Cadoch Technology Co.,Ltd.  
 1 Fl, Hongdu Science Park, Lezhujiao, Xixiang, Baoan District,  
 Shenzhen, Guangdong  
**Model and/or type reference** .....: CS01  
 CS02, CS03, CS04, CS05, CS06, CS07, CS08, CS09, CS10,  
 H-102, H-103, H-105, H-106, H-110, H-112, H-109, H-108, H-009  
**Rating(s)**.....: 220-240V~, 50Hz, 700W




Testing procedure and testing location:

Testing Laboratory.....: **Shenzhen BCTC Testing Co., Ltd.**

Address.....: BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China

Date of Test.....: Dec. 28, 2017 – Jan. 05, 2018

Tested by (name + signature).....: Leif Liang 

Reviewed by (name + signature).....: Seven Zheng 

Approved by (name + signature).....: Sam Wang 



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

- Attachment I : 11 pages for EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES
- Attachment II: 4 pages for Photo documentation.

**Summary of testing:**

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

- EN 60335-2-85: 2003+A1:2008.
- EN 60335-1:2012+A11:2014;

The submitted samples were found to comply with the requirements of above specification.




**Testing location:**

BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China

**Copy of marking plate**

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

(Additional requirements for markings. See 1.7 NOTE)

**Handheld Garment Steamer**   

Model No.: CS01

Rated Voltage: AC220-240V    Rated Frequency: 50Hz

Rated Power: 700W

Shenzhen Cadoch Technology Co., Ltd.

Made in China

**Remark on above marking:**

- 1, The height of CE symbols is more than 5 mm;
- 2, The height of WEEE symbols is more than 7 mm;



<b>Test item particulars</b> ..... :	
<b>Classification of installation and use</b> .....: Hand-held appliance	
<b>Supply Connection</b> .....: AC inlet	
<b>Possible test case verdicts:</b>	
- test case does not apply to the test object.....: N/A	
- test object does meet the requirement.....: P (Pass)	
- test object does not meet the requirement.....: F (Fail)	
<b>Testing</b> ..... :	
<b>Date of receipt of test item</b> .....: Dec. 26, 2017	
<b>Date (s) of performance of tests</b> .....: Dec. 26, 2017 – Jan. 05, 2018	
<b>General remarks:</b>	
"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.	
Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.	
<b>Manufacturer's Declaration per sub-clause 4.2.5 of IEC60335-2-75:</b>	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided.....:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
<b>When differences exist; they shall be identified in the General product information section.</b>	
<b>General product information:</b>	
1, The appliances covered by this report are Handheld Garment Steamer for household and indoor use. 2, CS02, CS03, CS04, CS05, CS06, CS07, CS08, CS09, CS10, H-102, H-103, H-105, H-106, H-110,H-112, H-109,H-108, H-009 is same as CS01 except model name, all tests are carried out on CS01.	



<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
<b>1.</b>	<b>SCOPE</b>		<b>P</b>
	Scope	According to the standard.	P
<b>2.</b>	<b>NORMATIVE REFERENCES</b>		<b>P</b>
	Normative reference	According to the standard.	P
<b>3.</b>	<b>DEFINITIONS</b>		<b>P</b>
	Definitions	According to the standard.	P
<b>4.</b>	<b>GENERAL REQUIREMENT</b>		<b>P</b>
	General Requirement	According to the standard.	P
<b>5</b>	<b>GENERAL CONDITIONS FOR TESTS</b>		<b>P</b>
5.1	Tests according to this standard are type tests.	All tests belong to type tests	P
5.2	The tests are carried out on a single appliance.		<b>P</b>
5.3	Except special instruction, the tests are carried out in the order of the clauses.		P
5.4	When testing appliances which are also supplied by other energies such as gas, the influence of their consumption has to be taken into account.	Only by electricity	N
5.5	The tests are carried out with the appliance or any movable part of it placed in the most unfavorable position which may occur in normal use.	No moveable part	N
5.6	Appliances provided with controls or switching devices are tested with these controls or devices adjusted to their most unfavorable setting, if the setting can be altered by the user.	No adjusted devices	N
5.7	The tests are carried out in a draught free location and in general at an ambient temperature of 20°C ± 5°C.		P
5.8.1	Appliances for A.C. only are tested with A.C. at rated frequency, if marked, and those for A.C./D.C. are tested at the more unfavorable supply.	AC220-240V	<b>P</b>
5.8.2	Appliances having more than one rated voltage are tested on the basis of the most unfavorable voltage.		N




<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
5.8.3	For heating appliance and combined appliance marked with a rated power input range	No rated power input range	N
5.8.4	For appliances marked with a rated voltage range and rated power input corresponding to the mean of the rated voltage range		N
5.9	Alternative heating elements or accessories are made available by the appliance manufacturer		P
5.10	The tests are carried on the appliance as supplied.		P
	Fixed appliances and built-in appliances are installed in accordance with instruction before testing.		N
5.11	Appliances intended to be connected to fixed wiring by flexible cord are tested with the appropriate flexible cord connected to the appliance.		N
5.12	For combined appliance and heating appliance, the appliance has to operate a power input multiplied by a factor, this applies only to heating elements without appreciable positive temperature coefficient of resistance.		P
5.13	The tests for appliances with PTC heating element are made at a voltage corresponding to the specified power input.		N
5.14	For class 0I appliance or class I appliance have accessible metal parts without earthing and are not separated from live parts by an intermediate metal part which is earthed, such parts are checked for compliance with the appropriate requirements specified for class II construction.		N
5.15	Appliances have parts operating at safety extra-low voltage, it is checked for compliance with the appropriate requirements specified for class III construction.		N
5.16	When testing electronic circuit, the supply is to be free from perturbations from external sources that can influence the results of the tests.		N
5.17	Appliances powered by rechargeable batteries are tested according to annex B.		N
5.18	If linear and angular dimensions are specified without a tolerance, ISO 2768-1 is applicable.		N



EN 60335-2-85			
Clause	Requirement – Test	Result	Verdict

<b>6.</b>	<b>CLASSIFICATION</b>		<b>P</b>
6.1	Electrode-type appliances and appliances with bare heating elements shall be class I, class II or class III (EN 60335-2-85)	Class II	<b>P</b>
6.2	Appliance shall have the appropriate degree of protection water.	IP20	<b>P</b>

<b>7.</b>	<b>MARKING AND INSTRUCTIONS</b>		<b>P</b>
7.1	Appliances shall be marked with the:		-
	- Rated voltage or voltage range (V)	220-240V	<b>P</b>
	- Nature of supply	~	<b>P</b>
	- Rated frequency or frequency range (Hz)	50Hz	<b>P</b>
	- Electrode-type appliances be marked with their rated power input (EN 60335-2-85)	700W	<b>P</b>
	- Name, trade mark of identification mark of the manufacturer or responsible vendor	See marking label	<b>P</b>
	- Model or type reference	H-108	<b>P</b>
	- Symbol for Class II construction		<b>P</b>
	- IP number	IP20	<b>N</b>
	Enclosure of water valves incorporated in external hose-sets for connection of an appliance to water mains shall be marked with 		<b>N</b>
7.2	Warning for multi-nature of power supplied stationary appliances		<b>N</b>
7.3	Appliances having different rated values and which have to be adjusted for use at a particular value by the user or installer shall be marked with the different values separated by an oblique stroke.		<b>N</b>
7.4	Appliance can be adjusted for different rated voltage, the voltage which appliance is adjusted shall be clearly discernible	The rated voltage can not be adjusted	<b>N</b>



EN 60335-2-85			
Clause	Requirement – Test	Result	Verdict
7.5	Marking of rated power input or current for each rated voltage or rated voltage range.		N
	The upper and lower limits of the rated power input or rated current shall be marked on the appliance so that the relation between input and voltage is clear.		N
7.6	Correct symbols used		P
	The symbol for nature of supply shall be placed next to the marking for rated voltage.	Rated frequency be marked	N
	Symbol for Class II appliances shall be placed so that it will obvious that it is a part of the technical information and is unlikely to be confused with any other marking.		P
	Units of physical quantity and their symbols shall be those of international standardized system.		P
7.7	A circuit diagram shall be fixed to the appliance for three supply or three above supply,		N
7.8	Terminal not for type Z attachment:		P
	- marking of terminals for the neutral conductor shall be indicated by the letter N		P
	- marking of protective earthing terminals		N
	- marking not placed on removable parts	No removable parts	N
7.9	Unless it is obviously unnecessary, switches which may cause a hazard shall be marked or placed so as to indicate clearly which part of appliance they control.		P
7.10	For stationary appliances, the different positions of switches shall be indicated by figures, letters or other visual means		N
7.11	Indication for direction of adjustment of controls		N
7.12	Instructions for safe use provided		P
	If it is necessary to take precaution during user maintenance, appropriate details shall be given.		P





EN 60335-2-85			
Clause	Requirement – Test	Result	Verdict
	The instructions shall include details regarding filling, cleaning and descaling (EN 60335-2-85)		P
	The instruction shall state the substance of the following: (EN 60335-2-85)		P
	- care should be taken when using the appliance due to the emission of steam		P
	- unplug the appliance during filling and cleaning		P
	The instructions for electrode-type appliances shall include the substance of the following: (EN 60335-2-85)		P
	- the composition and quantity of solution to be used and advice not to use an excessive amount of salt		P
	- the appliance is not to be operated from a d.c. supply		P
	The instructions for appliances incorporating an appliance inlet, and intended to be partially or completely immersed in water for cleaning, shall state that the connector must be removed before the appliance is cleaned and the appliance inlet dried before the appliance is used again (EN 60335-2-85)	No appliance inlet and not be immersed in water for cleaning	N
7.12.1	Precautions during installation of the appliance		N
7.12.2	State that means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules		N
7.12.3	State the fixed wiring insulation must be protected, by insulating sleeving having an appropriate temperature rating		N
7.12.4	For built-in appliances shall include information with regard to the following:		N
	- dimensions of the space to be provided for the appliance		N
	- dimensions and position of the means for supporting and fixing the appliance within this space		N
	- minimum distances between the various parts of the appliance and the surrounding structure		N
	- minimum dimensions of ventilating openings and their correct arrangement		N



EN 60335-2-85			
Clause	Requirement – Test	Result	Verdict
	- connection of the appliance to the supply mains and the interconnecting of any separate components		N
	- necessity to allow disconnection of the appliance from the supply after installation		N
7.12.5	For type X attachment: If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or its service agent		N
	For type Y attachment: if the supply cord is damaged, it must be replace by manufacturer, its service agent or similarly qualified persons in order to avoid a hazard		P
	For type Z attachment: the supply cord cannot be replaced. If the cord is damaged the appliance should be scrapped		N
7.12.6	CAUTION: In order to avoid a hazard due to inadvertent resetting of the thermal cutout, this appliance must not be supplied through an external switching device, such as a timer, or connected to a circuit that is regularly switched on and off by the utility		N
7.12.7	State how the appliance is to be fixed to its support		N
7.12.8	The instructions for appliances connected to the water mains shall state:		N
	- the maximum inlet water pressure, in pascals		N
	- the minimum inlet water pressure		N
	For detachable hose-sets: state that the new hose-sets supplied with the appliance are to be used and that old hose-sets should not be reused		N
7.13	Instructions and other texts shall be written in official language	English	P
7.14	Marking shall be easily legible and durable		P
	Rubbing test and after the test marking shall be easily legible.		P
7.15	Marking 7.1 to 7.5 shall be on a main part of the appliance.		P
	Marking clearly discernible from outside if necessary after removal of a cover. for portable appliances it shall be possible to remove or open this cover with out the aid of a tool		P



EN 60335-2-85			
Clause	Requirement – Test	Result	Verdict
	Stationary appliance: name or trademark and model or type reference visible after installation		N
	Indication for switches and controls in vicinity of components; not on removable parts if misleading		P
7.16	If compliance with this standard depends upon the operation of a replaceable thermal link or fuse link, marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		N

8.	PROTECTION AGAINST ACCESS TO LIVE PARTS		P
8.1	Adequate protection against accidental contact with live parts		P
8.1.1	All positions are tested; detachable parts removed		P
	Lamps are not removed		N
8.1.2	Use of test pin: no contact with live parts		N
8.1.3	Use of test stick: no contact with live parts except class II appliances		P
8.1.4	Accessible part not considered live if:		P
	– the part is supplied at safety extra-low voltage provided that:		N
	– for A.C., the peak value of the voltage does not exceed 42,4 V;		P
	– for D.C., the voltage does not exceed 42,4 V;		N
	– or separated from live parts by protective impedance,		N
	– D.C. current not exceeding 2 mA		N
	– A.C. peak value not exceeding 0,7 mA		P
	– for peak value 42,4 V up to and including 450 V capacitance not exceeding 0,1 $\mu$ F		N
	– for peak value 450 V up to and including 15 kV capacitance not exceeding 45 $\mu$ C		N



<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
8.1.5	Live parts protected at least by basic insulation before installation or assembly		P
	- built-in appliances		N
	- fixed appliances		N
	- separate units		P
8.2	Class II appliances and constructions are adequately protected against accidental contact with basic insulation and metal parts separated from live parts with only basic insulation		P
	Only possible to touch parts separated from live parts by double or reinforced insulation		P

<b>9.</b>	<b>STARTING OF MOTOR-OPERATED APPLIANCES</b>		<b>N</b>
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<b>10.</b>	<b>POWER INPUT AND CURRENT</b>		<b>P</b>
10.1	Power input at rated voltage and normal operating temperature not deviating from rated input	(see appended table)	<b>P</b>
10.2	Current at normal operating temperature not deviating from rated current:		<b>N</b>

<b>11.</b>	<b>HEATING</b>		<b>P</b>
11.1	No excessive temperatures in normal use	See table 11.8	P
11.2	Hand-held appliances are held in their normal position of use.		N
	Other heating appliances and other combined appliances are placed in a test corner		P
	Other motor-operated appliance are positioned		N
11.3	Temperature rises determined by thermocouples or resistance method	Thermocouples	P
11.4	Electrode-type appliances are supplied at the most unfavourable voltage between 0.94 and 1.06 times rated voltage (EN 60335-2-85)	1.06x240=254.4V	P



<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
11.5	Motor-operated appliance are operated under normal operation voltage between 0.94~1.06 times the rated voltage.		N
11.6	Combined appliances operated under normal operation, supply voltage at most unfavorable voltage between 0,94 and 1,06 times rated voltage		N
11.7	Appliances are operated until steady conditions are established		P
11.8	Temperatures not exceeding values in table 3		P

<b>12.</b>	<b>VOID</b>		<b>N</b>
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<b>13.</b>	<b>LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE</b>		<b>P</b>
13.1	Leakage current not excessive and electric strength shall be adequate		<b>P</b>
13.2	Leakage current measured by means of circuit described in standard		P
	For single-phase appliances, the measuring circuit is shown in the following figures:		P
	- class II, figure 1		N
	- other than class II, figure 2		P
	The data of leakage current	(see appended table)	P
13.3	Electric strength test of insulation		P
	No breakdown during the test	(see appended table)	P

<b>14</b>	<b>TRANSIENT OVERVOLTAGE</b>		<b>N</b>
	Appliance shall withstand the transient overvoltage to which they may be subjected		N

<b>15.</b>	<b>MOISTURE RESISTANCE</b>		<b>P</b>
15.1	Enclosure provides the degree of moisture protection in accordance with classification of appliance	IP20 appliance.	N



EN 60335-2-85			
Clause	Requirement – Test	Result	Verdict
	Withstand electric strength test specified in 16.3	(see appended table)	N
	No trace of water on insulation which can result in a reduction of distances and clearances below values specified in 29.1		N
15.1.1	Appliance subjected to test as specified other than classified IPX0	IP20	P
15.1.2	Hand-held appliance turned continuously through the most unfavorable positions during the test		N
	Built-in appliance installed according to the manufacturer's instruction		N
	Appliance normally used on a table or floor are placed on a horizontal unperforated support having a diameter of twice the oscillating tube radius minus 15 cm.		N
	Appliance normally fixed to a wall and appliance with a pins for insertion into socket-outlets are mounted as in normal use in a centre of a wooden board have a dimensions which are 15±5cm in excess of those of the orthogonal projection of the appliance on the 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
	Appliance with type X attachment, except those having specially prepared cord, are fitted with lightness permissible type of flexible cord of the smallest cross-sectional area specified in table 13.		N
	Detachable-parts are removed and subjected, if necessary, to the relevant treatment with the main part.		N



<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
15.2	Appliance subjected to spillage of liquid in normal use shall be constructed so that such spillage dose not affect their electric insulation.		P
15.3	Humidity treatment for 48 h with 93±3%RH and ambient temperature between 20°C to 30°C.		P
	Appliance shall withstand the test of Clause. 16	(see clause 16)	P

<b>16.</b>	<b>LEAKAGE CURRENT AND ELECTRIC STRENGTH</b>		<b>P</b>
16.1	No excessive leakage current and adequate insulation and electric strength		<b>P</b>
16.2	Leakage current measurements	(see appended table)	P
16.3	Electric strength tests (values in table 5)	(see appended table)	P

<b>17.</b>	<b>OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS</b>		<b>N</b>
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use		<b>N</b>
	The output terminals of the battery charger are short-circuited		<b>N</b>
	Appliance supplied with 1,06 or 0,94 times rated voltage and the most unfavorable short-circuit or overload likely to occur in normal use applied		<b>N</b>
	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.		<b>N</b>
	Temperature of the winding not exceeding the value specified in table 6		<b>N</b>

<b>18.</b>	<b>ENDURANCE</b>		<b>N</b>
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<b>19.</b>	<b>ABNORMAL OPERATION</b>		<b>P</b>
19.1	The risk of fire or mechanical damage under abnormal or careless operation shall be obviated		<b>P</b>



EN 60335-2-85			
Clause	Requirement – Test	Result	Verdict
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe		N
	Appliances incorporating a heating element are subjected to the test 19.2 to 19.6		P
	Appliances incorporating a motor element are subjected to the test 19.7 to 19.10.		N
	Appliances incorporating a electric circuits are subjected to the test 19.11 and 19.12.		N
	The tests are continued until a non-self-resetting thermal cut-out operates or until steady conditions are established.		N
	All tests shall comply with the clause 19.13.		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 under normal conditions.	No damage and hazard	P
	Appliances are placed in any stable position on a black-painted plywood board. They are filled or empty, whichever is more unfavourable (EN 60335-2-85)		P
	Container of electrode-type appliances is filled with a saturated solution of NaCl at 20°C ± 5°C, appliance being supplied at rated voltage (EN 60335-2-85)		N
19.3	Test of 19.2 repeated; test voltage (V) is determined: power input of 1.24 times rated power input under normal conditions.	Not applicable to electrode-type appliances (EN 60335-2-85)	N
19.4	Test conditions as in Clause. 11, any control limiting the temperature during tests of Clause. 11 is short-circuited	No hazard	P
19.5	Test of 19.4 repeated on Class 0I and I appliances with tubular sheathed or embedded heating elements.		N
	The test repeated on Class 0I and I appliances with reversed polarity and the other end of the heating element connected to the sheath		N





<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
	The test not carried out on appliance intended to be permanently connect to fixed wiring and on appliances where an all-pole disconnection occurs during test 19.4.		N
19.6	Appliances with PTC heating elements tested as specified. Supplied at rated voltage, establishing steady conditions		N
19.7	The appliance is operated under stalled conditions by		N
	- Locking the rotor if the locked rotor torque is smaller than the full load torque.		N
	- Locking moving parts of other appliances		N
	Appliances provided with a timer or programmer are supplied at rated voltage for a period equal to the maximum period allowed by the timer or programmer.		N
	Other appliance are supplied at rated voltage for a period:		<b>N</b>
	- 30s for		N
	Hand-held appliance		N
	Appliance have to be kept switched on by hand or foot		N
	Appliance continuously loaded by hand.		N
	- for 5 min: appliance operated while attended.		N
	- until steady condition are established: for others		N
19.8	One phase of appliances incorporating three-phase motors is disconnected, then three-phase motors operated at rated voltage		N
19.9	A running overload test is carried out on appliances incorporating motors		N
19.10	Series motor operated with the lowest possible load at 1.3 times rated voltage for 1 min.		<b>N</b>



EN 60335-2-85			
Clause	Requirement – Test	Result	Verdict
19.11	Electronic circuits compliance checked by evaluation of the fault conditions for all circuits or parts of circuits		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:		N
	- the electronic circuit is a low-power circuit		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 the duration of the tests as specified:		N
	a) short-circuit of functional insulation if creepage distances or clearances distances are less than the special values		N
	b) open circuit at the terminals of any component		N
	c) short circuit of capacitors		N
	d) Short-circuit of any two terminals of an electronic component		N
	e) Failure of triacs in the diode mode		N
	f) Failure of an integrated circuit.		N
19.11.3	Appliance incorporating a protective electric circuit		N
19.11.4	Appliances incorporating a switch with an off position obtained by electronic disconnection, or a switch can be placed in the stand-by mode, or a protective electronic circuit		N
	The tests are carried out with surge arresters disconnected, unless they incorporate spark gap.		N
19.11.4.1	The appliance is subjected to electrostatic discharges test level 4 being applicable.		N
19.11.4.2	The appliance is subjected to radiated fields in accordance with test level 3 being applicable.		N



<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
19.11.4.3	The appliance is subjected to fast transient bursts in accordance with test level 4 is applicable for the power supply lines.		N
19.11.4.4	The power supply terminals of the appliance are subjected to voltage surges		N
19.11.4.5	The appliance is subjected to injected current in accordance with test level 3 is applicable.		N
19.11.4.6	The appliance is subjected to voltage dips and interruption in accordance with each level is applicable.		N
19.11.4.7	The appliance is subjected to mains signals in accordance with test level 2 is applicable.		N
19.12	The safety of the appliance depends upon the operation of a miniature fuse-link		N
	--if current dose not exceed 2.1 times the rated current of fuse-link. Then the test is repeated with fuse short-circuited.		N
	--if current is more than 2.75 times the rated current of fuse-link, the circuit is considered to be adequately protected.		N
	--if current between 2.1 times and 2.75 times the rated current of fuse, fuse-link is short-circuited and test last:		N
	----relevant time or 30min for quick acting fuse		N
	---- relevant time or 2min for time lag fuse		N
19.13	During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts		P

<b>20.</b>	<b>STABILITY AND MECHANICAL HAZARDS</b>		<b>N</b>
20.1	Appliances intended to be used on a surface such as the floor or a table shall have adequate stability.	Be hand-held appliance	<b>N</b>
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury	No moving parts	N



EN 60335-2-85			
Clause	Requirement – Test	Result	Verdict
	Protective enclosures, guards and similar parts are non-detachable		N
	Self-resetting thermal cut-outs and over current protective devices not causing a hazard, if unexpectedly reclosure		N
	Not possible to touch dangerous moving parts with test finger	No moving parts	N

<b>21.</b>	<b>MECHANICAL STRENGTH</b>		<b>P</b>
21.1	Appliance has adequate mechanical strength and is constructed as to withstand rough handling		<b>P</b>
	No damage after three blows applied to various parts of the enclosure, impact energy 1.0 J ±0.05J.	No damage	P
21.2	Accessible parts of solid insulation shall have sufficient strength to prevent penetration by sharp implements.		P

<b>22.</b>	<b>CONSTRUCTION</b>		<b>P</b>
22.1	Appliance is marked with the first numeral of the IP system	IP20	<b>P</b>
22.2	Stationary appliance: means to provide all-pole disconnection from the supply provided, the following means being available:		N
	- a supply cord fitted with a plug		N
	- a switch complying with 24.3		N
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided		N
	- an appliance inlet		N
22.3	Appliance provided with pins for insertion into socket-outlet: no undue strain on socket-outlets		N
	Applied torque for engagement face in the vertical plane not exceeding 0,25 Nm		N



EN 60335-2-85			
Clause	Requirement – Test	Result	Verdict
	Appliances are heating in 1h with 70±2°C, then a pull force 50N is immediately applied for 1 min to each pin along their longitudinal axes. The pin shall not be displaced by more than 1mm.		N
	After fore test, each pin is subjected in turns to a torque 0.4Nm for 1 min in each direction. The pin shall not rotate unless rotation does not impair compliance with this standard.		N
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets		N
22.5	No risk of electric shock when touching the pins of the plug because of charged capacitor		P
	Plug test for 10 times and measured voltage between L/N not exceeding 34V after 1 second.		P
22.6	Electrical insulation not affected by condensing water or leaking liquid.		P
22.7	Appliances containing liquid shall be constructed so that they withstand the pressure likely to occur during use.		P
22.8	Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and which are likely to be cleaned in normal use		P
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances, unless it has adequately insulation.		P
22.10	Location of protection of reset buttons of non-self-resetting controls is so that accidental resetting is unlikely	No reset button	N
22.11	Reliable fixing of non-detachable parts and snap-in devices shall be provided to have a degree of protection against electric shock, moisture or contact with moving parts		N
22.12	Handles, knobs etc. fixed in a reliable manner		P



<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
	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 of which being so that an axial pull is unlikely to be applied for 1 min		P
	Axial force 30 N applied to parts, the shape of which being so that an axial pull is likely to be applied for 1 min		P
22.13	Unlikely that handles, when gripped as in normal use, make the operators hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only		P
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance	No sharp edges.	<b>P</b>
	No exposed pointed ends of self tapping screws etc., liable to be touched by the user in normal use or during user maintenance		<b>P</b>
22.15	Storage hooks and the like for flexible cords smooth and well rounded	No storage hooks	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
	reel and unreel tested with 6000 operations at a rate of about 30 times per min		N
	If doubt, electric strength test of 16.3 is applied, test voltage of 1000 V		N
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner to protecting against overheating to wall		N
22.18	Current-carrying parts and other metal parts resistant to corrosion under normal conditions of use		P



<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
22.19	Driving belts not used as electrical insulation unless they are constructed to prevent inappropriate replacement.	No belts	N
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless material used is non-corrosive, non-hygroscopic and non-combustible		P
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless impregnated		P
22.22	Appliances shall not contain asbestos	Not contain asbestos.	P
22.23	Oils containing polychlorinated biphenyl (PCB) not used		N
22.24	Bare heating elements shall be supported so that the heating conductor is unlikely to come into contact with accessible metal parts		P
22.25	The appliance other than class III shall be constructed that sagging heating conductors cannot come into contact with accessible metal parts		N
22.26	Appliance with class III construction shall comply with requirement of double insulation or reinforced insulation.		N
22.27	Parts connected by protective impedance separated by double or reinforced insulation		<b>P</b>
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 protection against electric shock is maintained after installation		N
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		P



EN 60335-2-85			
Clause	Requirement – Test	Result	Verdict
	constructed so 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	Creepage distances and clearances over supplementary and reinforced insulation not reduced below limited values		P
22.32	Supplementary and reinforced insulation designed or protected against deposition of dirt or dust		P
	Ceramic material not tightly sintered, similar material or beads alone not used as supplementary or reinforced insulation		N
22.33	Liquids may be heated using electrodes and may be in direct contact with their live parts, and with live parts of bare heating elements (EN 60335-2-85)		P
22.34	Shafts of operating knobs, handles, levers etc. not live, unless the shaft is not accessible when the part is removed		P
22.35	Handles, levers and knobs, held or actuated in normal use, not becoming live in the event of an insulation fault		P
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		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 only used for the connection of lamps	No lampholder used.	N





EN 60335-2-85			
Clause	Requirement – Test	Result	Verdict
22.40	Motor-operated appliances and combined appliances, intended to be moved while in operation, are fitted with a switch to control the motor.		N
22.41	Appliance shall not incorporate component, other than lamps, containing mercury.		P
22.42	Protective impedance consisting of at least two separate components		N
	Values specified in 8.1.4 not exceeded if any one of the components is short-circuited or open circuited		N
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		N
22.44	Appliances are not allowed to have an enclosure which is shaped or decorated so that the appliance is likely to be treated as toy by children	Not likely to be treated as toy by children.	P
22.45	Air is used as a reinforced insulation , clearance can not be reduced below the values specified in 29.1.3 when external force applied to the enclosure.		N
22.46	Software used in protective electronic circuits shall be class B or class C.		N
22.47	Appliance intended to be connected water mains shall withstand the water pressure expected in norm use.		N
22.48	Appliance intended to be connected water mains shall be constructed to prevent back siphonage of non-potable water into water mains.		N
22.49	For remote operation, the duration of operation shall be set before the appliance can be started, unless		N
	the appliance switches off automatically or can operate continuously without hazard		N
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation		N
22.51	A control on the appliance being manually adjusted to the setting for remote operation before the appliance can be operated in this mode		N
	There is a visual indication showing that the appliance is adjusted for remote operation		N



<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
	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 in accordance with the socket-outlet system used in the country in which the appliance is sold		N
22.101	Appliances shall be constructed so that there are no sudden jets of steam or hot water likely to expose the user to a hazard when the appliance is used as in normal use (EN 60335-2-85)		P
22.102	Water containers shall be vented to the atmosphere (EN 60335-2-85)		P
	The aperture shall be at least 5mm in diameter or 20mm <sup>2</sup> in area with a minimum dimension of at least 3mm (EN 60335-2-85)		P
22.103	Electrode-type appliances shall be constructed to ensure that when the filling aperture of the container is open, both electrodes are disconnected to provide all-pole disconnection under overvoltage category III conditions (EN 60335-2-85)		P
22.104	Portable electrode-type appliances and portable appliances having bare heating elements shall be constructed so that they do not give rise to a hazard when the are overturned (EN 60335-2-85)	After about 30s, not operate.	P

<b>23.</b>	<b>INTERNAL WIRING</b>		<b>P</b>
23.1	Wire always smooth and free from sharp edges		<b>P</b>
	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	No moving parts	N



<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
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, unless the conduits can not move in normal use		N
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress		P
	Flexible metallic tubes not causing damage to inside of insulation of conductors		N
	Open-coil springs not used to protect wiring		N
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N
	Flexing wiring test when wiring is supplied at rated voltage and under normal operation. The appliance show no damage in accordance with this standard.		N
	--10000, for conductor flexed during normal use		N
	--100,for conductor flexed during user maintenance		N
	After flexing wiring test, electric strength test, 1000V between live parts and metal parts is tested		N
23.4	Bare internal wiring sufficiently rigid and fixed	No bare internal wiring	N
23.5	The insulation of internal wiring withstanding the electrical stress likely to occur in normal use		P
	Insulation electric stress test for: No breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation		P
23.6	Sleeving used as supplementary insulation on internal wiring retained in position by positive means		P
23.7	Only the colour combination green/yellow used for earthing conductors		N
23.8	Aluminium wires not used for internal wiring		P



<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
23.9	No lead-tin soldering of stranded conductors where they are subject to contact pressure, unless clamping means so constructed that there is no risk of bad contact due to cold flow of the solder		P
23.10	The insulation and sheath of internal wiring, incorporated in external hoses for connection of an appliance to the water mains, shall be at least equivalent to light PVC sheathed flexible cord.		N

<b>24.</b>	<b>COMPONENTS</b>		<b>P</b>
24.1	Components comply with safety requirements in relevant IEC standards, otherwise they must be tested in accordance with 24.1.1 to 24.1.6.	All components comply with safety requirements	<b>P</b>
24.1.1	Capacitors likely to be permanently subjected to the supply mains voltage and used for radio interference suppression or for voltage dividing is IEC 60384-14. Otherwise they must be tested in accordance with annex F.		N
24.1.2	The relevant standard for safety isolating transformers is IEC 61558-2-6. Otherwise they must be tested in accordance with annex G		N
24.1.3	The relevant standard for switch is IEC 61058-1. Otherwise they must be tested in accordance with annex H		<b>P</b>
24.1.4	The relevant standard for automatic controls		P
24.1.5	The relevant standard for appliance couplers is IEC 60320-1.		N
24.1.6	The relevant standard for small lampholders is IEC 60238.		<b>N</b>
24.1.7	The relevant standard for the telecommunication interface circuitry in the appliance is IEC 62151		<b>N</b>
24.1.8	The relevant standard for thermal links is IEC 60691		<b>N</b>
24.1.9	Relays, other than motor starting relays, are tested as part of the appliance		<b>N</b>



EN 60335-2-85			
Clause	Requirement – Test	Result	Verdict
24.2	No switches or automatic controls in flexible cords		P
	No devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance		N
	No thermal cut-outs which can be reset by soldering		N
24.3	Switch intended for all-pole disconnection of stationary appliances is directly connected to the supply terminals, having a contact separation of at least 3 mm in each pole		N
24.4	Plugs and socket-outlets for heating elements and extra-low voltage circuits, not interchangeable with plugs and socket-outlets .		N
24.5	Capacitor in auxiliary windings of motors shall be marked with rated voltage and rated capacitance shall be used with these markings.		N
24.6	Motors connected to the supply mains and having inadequate basic insulation for the rated voltage of the appliance, shall not exceed 42V.		N
24.7	Hose-sets for the connection of appliances to the water mains shall comply with IEC 61770.		N

<b>25.</b>	<b>SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS</b>		<b>P</b>
25.1	Appliance not intended for permanent connection to fixed wiring, means for connection to the supply:		<b>P</b>
	- supply cord fitted with a plug		P
	- an appliance inlet		N
	- pins for insertion into socket-outlets		N
	Hand-held appliances, and hand-held parts of other appliances, shall not incorporate an appliance inlet if water could leak onto the pins through a seal in the container (EN 60335-2-85)	No appliance inlet	P



EN 60335-2-85			
Clause	Requirement – Test	Result	Verdict
25.2	Appliances other than stationary appliances not provided with more than one means of connection to the supply		P
	Stationary appliance for multiple supply may be provided with more than one means of connection, if adequately insulation provided form each other		N
	Electric strength test of 1250 V for 1 min between each means of connection ,no breakdown shall occur		N
25.3	Connection of supply wires for appliance intended to be permanently connected to fixed wiring possible after the appliance has been fixed to its support		N
	Appliance provided with a set of terminals for the connection of cables or fixed wiring, cross-sectional areas specified in 26.6		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, dimensions according to table 10		P
	Introduction of conduit or cable does not affect the protection against electric shock or reduce creepage distances and clearances below values specified in clause 29		P
25.5	Method for assemble supply cord with the appliance:		P
	- type X attachment		N
	- type Y attachment		P



<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
	- type Z attachment is allowed for hand-held appliances (EN 60335-2-85)		N
	Type X attachment, other than those having a specially prepared cord, shall not be used for flat twin tinsel cord		N
25.6	Plugs fitted with only one flexible cord		P
25.7	Appliance supply cord not lighter than:		<b>P</b>
	- braided cord		N
	- ordinary tough rubber sheathed cord		<b>N</b>
	- ordinary polychloroprene sheathed flexible cord		N
	- flat twin tinsel cord		N
	- light polyvinyl chloride sheathed cord ,for appliance not exceeding 3 kg		N
	- ordinary polyvinyl chloride sheathed cord, for appliance exceeding 3 kg		P
	If temperature rise of external metal parts exceeding 75 K, PVC cord not used		N
	--the special condition for PVC cord is used: appliance so constructed that the supply cord is not likely to touch external metal parts in normal use		N
	-- the special condition for PVC cord is used: PVC supply cord appropriate for higher temperatures, type Y or type Z attachment used		N
25.8	Actual cross-sectional area of supply cords not less than the value according to table 11	2x0.75mm <sup>2</sup>	<b>P</b>
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		N
25.11	Conductors of supply cords not consolidated by lead-tin soldering where they are subject to contact pressure		P



EN 60335-2-85			
Clause	Requirement – Test	Result	Verdict
25.12	Moulding the cord to part of the enclosure does not damage the insulation of the supply cord		P
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
25.14	Supply cords that are moved while in operation shall be adequately protected against excessive flexing where it enters the appliance.		P
25.15	Conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorages		P
25.16	Cord anchorages for type X attachments so constructed and located that:		N
	- replacement of the cord is easily possible		N
	- it is clear how the relief from strain and the prevention of twisting are obtained		N
	- they are suitable for different types of cord		N
	- 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. However, this does not apply if ----if removal of screws the appliance becomes inoperative ----or they cannot be removed without aid of tool.		N
	- if labyrinths can be bypassed the test of 25.15 is nevertheless withstood		N





EN 60335-2-85			
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
	Screws tighten test on conductor, after test the conductors shall not have moved by more than 1mm in the terminals.		N
25.17	Adequate cord anchorages for type Y and Z attachment	Type Y	P
25.18	Cord anchorages only accessible with the aid of a tool, or so constructed that the cord only can be fitted with the aid of a tool		P
25.19	Type X attachment, glands not used as cord anchorage in portable appliances. Tying the cord into a knot or tying the cord with string not used		N
25.20	Conductors of the supply cord for type Y and Z attachment adequately additionally insulated	Type Y	P
25.21	Space for supply cable for fixed wiring or supply cord for type X attachment constructed to permit checking of conductors with respect to correct positioning and connection before fitting any cover, no risk of damage, no contact with accessible metal part if a conductor becomes loose, etc.		N
25.22	Appliance inlet shall: --live parts not accessible during insertion or removal; --connector can be inserted without difficulty; --the appliance is not supported by the connector; - -not be an appliance inlets for cold conditions if temperature rise of external metal parts exceeds 75 K, unless the supply cord is not likely to touch such metal parts;		N



<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
25.23	Interconnection cords comply with the requirements for the supply cord, except as specified		N
25.24	Interconnection cords not detachable without the aid of a tool		N
25.25	The dimensions of pins of appliances that are inserted into socket-outlets shall be compatible with the dimensions of the relevant socket-outlets.		N

<b>26.</b>	<b>TERMINALS FOR EXTERNAL CONDUCTORS</b>		<b>N</b>
26.1	Appliances shall be provided with terminals or equally effective device for the connection of external conductors.		<b>N</b>
26.2	Terminals for type X attachment and appliances for connection to fixed wiring shall be provided with terminals in which the connections are made by means of screws, nuts or similar device unless the connections are soldered.		N
26.3	Terminals for type X attachment and those for connection to fixed wiring shall be constructed so that they clamp the conductor between metal surfaces with sufficient contact pressure but without causing damage to the conductor.		N
26.4	Terminals for type X attachment, except type X attachment having a special prepared cord, and terminals for connection to fixed wiring, shall not require special preparation of the conductor.		<b>N</b>
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 between live parts and accessible metal parts,		N
	The stranded conductor test is carried out, and after the test it shall be no contact between live parts and accessible metal parts.		N



<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
26.6	Terminals for type X attachment and for connection to fixed wiring shall allow the connection of conductors having the nominal cross-sectional areas		N
26.7	Terminals for type X attachment shall be accessible after removal of a cover or part of enclosure.		N
26.8	Terminals for the connection to fixed wiring located close to each other, including the earthing terminal		N
26.9	Terminals of the pillar type shall be constructed and located so that the end of a conductor introduced into the hole is visible, or can pass beyond the threaded hole for a distance equal to half the nominal diameter of screw but at least 2.5mm.		N
26.10	Terminals with screw clamping and screwless terminal shall not be used for connection of the conductor of flat twin tinsel cords unless the ends of the conductors are fitted with means suitable for use with screw terminals.		N
	Pull of 5N test to the connection and show no damage.		N
26.11	For appliance with type Y attachment or type Z attachment, soldered and welded, crimped or similar connection may be used for connection of external conductors.		N
	And for Class II construction, the conductor shall be positioned or fixed so that soldering and crimping or welding alone to maintain the conductor in position.		N

<b>27</b>	<b>PROVISION FOR EARTHING</b>		<b>P</b>
27.1	Accessible metal parts of Class 0I and I appliances, permanently and reliably connected to an earthing terminal		<b>N</b>



EN 60335-2-85			
Clause	Requirement – Test	Result	Verdict
	Earthing terminals and earthing contacts shall not be connected to neutral terminal		N
	Class 0, II and III appliance have no provision for earthing	Class II	P
	SELV circuit shall not be earthed unless they are protective ELV circuit.		N
27.2	The clamping means of earthing terminals shall be adequately secured against accidental loosening.		N
	Terminals used for the connection of external equip potential bonding conductors allow connection of conductors of 2,5 to 6 mm <sup>2</sup> ,		N
27.3	For appliance with supply cords, the arrangement of the terminals, or the length of the conductor between the cord anchorage and the terminals, shall be such that current carrying conductors become taut before earthing conductor		N
27.4	No risk of corrosion resulting from contact between metal of earthing terminal and other metal		N
	Parts of steel providing earthing continuity provided at the essential areas with an electroplated coating, thickness at least 5 μm		N
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		N
	In case of aluminium alloys precautions taken to avoid risk of corrosion resulting from contact between copper and aluminium or its alloys.		N
27.5	The connection between earthing terminal and earthed metal parts shall have a low resistance		N
	If the clearance of basic insulation in a protective ELV circuit is based on rated voltage of the appliance, this requirement dose not applies to connections providing earthing continuity in the protective ELV.		N



<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
	The test of earthing of ELV circuit, the resistance shall not exceed 0.1 Ω.		N
27.6	The printed conductors of printed circuit boards shall not be used to provide earthing continuity in hand held appliances		N
	- at least two tracks are used with independent soldering points and the appliance complies with requirements of 27.5 for each circuit;		N
	- the material of the printed circuited board complies with IEC 60249-2-4 or IEC 60249-2-5		N

<b>28.</b>	<b>SCREWS AND CONNECTIONS</b>		<b>P</b>
28.1	Fixings and electrical connections and connections providing earthing continuity shall withstand mechanical stresses	For earthing connecting and fixing	<b>P</b>
	Screws shall not be metal which is soft or liable to creep, such as zinc or aluminium		P
	Screws used for electrical connections or for connections providing earthing continuity shall screw into metal		<b>N</b>
	Screws shall not be of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		P
	Torque for testing screws and nuts after the test,		P
28.2	Contact pressure not transmitted through insulating material which are liable to shrink or distort		P
	This requirement does not apply to electrical connections in circuits carrying a current not exceeding 0.5A.		P
28.3	Space-threaded (sheet metal) screws only used for electrical connections if they clamp these parts together.		N



<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
	Thread-cutting (self-tapping) screws not used for electrical connections, unless generating a full form standard machine screw thread		N
	Thread-cutting (self-tapping) screws not used if they are likely to be operated by the user or installer unless the thread is formed by a swaging action		N
	Thread-cutting and space-threaded screws used provide earthing continuity: it is not necessary to disturb the connection in normal use, and at least two screws are used for each connection.		N
28.4	Screws and nuts making mechanical connection between different parts of the appliance, and also making electrical connection or providing earthing continuity secured against loosening		N
	Rivets for electrical connections subject to torsion secured against loosening		N

<b>29.</b>	<b>CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION</b>		<b>P</b>
29.1	The clearance of basic insulation shall withstand sufficient electrical stress.		<b>P</b>
29.1.1	Basic insulation shall be sufficient to withstand overvoltage.		P
	The clearance at the terminals of tubular sheathed heating element may be reduced to 1mm if the microenvironment is pollution degree 1.		N
	Lacquered conductors of windings are assumed to be bare conductors but clearance may be reduced to 0.5mm for rated impulse voltage at 1500V.		<b>N</b>
29.1.2	Clearance of supplementary insulation shall be not less than table 16.		P
29.1.3	Clearance of reinforce insulation shall be not less than the value of basic insulation		P
29.1.4	For function insulation, table 16 is applicable		P



<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
29.1.5	For appliance have a higher working voltage than rated voltage		N
29.2	Creepage distance shall not be less than those appropriate for the working voltage.		P
	Taking account pollution degree 2.		N
	--Unless precaution has been taken to protect the insulation, in which case pollution degree 1 applies.		N
	--Unless the insulation is subjected to conductive pollution, in which case pollution degree 3 applies.		P
	Parts, such as hexagonal nuts that can be tightened to different positions during assembly, and movable parts, are placed on most unfavorable position.		N
	A force is applied o conductor, other than heating elements, and try to reduce clearance when making the measurement for -2N, for bare conductor -30N, for accessible surface.		P
	For electrode-type appliances, the microenvironment of the insulation supporting the electrodes is pollution degree 3 (EN 60335-2-85)		P
29.2.1	Creepage distance of basic insulation shall not less than those specified in table 17.		P
29.2.2	Creepage distance of supplementary insulation shall not less than those specified in table 17.		P
29.2.3	Creepage distance of reinforced insulation shall not less than those specified in table 17.		P
29.2.4	Creepage distance of function insulation shall not less than those specified in table 18.		P
29.3	The supplementary insulation and reinforced insulation shall have enough thickness.		P
29.3.1	Min thicknes of the insulation : 1mm for supplementary insulation 2mm for reinforced insulation		P



<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
29.3.2	Each layer of material shall withstand the electrical strength of 16.3 for supplementary insulation		P
29.3.3	Dry heat test for 48h and the temp rise meet the requirement		N

<b>30.</b>	<b>RESISTANCE TO HEAT AND FIRE</b>		<b>P</b>
30.1	Relevant external parts of non-metallic material shall be sufficient resistance to heat		P
	Parts supporting live parts and parts providing supplementary or reinforced insulation sufficiently resistant to heat		P
	The requirement does not apply to the insulation or sheath of flexible cords or internal wiring.		P
	Resistance to heating test, and after test appliance show no fault.		P
30.2	Parts of non-metallic material shall be resistance to ignition and spread of fire		<b>P</b>
30.2.1	Glow-wire test at 550 °C	Enclosure plastic	<b>P</b>
30.2.2	Glow-wire test at 750 °C for current exceed 0.5A		N
	Glow-wire test at 650 °C for other		N
30.2.3	Appliance be operated while unattended are tested	Not applicable with EN 60335-2-85	N
30.2.3.1	Current exceed 0.2A, and insulation with 3mm distance shall have a glow-wire test at 850°C		N
30.2.3.2	Insulation supporting and insulation with 3mm distance shall have glow-wire test		N
	775°C for current exceed 0.2 A		N
	675°C for other		N
	If a flame persist long than 2s, then needle-flame test is carried out.		N
30.2.4	Requirement of PCB for needle-flame is tested.		N

<b>31.</b>	<b>RESISTANCE TO RUSTING</b>		<b>P</b>
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<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
	Ferrous parts shall be adequately protected against rusting	Zn-Fe material	P
	Salt mist test of IEC 60068-2-52, severity 2		P
	Before test, coatings are scratched by means of a harden steel pin as specified		P
	Five scratches made at least 5mm apart and at least 5mm from the edges		P
	Appliance not deteriorated to such an extent that compliance with cl.8 and cl.27 is impaired		P
	Coating not be broken and not loosened from the metal surface		P

<b>32.</b>	<b>RADIATION, TOXICITY AND SIMILAR HAZARDS</b>		<b>P</b>
	Appliance shall not emit harmful radiation, or present a toxic or similar hazard		P

<b>A</b>	<b>ANNEX A, ROUTINE TESTS</b>		<b>P</b>
A.1	Earth continuity test		N
	A current of at least 10 A, derived from a source having a no-load voltage not exceeding 12 V (a.c. or d.c.), is passed between each of the accessible earthed metal parts		N

A.2	Electric strength test		P
	An electric strength test is carried out between the input and output circuits.		P

A.3	Functional test		P
	The correct functioning of an appliance is checked by inspection or by an appropriate test if the incorrect connection or adjustment of components has safety implications.		P

<b>B</b>	<b>ANNEX B, APPLIANCES POWERED BY RECHARGEABLE BATTERIES</b>		<b>N</b>
3	Definitions		-
5	General conditions for the tests		-
7	Marking and instructions		N
8	Protection against access to live parts		N



<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
11	Heating		N
19	Abnormal operation		N
21	Mechanical strength		N
22	Construction		N
25	Supply connection and external flexible cords		N
30	Resistance to heat and fire		N

<b>C</b>	<b>ANNEX C, AGEING TEST ON MOTORS</b>		<b>N</b>
	Annex C is applicable when there is doubt with regard to the temperature classification of the insulation of a motor winding	Temperature rise of motor winding does not exceed the prescribed values; No special insulating materials and technologies adopted	N

<b>D</b>	<b>ANNEX D, ALTERNATIVE REQUIREMENTS FOR PROTECTED MOTORS</b>		<b>N</b>
	Annex D is applicable to protected motors of appliances that are for unattended use		N

<b>E</b>	<b>ANNEX E, MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES</b>		<b>P</b>
	Measurement of creepage distances and clearances according to indicated cases 1 to 10		P

<b>H</b>	<b>ANNEX H, (IEC 335-1, A4)</b>		<b>N</b>
	SELECTION AND SEQUENCE OF THE TESTS OF CLAUSE 30		N

<b>J</b>	<b>ANNEX J, BURNING TEST</b>		<b>---</b>
	Burning test based on IEC 707, modified as specified		N
	FH method used		N
	FH3 category referred to for evaluation, with burning rate 40 mm/min		N
	Every sample withstands the test,		N
	or more than one sample fails to withstand the test,		N
	or second set of five samples tested, all of which withstand the test		N
	Attached test report according to IEC 707 (Cl. 10)		N



<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
<b>K</b>	<b>ANNEX K, GLOW-WIRE TEST</b>		<b>P</b>
	Glow-wire test based on IEC 695-2-1 (HD 444-2-1 as of EN 60 335-1, A2), modified as specified,		P
	taking into account the prescriptions of EN 60 335-1, A2		P
	No flame and no glowing,		P
	or flames or glowing extinguish within 30 s and surrounding parts and layer below not burned away completely		N
	No ignition of the tissue paper or scorching of the pinewood board		N

<b>L</b>	<b>ANNEX L, BAD-CONNECTION TEST WITH HEATERS</b>		
	Bad-connection test with heaters based on IEC 695-2-3 (HD 444-2-3 as of EN 60 335-1, A2), modified as specified		N
	No flame and no sustained glowing,		N
	or flames or glowing extinguish within 30 s and surrounding parts and layer not burned down completely		N
	No ignition of the tissue paper or scorching of the pinewood board		N
	Test repeated with 2 more specimens, both of which withstand the test		N

<b>M</b>	<b>ANNEX M, NEEDLE-FLAME TEST</b>		
	Needle-flame test based on IEC 695-2-2 (HD 444-2-2 as of EN 60 335-1, A2), modified as specified		N
	The specimen does not ignite,		N
	or flames or burning or glowing do not spread fire to the surroundings; no flame or glowing of the specimen at the end of application of the test flame,		N
	or duration of burning less than 30 s		N
	No ignition of the tissue paper or scorching of the pinewood board		N
	Test repeated with 2 more specimens, both of which withstand the test		N

<b>N</b>	<b>ANNEX N, PROOF TRACKING TEST</b>		
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EN 60335-2-85			
Clause	Requirement – Test	Result	Verdict
	Proof tracking test based on IEC 112, modified as specified		N
	Number of specimens tested		N
	Test voltage (V) (see 30.5); no failure before 50 drops:		N
	Depth of erosion		N
	Attached report includes the required information (Cl. 7)		N

ZA	ANNEX ZA, OF EN 60 335-1, SWITCHES, COMPLIANCE WITH CEE 24 (including modifications 1, 2, 3 and 4)		
	PART I – GENERAL SPECIFICATIONS		---
1, 1A	Applicable		N
3c	During the tests of clauses 15 and 16, when using a motor as a load, motor stopped completely before the next switching-on operation		N
3e	Three samples subjected to specified test		N
3f	Applicable		N
3g	Applicable		N
6	Applicable except:		N
6a	- have to be marked:		N
	- maker's name trademark or identification mark		N
	- maker's model or type reference		N
10a	Applicable		N
11a	Applicable, 19a not taken into account for the OFF position of the switch		N
11b	Applicable, 19a not taken into account for the OFF position of the switch		N
11c	Applicable, 19a not taken into account for the OFF position of the switch		N
11d	Applicable, 19a not taken into account for the OFF position of the switch		N
11e	Applicable, 19a not taken into account for the OFF position of the switch		N
13c	Applicable, but limited to points I, II and III of the table		N
14	Applicable, but preliminary 20 cycles of operation with no current flowing		N
	Operation under conditions of Cl. 11, with temperature measuring		N



<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
15	Applicable, but		N
15b, c	actual appliance load used (1,1 times rated voltage),		N
	or simulated load		N
15c	Breaking test under 6 I motor:		N
	- made,		N
	- or not made (switches for motors the moving parts of which are not liable to jam and which are tested with simulated load)		N
16	Applicable, but		N
16b, c	actual appliance load used, under conditions as specified,		N
	or simulated load, under conditions as specified		N
16c	Simulated load, under Im condition, as specified		N
17	Applicable		N
	<b>PART II – PARTICULAR SPECIFICATIONS</b>		
Section A	Applicable		N
Section B	Applicable		N

<b>ZB</b>	<b>ANNEX ZB, OF EN 60 335-1, A52, SAFETY ISOLATING TRANSFORMERS</b>		
	Safety isolating transformers comply with this standard and the following additions,		N
	or compliance with EN 60 742		N
7.1	Marking of transformers for specific use:		N
	- name		N
	- trademark/identification mark of manufacturer or responsible vendor		N
	- model or type reference		N
17.	Fail-safe transformers, compliance with 14.5 of EN 60 742		N
22.501	Subclause 8.6 of EN 60 742 applicable		N
29.1	Distances in table XV of EN 60 742, items 1a, 1b and 2 apply		N

<b>ZC</b>	<b>ANNEX ZC, OF EN 60 335-1, A54, CAPACITORS</b>		
	The following clauses and subclauses of IEC 384-14:1981 apply to capacitors subjected to the supply mains voltage used for radio interference suppression or used in unattended appliances for voltage dividing purposes with the modifications indicated; clause numbers between parenthesis refer to IEC 384-14		N



<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
(4.3)	Applicable		N
(4.4)	Applicable		N
(6.1)	Items a) and b) applicable		N
(8.1)	Table II, group 0, group 2 and group 3 applicable as follows:		---
	- group 0: subclauses 10.1, 10.2, 11.1 and 11.3		N
	- group 2: subclause 12.10		N
	- group 3: subclause 12.11		N
(10.1)	Applicable		N
(10.2)	Applicable for the marking required by 6.1 a) and b)		N
(11.1)	Applicable		N
(11.3)	Only table VI applies; climatic category is -/-21; values of test A apply; however for capacitors in heating appliances, the values of test B or C apply		N
(12.10)	Applicable; only insulation resistance and voltage proof are checked (see table X)		N
(12.11)	Applicable with 12.11.2 and 12.11.6		N
(12.11.2)	Capacitors subjected to an impulse voltage test as specified in EN 60 335-1, A54		N
(12.11.6)	Applicable:		N
	- insulation resistance		N
	- voltage proof		N
	- visual examination		N

<b>ZX</b>	<b>ANNEX ZX, OF EN 60 335-1, SPECIAL NATIONAL CONDITIONS</b>		
4.6	FI: Tests based on most unfavourable system voltages between 210 and 230 V		N
	NO: Tests based on most unfavourable system voltages between 220 and 230 V		N
5.501	ES: 127 V allowed as rated voltage		N
7.12	DK: Class I appliance: instruction tag set on supply cord, as specified		N
	IE:		---
	Warning for earthing of Class I appliance, as required		N
	Warning for appliance with rated input between 2,8 and 3,5 kW, stating compulsory use of plug with rated current 15 A		N
	IE: Class I appliance: label on power supply cord with code of colours		N



EN 60335-2-85			
Clause	Requirement – Test	Result	Verdict
22.1	DK, PT, and SE: Appliance is of Class 0 (allowed), 0I (allowed), I, II or III:		N
22.8	GB: Test carried out only on 13 A socket-outlet complying with BS 1363		N
24.1	DK: Socket-outlets fitted on appliances		---
	- Compliance with heavy current regulations		N
	- Compliance with specification for		---
	Class 0 and 0I appliances		N
	Class I appliances		N
	Class II appliances		N
	- provided with a protecting rim		N
24.4	GB: Requirement regarding plugs and socket-outlets for heating elements and for extra-low voltages with respect to interchange ability		N
24.11	GB: Disconnection of neutral conductor by thermal cut-out not required		N
25.5	AT: C3b plug not allowed		N
	BE: C2b plug not allowed		N
	DK: Single-phase portable appliance with rated current 10 A: special requirements concerning power supply cord		N
	FI: C3b plug not allowed		N
	FR:		---
	Appliance intended to be connected to fixed wiring only: no plug provided		
	C2b plug not allowed		N
	DE: C3b plug not allowed		N
	IE: Plug not required		N
	NL: C3b plug not allowed		N
	ES: Plug complying with UNE 20 315, as specified		
	SE: Single-phase portable appliance not exceeding 10 A, provided with a plug complying with IEC 83 in accordance with Standard Sheet No. :		N
	CH: Power supply cord of single-phase portable appliance not exceeding 10 A provided with a plug complying with SEV/ASE 1011		N
	GB:		---
	Plug is not of Standard group C in IEC 83		N
	If a plug is fitted, it complies with BS 1363		N



<b>EN 60335-2-85</b>			
<b>Clause</b>	<b>Requirement – Test</b>	<b>Result</b>	<b>Verdict</b>
	If flat twin tinsel cord, plug is not rewirable and complies with relevant standard		N
25.6	FI: Drip or splash-proof appliance: special requirement regarding length of power supply cord		N
	IE and GB: Nominal cross-sectional area of power supply cord according to table as modified		N
B19.101	AT: Constructional requirement concerning earth-leakage current liable to have d.c. component exceeding 6 mA		N
	DK: Constructional requirement concerning earth-leakage current liable to have d.c. component exceeding at a time 20% of total earth-leakage current and 5 mA		N

	<b>Annex AA Battery chargers for use by children</b>		N
	Battery chargers intended to be used by children at least eight years old without supervision shall comply with this standard but as modified by this annex.		N
	The battery chargers have a d.c. output at safety extra-low voltage not exceeding 30 V and a rated output not exceeding 50VA.		N
5	General conditions for the tests		N
6	Classifications		N
7	Marking and instructions		N
8	Protection against access to live parts		N
10	Power input and current		N
11	Heating		N
17	Overload protection of transformers and associated circuits		N
19	Abnormal operation		N
21	Mechanical strength		N
22	Construction		N
22.201	Battery chargers shall have only one rated voltage or rated voltage range.		N
22.202	Battery chargers shall be constructed so that reverse charging is prevented, regardless of the state of charge of the battery.		N
24	Components		N
25	Supply connectino and external flexible cords		N





EN 60335-2-85			
Clause	Requirement – Test	Result	Verdict
25.1	Battery chargers shall not be provided with an appliance inlet.		N
25.2	Battery chargers shall have type Y attachment or type Z attachment.		N

10.1	TABLE: Power input deviation				P
Current deviation of/at:	P rated (W)	P measured (W)	dP	Required dP	Remark
AC220V, 50Hz	700	652.7	-6.75%	+5%,-10%	P
AC240V, 50Hz	700	720.9	2.98%	+5%,-10%	P

10.2	TABLE: Current input deviation			N
Current deviation of/at:	I rated (A)	I measured (A)	Required dI	Remark



-	-	-	-	-
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11.2	TABLE: HEATING TEST				P
	Test voltage (V).....:	254.4V			-
	Ambient (°C) .....	25.0			-
Measured locations		dT(K)			Required dT (K)
Power supply cord		40			60
Thermostat		98.4			115(T-25)
Inner wire for heater		60.1			-
Switch knob		20.6			60(T-25)
Tube on switch		37.2			65
Handle		3.7			50
Enclosure		34.1			50
Test corner		4.5			60
Heating test, resistance method					
Temperature of winding	R1(Ω)	R2(Ω)	T (°C)	Max. T(°C)	Insulation class
-	-	-	-	-	-
Note:N/A.					

13.2	TABLE: leakage current measurements				P
	Heating appliances: 1.15 x rated input (W) .... :	805			---
	Motor-operated and combined appliances: 1.06xrated voltage. ....:	N.A.			---
Leakage current between		I (mA)		Max. allowed I (mA)	
Live part and plastic enclosure/switch knob/handle/water tank		0.005		0.25	
Note: N/A					

13.3	TABLE: electric strength measurements			P
test voltage applied between:			test voltage (V)	breakdown



Live part and plastic enclosure/switch knob/handle/water tank	3000	No
Note: N/A		

16.2	TABLE: leakage current measurements		P
	Single phase appliances: 1.06 x rated voltage.:	254.4V	---
	Three phase appliances 1.06 x rated voltage divided by 3 <sup>1/2</sup> .....	N.A.	---
Leakage current between		I (mA)	Max. allowed I (mA)
Live part and plastic enclosure/switch knob/handle/water tank		0.005	0.25
Note: N/A			

16.3	TABLE: electric strength measurements		N
test voltage applied between:		test voltage (V)	breakdown
Live part and plastic enclosure/switch knob/handle/water tank		3000	No
Note: N/A			

24.1	TABLE: Components				P
object part No.	manufacturer/trademark	type/model	technical data	standard	mark(s) of conformity
Plug	Dongguan YuanSong Wire & Cable TechnoogyCo., Ltd	YS-21	AC 250V, 16A, 13A,	EN 50075	VDE
--Alt.	Various	Various	250V ,13A	EN 50075	VDE
Power cord	Dongguan Ziqiang Cable CO.,Ltd	H03VV-F	2×0.75mm <sup>2</sup>	EN 50525-2-11	VDE 40043104
--Alt.	Various	Various	2×0.75mm <sup>2</sup>	EN 50525-2-11	VDE
Switch	Zhejiang Yibao Technology Co., Ltd.	RCA-1113	220-250V 13(4)A 250V 6(6)A 250V	EN 61058-1	VDE
Heating element	Zhongshan city Nantou town Ba Electrical Appliance Factory	YH	AC 220-240V, 700W	IEC/EN 60335-1 IEC/EN 60335-2-85	Tested with appliance
Thermostat	Foshan Lianhehuilong Electrical Appliance Co., Ltd.	KSD301	AC 250V, T <sub>f</sub> 145°C, 10A, 1E5, T300	IEC/EN 60730-1 IEC/EN 60730-2-9	VDE
Thermal link	NEC SCHOTT components Corporation	RYE	250V,10A 184°C	IEC/EN 60691	VDE



object part No.	manufacturer/trademark	type/model	technical data	standard	mark(s) of conformity
--Alt.	Various	Various	250V,10A 184°C	IEC/EN 60691	VDE
Enclosure	SABIC INNOVATIVE	SE1X	V-1 or Better, 105°C min. 2.0mm	UL 94	UL

29.1	TABLE: Clearances						P
	Overvoltage category...	II				---	
		Type of insulation:					
Rated impulse voltage (V):	Min. cl (mm)	B	F	S	R	Verdict/Remark	
330	0.5					N.A.	
500	0.5					N.A.	
800	0.5					N.A.	
1500	0.5					N.A.	
2500	1.5	X	X	X		P	
4000	3.0				X	P	
6000	5.5					N.A.	
8000	8.0					N.A.	
10000	11.0					N.A.	

Note:1. 'B'=basic, 'F'=functional, 'S'=supplementary, 'R'=reinforced  
2. 'X' means be chosen

29.2(1)	TABLE: Creepage distances, basic, supplementary and reinforced insulation										P
Working voltage (V)	Creepage distance (mm)							Type of insulation			Verdict
	Pollution degree							B*)	S*)	R*)	
	1	2			3						
		Material group			Material group						
		I	II	IIIa/IIIb	I	II	IIIa/IIIb				
>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 and ≤125	0,3	0,8	1,1	1,5	1,9	2,1	2,4	—	—	—	N
>50 and ≤125	0,3	0,8	1,1	1,5	1,9	2,1	2,4	—	—	—	N
>50 and ≤125	0,6	1,6	2,2	3,0	3,8	4,2	4,8	—	—	—	N
>125 and ≤250	0,6	1,3	1,8	2,5	3,2	3,6	<b>4,0</b>	X	—	—	P
>125 and ≤250	0,6	1,3	1,8	2,5	3,2	3,6	<b>4,0</b>	—	X	—	P



>125 and ≤250	1,2	2,6	3,6	5,0	6,4	7,2	<b>8,0</b>	—	—	X	<b>P</b>
>250 and ≤400	1,0	2,0	2,8	4,0	5,0	5,6	6,3	—	—	—	N
>250 and ≤400	1,0	2,0	2,8	4,0	5,0	5,6	6,3	—	—	—	N
>250 and ≤400	2,0	4,0	5,6	8,0	10,0	11,2	12,6	—	—	—	N
>400 and ≤500	1,3	2,5	3,6	5,0	6,3	7,1	8,0	—	—	—	N
>400 and ≤500	1,3	2,5	3,6	5,0	6,3	7,1	8,0	—	—	—	N
>400 and ≤500	2,6	5,0	7,2	10,0	12,6	14,2	16,0	—	—	—	N
>500 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	—	—	—	N
>500 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	—	—	—	N
>500 and ≤800	3,6	6,4	9,0	12,6	16,0	18,0	20,0	—	—	—	N
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	—	—	—	N
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	—	—	—	N
>800 and ≤1000	4,8	8,0	11,2	16,0	20,0	22,0	25,0	—	—	—	N
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	—	—	—	N
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	—	—	—	N
>1000 and ≤1250	6,4	10,0	14,2	20,0	25,0	28,0	32,0	—	—	—	N
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	—	—	—	N
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	—	—	—	N
>1250 and ≤1600	8,4	12,6	18,0	25,0	32,0	36,0	40,0	—	—	—	N
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	—	—	—	N
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	—	—	—	N
>1600 and ≤2000	11,2	16,0	22,0	32,0	40,0	44,0	50,0	—	—	—	N
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	—	—	—	N
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	—	—	—	N
>2000 and ≤2500	15,0	20,0	28,0	40,0	50,0	56,0	64,0	—	—	—	N
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	—	—	—	N
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	—	—	—	N
>2500 and ≤3200	20,0	25,0	36,0	50,0	64,0	72,0	80,0	—	—	—	N
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	—	—	—	N
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	—	—	—	N
>3200 and ≤4000	25,0	32,0	44,0	64,0	80,0	90,0	100,0	—	—	—	N
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	—	—	—	N
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	—	—	—	N
>4000 and ≤5000	32,0	40,0	56,0	80,0	100,0	112,0	126,0	—	—	—	N
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	—	—	—	N



>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	—	—	—	N
>5000 and ≤6300	40,0	50,0	72,0	100,0	126,0	142,0	160,0	—	—	—	N
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	—	—	—	N
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	—	—	—	N
>6300 and ≤8000	50,0	64,0	90,0	126,0	160,0	180,0	200,0	—	—	—	N
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	—	—	—	N
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	—	—	—	N
>8000 and ≤10000	64,0	80,0	112,0	160,0	200,0	220,0	250,0	—	—	—	N
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	—	—	—	N
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	—	—	—	N
>10000 and ≤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(2)	TABLE: Creepage distances, functional insulation							P
Working voltage (V)	Creepage distance (mm)							Verdict / Remark
	Pollution degree							
	1	2			3			
		Material group			Material group			
		I	II	IIIa/IIIb	I	II	IIIa/IIIb	
>50	0,2	0,6	0,8	1,1	1,4	1,6	1,8	N
>50 and ≤125	0,3	0,7	1,0	1,4	1,8	2,0	2,2	N
>125 and ≤250	0,4	1,0	1,4	2,0	2,5	2,8	<b>3,2</b>	<b>P</b>
>250 and ≤400	0,8	1,6	2,2	3,2	4,0	4,5	5,0	N
>400 and ≤500	1,0	2,0	2,8	4,0	5,0	5,6	6,3	N
>500 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	N
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	N
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	N
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	N
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	N
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	N
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	N
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	N
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	N
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	N
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	N
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	N
>10000 and ≤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)	Measured (mm)	limited diameter (mm)	
Enclosure plastic	75	0.8	2.0	
Note: N/A.				

30.2	TABLE: resistance to heat, fire and tracking, tracking and glow-wire test			P
Part	Tracking test (V)	glow-wire test (°C)	Result	



	175	250	550	650	750	850	
Enclosure plastic	---	---	√	---	---	---	No flame
Note: N/A.							





IEC 60335_1R - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict

<b>ATTACHMENT TO TEST REPORT IEC 60335-1</b> <b>EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES</b> Household and similar electrical appliances – Safety – Part 1: GENERAL REQUIREMENTS			
<b>Differences according to</b> : EN 60335- 1:2012 EN 50366:2003 + A1:2006 or EN 62233:2008			
<b>Attachment Form No.:</b> EU_GD_IEC60335_1R			
<b>Attachment Originator</b> : Nemko AS			
<b>Master Attachment</b> : 2012-03			
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CENELEC COMMON MODIFICATIONS			
6.1	Delete “class 0” and “class 01”		P
7.1	Single-phase appliances to be connected to the supply mains: 230 V covered		P
	Multi-phase appliances to be connected to the supply mains: 400 V covered		N
7.10	Devices used to start/stop operational functions of the appliance distinguished from other manual devices by means of shape, size, surface texture, position, etc.		N
	An indication that the device has been operated is given by:		N
	<ul style="list-style-type: none"> <li>a tactile feedback, or</li> </ul>		N
	<ul style="list-style-type: none"> <li>an audible and visual feedback</li> </ul>		N
7.12	The instructions include the substance of the following:		P
	- this appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved		P
	- children shall not play with the appliance		P
	- cleaning and user maintenance shall not be made by children without supervision		P

IEC 60335_1R - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict



IEC 60335_1R - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
7.12.Z1	The specific instructions related to the safe operation of this appliance is collated together in the front section of the user instructions		P
	The height of the characters, measured on the capital letters, is at least 3 mm		P
	These instructions are also available in an alternative format, e.g. on a website		P
8.1.1	Also test probe 18 of EN 61032 is applied		P
	The appliance being in every possible position during the test		P
	The force on the probe in the straight position is increased to 10 N when probe 18 is used		P
	When using test probe 18 the appliance is fully assembled as in normal use without any parts removed, and		P
	parts intended to be removed for user maintenance are also not removed		P
8.2	Compliance is checked by applying the test probes of EN 61032		P
	For built-in appliances and fixed appliances, the test probe B and probe 18 of EN 61032 are applied only after installation		P
11.8	Footnotes to "External enclosure of motor-operated appliances" to be taken into account		N
15.1.2	Appliances with an automatic cord reel tested with the cord in the most unfavourable position so that the reeling of the wet cord may affect electrical insulation during operation, the cord not being dried before reeling		N
20.2	When using the test probe similar to test probe B with a circular stop face, the accessories and detachable covers are removed		N
	Test probe 18 applied with a force of 2,5N on the appliance fully assembled		N
24.1	Components comply with the safety requirements specified in the relevant standards as far as they reasonably apply		P
	The requirements of Clause 29 of this standard apply between live parts of components and accessible parts of the appliance.		P
	The requirements of 30.2 of this standard apply to parts of non-metallic material in components including parts of non-metallic material supporting current-carrying connections inside components		N



IEC 60335_1R - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
	Components that have not been previously tested or do not comply with the standard for the relevant component are tested according to the requirements of 30.2		N
	Components that have been previously tested and shown to comply with the resistance to fire requirements in the standard for the relevant component need not be retested provided that:		N
	- the severity specified in the component standard is not less than the severity specified in 30.2, and		N
	- the test report for the component states whether it complied with the standard for the relevant component with or without flame, flames not exceeding 2 s during the test are ignored		N
	Unless components have been previously tested and found to comply with the relevant standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9		N
	For components mentioned in 24.1.1 to 24.1.9, no additional tests specified in the relevant standard for the component are necessary other than those specified in 24.1.1 to 24.1.9		N
	Components that have not been separately tested and found to comply with the relevant standard, and		N
	components that are not marked or not used in accordance with their marking,		N
	are tested in accordance with the conditions occurring in the appliance, the number of samples being that required by the relevant standard		N
	Lamp holders and starter holders that have not been previously tested and found to comply with the relevant standard are tested as a part of the appliance and additionally comply with the gauging and interchangeability requirements of the relevant standard under the conditions occurring in the appliance		N
	Where the relevant standard specifies these gauging and interchangeability requirements at elevated temperatures, the temperatures measured during the tests of Clause 11 are used		N
	Plugs and socket-outlets and other connecting devices of interconnection cords are not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1, or		N
	with connectors and appliance inlets complying with the standard sheets of IEC 60320-1,		P



IEC 60335_1R - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
	if direct supply to these parts from the supply mains gives rise to a hazard		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 EN 41003		N
	Compliance with Clause 8 of this standard is not impaired by connecting the appliance to a device covered by EN 41003		N
24.Z1	For motor running capacitors (IEC 60252-1 type P2) with a metallic enclosure having an overpressure fuse the flame testing of internal plastic parts supporting current carrying connections as required in 30.2.2 and 30.2.3.1 is not necessary		N
25.6	Supply cords of single-phase portable appliances having a rated current not exceeding 16 A, fitted with a plug complying with the following standard sheets of IEC/TR 60083:		N
	- for Class I appliances: standard sheet C2b, C3b or C4..... ..... ..... ..... .....		N
	- for Class II appliances: standard sheet C5 or C6..... ..... ..... ..... .....		N
25.7	Rubber sheathed cords (60245 IEC 53) are not suitable for appliances intended to be used outdoors or when they are liable to be exposed to significant amount of ultraviolet radiation		N
	Halogen-free thermoplastic compound sheathed supply cords have properties at least those of:		N
	<ul style="list-style-type: none"> <li>halogen-free thermoplastic compound sheathed cords (H03Z1Z1H2-F or H03Z1Z1-F), for appliances having a mass not exceeding 3 kg</li> </ul>		N
	<ul style="list-style-type: none"> <li>halogen-free thermoplastic compound sheathed cords (H05Z1Z1H2-F or H05Z1Z1-F), for other appliances</li> </ul>		N
	Cross-linked halogen-free compound sheathed supply cords have properties at least those of cross-linked halogen-free compound sheathed cords (H07ZZ-F)		N



IEC 60335_1R - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
26.11	Conductors connected by soldering are not considered to be positioned or fixed so that reliance is not placed upon the soldering alone to maintain them in position unless they are held in place near the terminals independently of the solder		N
29.3.Z1	Appliance constructed so that if there is a possibility of damaging the insulation during installation, the insulation withstands the scratch and penetration test of 21.2		P
32	Compliance regarding electromagnetic fields is checked according to EN 50366 or EN 62233		P
Annex I, 19.1.101	The appliance is supplied at rated voltage and operated under normal operation with each of the fault conditions specified		N
	The duration of the test is as specified in 19.7		N

<b>ZA</b>	<b>ANNEX ZA (NORMATIVE) SPECIAL NATIONAL CONDITIONS</b>		N
	<b>Norway</b>		N
19.5	The test is also applicable to appliances intended to be permanently connected to fixed wiring		N
	<b>Norway</b>		N
22.2	The second paragraph of this subclause, dealing with single-phase, permanently connected class I appliances having heating elements, is not applicable due to the supply system		N
	<b>All CENELEC countries</b>		N
25.6 and 25.25	Information concerning National plug and socket-outlets is available from the CENELEC website. Normative national requirements concerning plug and socket-outlets are shown in the relevant National standard		N
	<b>Ireland and United Kingdom</b>		N
25.8	In the table, the lines for 10 A and 16 A are replaced by:		N
	> 10 and ≤ 13 1,25		N
	> 13 and ≤ 16 1,5		N

IEC 60335_1R - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
<b>ZB</b>	<b>ANNEX ZB (INFORMATIVE) A-DEVIATIONS</b>		N
	<b>Ireland</b>		N



IEC 60335_1R - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
25.6	These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and in general allow only plugs complying with I.S. 401:1997, or equivalent, to be fitted to domestic appliances		N
	<b>United Kingdom</b>		N
25.6	These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and in general allow only plugs to BS 1363 to be fitted to domestic appliances. It also allows plugs to BS 4573 and EN 50075 to be fitted to shavers and toothbrushes		N
<b>ZC</b>	<b>ANNEX ZC (NORMATIVE) NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS</b>		N
	A list of referenced documents in this standard		N
<b>ZD</b>	<b>ANNEX ZD (INFORMATIVE) IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS</b>		N
	A table with IEC and CENELEC code designations for flexible cords		N
<b>ZE</b>	<b>ANNEX ZE (INFORMATIVE) SPECIFIC ADDITIONAL REQUIREMENTS FOR APPLIANCES AND MACHINES INTENDED FOR COMMERCIAL USE</b>		N
7.1	Business name and full address of the manufacturer and, where applicable, his authorized representative..... :		N
	Model or type reference.....:		N
	Serial number, if any..... :		N
	Production year		N
	Designation of the appliance..... :		N
7.12	Instructions provided with the appliance so that the appliance can be used safely		N
	The instructions contain at least the following information:		N
	- the business name and full address of the manufacturer and, where applicable, his authorized representative		N
	- model or type reference of the appliance as marked on the appliance itself, except for the serial number		N
	- the designation of the appliance together with its explanation in case it is given by a combination of letters and/or numbers		N
	- the general description of the appliance, when needed due to the complexity of the appliance		N



IEC 60335_1R - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
	- specific precautions if required during installation, operation, adjusting, user maintenance, cleaning, repairing or moving		N
	- when needed drawings, diagrams, descriptions and explanations necessary for the safe use and user maintenance of the appliance		N
	- the possible reasonably foreseeable misuse and, whenever relevant, a warning against the effects it may have on the safe use of the appliance		N
	The words "Original instructions" appear on the language version(s) verified by the manufacturer or by the authorized representative		N
	When a translation of the original instructions has been provided by a person introducing the appliance on the market; the meaning of the sentence "Translation of the original instructions" appear in the relevant instructions delivered with the appliance		N
	The instructions for maintenance/service to be done by specialized personnel, mandated by the manufacturer or the authorized representative may be supplied in only one Community language which the specialized personnel understand		N
	The instructions indicate the type and frequency of inspections and maintenance required for safe operation including the preventive maintenance measures		N
7.12.ZE1	If needed for specific appliances, the following information to be given:		N
	<ul style="list-style-type: none"> <li>on use, transportation, assembly, dismantling when out of service, testing or foreseeable breakdowns, if these operations have consequences on stability of the appliance in order to avoid overturning, falling or uncontrolled movements of the appliance or of its component parts</li> </ul>		N
	<ul style="list-style-type: none"> <li>on how to maintain adequate mechanical stability when in use, during transportation, assembly, dismantling, scrapping and any other action involving the appliance</li> </ul>		N
	<ul style="list-style-type: none"> <li>on the protective measures to be taken by the user, including, where appropriate, the personal protective equipment to be provided</li> </ul>		N
	<ul style="list-style-type: none"> <li>on the operating method to be followed in the event of accident or breakdown; if a blockage is likely to occur the operating method to safely unblock the appliance</li> </ul>		N



IEC 60335_1R - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
	<ul style="list-style-type: none"> <li>on the specifications on the spare parts to be used, when these affect the health and safety of the operator</li> </ul>		N
	<ul style="list-style-type: none"> <li>on airborne noise emissions, determined and declared in accordance with the relevant Part 2, which includes:</li> </ul>		N
	- the A-weighted emission sound pressure level at workstations, where this exceeds 70 dB(A)..... ;		N
	- where this level does not exceed 70 dB(A), this fact is indicated		N
	- the peak C-weighted instantaneous sound pressure value at workstations, where this exceeds 63 Pa (130 dB in relation to 20 µPa)..... :		N
	- the A-weighted sound power level emitted by the machinery, where the A-weighted emission sound pressure level at workstations exceeds 80 dB(A)..... :		N
7.12.ZE2	The instructions includes a warning to disconnect the appliance from its power source during service and when replacing parts		N
	If the removal of the plug is foreseen, it is clearly indicated that the removal of the plug has to be such that an operator can check from any of the points to which he has access that the plug remains removed		N
	If this is not possible, due to the construction of the appliance or its installation, a disconnection with a locking system in the isolated position is provided		N
19.11.4.8	The appliance continues to operate, without causing any hazard to the user, from the same point in its operating cycle at which the voltage fluctuation occurred, or		N
	a manual operation is required to restart it		N
20.1	Appliances and their components and fittings have adequate mechanical stability during transportation, assembly, dismantling and any other action involving the appliance		N
20.2	Dangerous moving transmission parts safeguarded either by design or guards		N
	When guards are used, they are fixed guards, interlocking movable guards or protective devices		N
	Moving parts directly involved in the function of the appliance which cannot be made completely inaccessible fitted with:		N





IEC 60335_1R - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
	- fixed guards or interlocking movable guards preventing access to those sections of the parts that are not used in the work, and		N
	- adjustable guards restricting access to those sections of the moving parts where access is necessary		N
	Interlocking movable guards used where frequent access is required		N
21.1	Appliances and their components and fittings have adequate mechanical strength and is constructed to withstand such rough handling that may be expected in normal use, during transportation, assembly, dismantling, scrapping and any other action involving the appliance		N
22.ZE.1	For appliances provided with a seat, the seat gives adequate stability		N
	The distance between the seat and the control devices capable of being adapted to the operator		N
22.ZE.2	For appliances provided with separate devices for the start and the stop functions, the stop function is unambiguously identifiable and does always override the start function		N
	For appliances provided with one device performing the start and the stop function, the stop function is unambiguously identifiable and does always override the start function		N
22.ZE.3	Appliances designed in such a way that incorrect mounting is avoided, if this can lead to an unsafe situation		N
	If this is not possible, information on the correct mounting is given directly on the part and/or the enclosure		N
22.ZE.4	Where the weight, size or shape prevents appliances from being moved manually, they are fitted with attachments for lifting gear, or		N
	so designed that they can be fitted with such attachments, or		N
	be shaped in such a way that standard lifting gear can easily be used		N
	Appliances to be moved manually are constructed or equipped so that they can be moved easily and safely		N
22.ZE.5	The fixing systems of fixed guards which prevent access to dangerous moving transmission parts only removable with the use of tools		N



IEC 60335_1R - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
	If such guards have to be removed by the user for routine cleaning or maintenance their fixing systems remain attached to the fixed guards or to the machine after removal		N
	Where possible, guards are incapable of remaining in place without their fixings		N
	This does not apply if, after removal of the screws, or if the component is incorrectly repositioned, the appliance becomes inoperative		N
	Movable guards are interlocked		N
	The interlocking devices prevent the start of hazardous appliance functions until the guards are fixed in their position, and give a stop command whenever they are no longer closed		N
	Where it is possible for an operator to reach the danger zone before the risk due to hazardous appliance functions has ceased, movable guards associated with a guard locking device in addition to an interlocking device that:		N
	- prevents the start of hazardous appliance functions until the guard is closed and locked, and		N
	- keeps the guard closed and locked until the risk of injury from the hazardous appliance functions has ceased		N
	Interlocking movable guards remain attached to the appliance when open, and		N
	they are designed and constructed in such a way that they can be adjusted only by means of an intentional action		N
22.ZE.6	Interlocking movable guards designed in such a way that the absence or failure of one of their components prevents starting or stops the hazardous appliance functions		N
	The guard is opened to the extent needed to cause the interlocking to operate and is then closed, the number of operations being defined in the specific Part 2..... :		N
	After this test any defect that may be expected in normal use is applied to the interlock system, including interruption of the supply, only one defect being simulated at a time		N
	After these tests the interlock system is fit for further use		N
22.ZE.7	Adjustable guards restricting access to areas of the moving parts strictly necessary for the work are:		N
	- adjustable manually or automatically, depending on the type of work involved, and		N



IEC 60335_1R - ATTACHMENT			
Clause	Requirement - Test	Result - Remark	Verdict
	- readily adjustable without the use of tools		N
22.ZE.8	In case of interruption, re-establishment after an interruption or fluctuation in whatever manner of the power supply, the appliance does not restart		N
	However, automatic restarting of the operation is allowed if the appliance may continue to operate, without causing any hazard to the user, from the same point in its operating cycle at which the voltage interruption or fluctuation occurred		N
22.ZE.9	Appliances fitted with means to isolate them from all energy sources		N
	Such isolators are clearly identified, and		N
	they are capable of being locked if reconnection endanger persons		N
	After the energy source is disconnected, it is possible to dissipate any energy remaining or stored in the circuits of the appliance without risk to persons		N
			N
<b>ZF</b>	<b>ANNEX ZF (INFORMATIVE) CRITERIA APPLIED FOR THE ALLOCATION OF PRODUCTS COVERED BY STANDARDS IN THE EN 60335 SERIES UNDER LVD OR MD</b>		N
	List of standards under CENELEC/TC61 with the allocation under the LVD (Low Voltage Directive) or the MD (Machinery Directive)..... :		N
			N
<b>ZG</b>	<b>ANNEX ZG (NORMATIVE) UV APPLIANCES</b>		N
	The following modifications to this standard apply to appliances having UV emitters		N
	This annex is not applicable to appliances covered by the scopes of IEC 60335-2-27, IEC 60335-2-59 or IEC 60335-2-109		N
7.12.ZG	The instructions for appliances incorporating UVC emitters include the substance of the following: WARNING — This appliance contains a UV emitter. Do not stare at the light source		N
32	For appliances incorporating UV emitters the manufacturer delivers a declaration providing evidence that the plastic material exposed to the radiation is UV resistant		N
<b>ZZ</b>	<b>ANNEX ZZ (INFORMATIVE) COVERAGE OF ESSENTIAL REQUIREMENTS OF EC DIRECTIVES</b>		N



IEC 60335\_1R - ATTACHMENT

Clause	Requirement - Test	Result - Remark	Verdict
	Description of the relation between this European standard and the LVD (Low Voltage Directive, 2006/95/EC) and the MD (Machinery Directive, 2006/42/EC)		N



**ATTACHMENT TO TEST REPORT IEC 60335-2-29**  
**EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES**

Safety of household and similar electrical appliances

Part 2: Particular requirements for battery chargers

**Differences according to** : EN 60335-2-29:2004 + A2:2009 with EN 60335- 1:2012 + A11:2014  
EN 62233:2008

**Attachment Form No.:** EU\_GD\_IEC60335\_2\_29J

**Attachment Originator** : IMQ S.p.A.

**Master Attachment** : 2015-09

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IEC60335\_2\_29J - ATTACHMENT

Clause	Requirement - Test	Result - Remark	Verdict
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<b>CENELEC COMMON MODIFICATIONS</b>			
6.1	Delete "class 0" and "class 01"		P
7.1	Single-phase appliances to be connected to the supply mains: 230 V covered		P
	Multi-phase appliances to be connected to the supply mains: 400 V covered		N
7.10	Devices used to start/stop operational functions of the appliance distinguished from other manual devices by means of shape, size, surface texture, position, etc.		N
	An indication that the device has been operated is given by:		—
	• a tactile feedback, or		N
	• an audible and visual feedback		N
7.12	The instructions include the substance of the following:		—
	- this appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved		P
	- children shall not play with the appliance		P
	- cleaning and user maintenance shall not be made by children without supervision		P



7.12.Z1	The specific instructions related to the safe operation of this appliance is collated together in the front section of the user instructions		P
	The height of the characters, measured on the capital letters, is at least 3 mm		P
	These instructions are also available in an alternative format, e.g. on a website		P
8.1.1	Also test probe 18 of EN 61032 is applied		P
	The appliance being in every possible position during the test		P
	The force on the probe in the straight position is increased to 10 N when probe 18 is used		P
	When using test probe 18 the appliance is fully assembled as in normal use without any parts removed, and		P
	parts intended to be removed for user maintenance are also not removed		P
8.2	Compliance is checked by applying the test probes of EN 61032		P
	For built-in appliances and fixed appliances, the test probe B and probe 18 of EN 61032 are applied only after installation		P
11.8	Footnotes to "External enclosure of motor-operated appliances" to be taken into account		P
15.1.2	Appliances with an automatic cord reel tested with the cord in the most unfavourable position so that the reeling of the wet cord may affect electrical insulation during operation, the cord not being dried before reeling		N
20.2	When using the test probe similar to test probe B with a circular stop face, the accessories and detachable covers are removed		N
	Test probe 18 applied with a force of 2,5N on the appliance fully assembled		N
24.1	Components comply with the safety requirements specified in the relevant standards as far as they reasonably apply		P
	The requirements of Clause 29 of this standard apply between live parts of components and accessible parts of the appliance.		P
	The requirements of 30.2 of this standard apply to parts of non-metallic material in components including parts of non-metallic material supporting current-carrying connections inside components		P
	Components that have not been previously tested or do not comply with the standard for the relevant component are tested according to the requirements of 30.2		N



	Components that have been previously tested and shown to comply with the resistance to fire requirements in the standard for the relevant component need not be retested provided that:		—
	- the severity specified in the component standard is not less than the severity specified in 30.2, and		N
	- the test report for the component states whether it complied with the standard for the relevant component with or without flame, flames not exceeding 2 s during the test are ignored		N
	Unless components have been previously tested and found to comply with the relevant standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9		N
	For components mentioned in 24.1.1 to 24.1.9, no additional tests specified in the relevant standard for the component are necessary other than those specified in 24.1.1 to 24.1.9		N
	Components that have not been separately tested and found to comply with the relevant standard, and		N
	components that are not marked or not used in accordance with their marking,		N
	are tested in accordance with the conditions occurring in the appliance, the number of samples being that required by the relevant standard		N
	Lamp holders and starter holders that have not been previously tested and found to comply with the relevant standard are tested as a part of the appliance and additionally comply with the gauging and interchangeability requirements of the relevant standard under the conditions occurring in the appliance		N
	Where the relevant standard specifies these gauging and interchangeability requirements at elevated temperatures, the temperatures measured during the tests of Clause 11 are used		N
	Plugs and socket-outlets and other connecting devices of interconnection cords are not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1, or		N
	with connectors and appliance inlets complying with the standard sheets of IEC 60320-1,		P
	if direct supply to these parts from the supply mains gives rise to a hazard		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 EN 41003		N



	Compliance with Clause 8 of this standard is not impaired by connecting the appliance to a device covered by EN 41003		N
24.Z1	For motor running capacitors (IEC 60252-1 type P2) with a metallic enclosure having an overpressure fuse the flame testing of internal plastic parts supporting current carrying connections as required in 30.2.2 and 30.2.3.1 is not necessary		N
25.6	Supply cords of single-phase portable appliances having a rated current not exceeding 16 A, fitted with a plug complying with the following standard sheets of IEC/TR 60083:		—
	- for Class I appliances: standard sheet C2b, C3b or C4..... ..... ..... ..... .....:		N
	- for Class II appliances: standard sheet C5 or C6..... ..... ..... ..... .....:		N
25.7	Rubber sheathed cords (60245 IEC 53) are not suitable for appliances intended to be used outdoors or when they are liable to be exposed to significant amount of ultraviolet radiation		N
	Halogen-free thermoplastic compound sheathed supply cords have properties at least those of:		—
	<ul style="list-style-type: none"> <li>halogen-free thermoplastic compound sheathed cords (H03Z1Z1H2-F or H03Z1Z1-F), for appliances having a mass not exceeding 3 kg</li> </ul>		N
	<ul style="list-style-type: none"> <li>halogen-free thermoplastic compound sheathed cords (H05Z1Z1H2-F or H05Z1Z1-F), for other appliances</li> </ul>		N
	Cross-linked halogen-free compound sheathed supply cords have properties at least those of cross-linked halogen-free compound sheathed cords (H07ZZ-F)		N
26.11	Conductors connected by soldering are not considered to be positioned or fixed so that reliance is not placed upon the soldering alone to maintain them in position unless they are held in place near the terminals independently of the solder		N
29.3.Z1	Appliance constructed so that if there is a possibility of damaging the insulation during installation, the insulation withstands the scratch and penetration test of 21.2		P





32	Compliance regarding electromagnetic fields is checked according to EN 62233		P
Annex I, 19.1.101	The appliance is supplied at rated voltage and operated under normal operation with each of the fault conditions specified		N
	The duration of the test is as specified in 19.7		N

<b>ZA</b>	<b>ANNEX ZA (NORMATIVE) SPECIAL NATIONAL CONDITIONS</b>		—
	<b>Norway</b>		—
19.5	The test is also applicable to appliances intended to be permanently connected to fixed wiring		N
	<b>Norway</b>		—
22.2	The second paragraph of this subclause, dealing with single-phase, permanently connected class I appliances having heating elements, is not applicable due to the supply system		N
	<b>All CENELEC countries</b>		—
25.6 and 25.25	Information concerning National plug and socket-outlets is available from the CENELEC website. Normative national requirements concerning plug and socket-outlets are shown in the relevant National standard		N
25.7	<b>Finland</b>		N
	Polyvinylchloride sheathed cords are not allowed for battery chargers for charging automobile batteries in outdoor use or in locations where the temperature is equal to the outdoor temperature (EN 60335-2-29)		N
	<b>Ireland and United Kingdom</b>		—
25.8	In the table, the lines for 10 A and 16 A are replaced by:		—
	> 10 and ≤ 13	1,25	N
	> 13 and ≤ 16	1,5	N
			N
<b>ZB</b>	<b>ANNEX ZB (INFORMATIVE) A-DEVIATIONS</b>		—
	<b>Ireland</b>		—
25.6	These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and in general allow only plugs complying with I.S. 401:1997, or equivalent, to be fitted to domestic appliances		N
	<b>United Kingdom</b>		—



25.6	These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and in general allow only plugs to BS 1363 to be fitted to domestic appliances. It also allows plugs to BS 4573 and EN 50075 to be fitted to shavers and toothbrushes		N
<b>ZC</b>	<b>ANNEX ZC (NORMATIVE) NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS</b>		—
	A list of referenced documents in this standard		N
<b>ZD</b>	<b>ANNEX ZD (INFORMATIVE) IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS</b>		
	A table with IEC and CENELEC code designations for flexible cords		N
<b>ZE</b>	<b>ANNEX ZE (INFORMATIVE) SPECIFIC ADDITIONAL REQUIREMENTS FOR APPLIANCES AND MACHINES INTENDED FOR COMMERCIAL USE</b>		—
7.1	Business name and full address of the manufacturer and, where applicable, his authorized representative..... :		N
	Model or type reference..... :		N
	Serial number, if any..... :		N
	Production year		N
	Designation of the appliance..... :		N
7.12	Instructions provided with the appliance so that the appliance can be used safely		N
	The instructions contain at least the following information:		—
	- the business name and full address of the manufacturer and, where applicable, his authorized representative		N
	- model or type reference of the appliance as marked on the appliance itself, except for the serial number		N
	- the designation of the appliance together with its explanation in case it is given by a combination of letters and/or numbers		N
	- the general description of the appliance, when needed due to the complexity of the appliance		N
	- specific precautions if required during installation, operation, adjusting, user maintenance, cleaning, repairing or moving		N
	- when needed drawings, diagrams, descriptions and explanations necessary for the safe use and user maintenance of the appliance		N
	- the possible reasonably foreseeable misuse and, whenever relevant, a warning against the effects it may have on the safe use of the appliance		N



	The words "Original instructions" appear on the language version(s) verified by the manufacturer or by the authorized representative		N
	When a translation of the original instructions has been provided by a person introducing the appliance on the market; the meaning of the sentence "Translation of the original instructions" appear in the relevant instructions delivered with the appliance		N
	The instructions for maintenance/service to be done by specialized personnel, mandated by the manufacturer or the authorized representative may be supplied in only one Community language which the specialized personnel understand		N
	The instructions indicate the type and frequency of inspections and maintenance required for safe operation including the preventive maintenance measures		N
7.12.ZE1	If needed for specific appliances, the following information to be given:		—
	<ul style="list-style-type: none"> <li>on use, transportation, assembly, dismantling when out of service, testing or foreseeable breakdowns, if these operations have consequences on stability of the appliance in order to avoid overturning, falling or uncontrolled movements of the appliance or of its component parts</li> </ul>		N
	<ul style="list-style-type: none"> <li>on how to maintain adequate mechanical stability when in use, during transportation, assembly, dismantling, scrapping and any other action involving the appliance</li> </ul>		N
	<ul style="list-style-type: none"> <li>on the protective measures to be taken by the user, including, where appropriate, the personal protective equipment to be provided</li> </ul>		N
	<ul style="list-style-type: none"> <li>on the operating method to be followed in the event of accident or breakdown; if a blockage is likely to occur the operating method to safely unblock the appliance</li> </ul>		N
	<ul style="list-style-type: none"> <li>on the specifications on the spare parts to be used, when these affect the health and safety of the operator</li> </ul>		N
	<ul style="list-style-type: none"> <li>on airborne noise emissions, determined and declared in accordance with the relevant Part 2, which includes:</li> </ul>		—
	- the A-weighted emission sound pressure level at workstations, where this exceeds 70 dB(A)..... ;		N
	- where this level does not exceed 70 dB(A), this fact is indicated		N



	- the peak C-weighted instantaneous sound pressure value at workstations, where this exceeds 63 Pa (130 dB in relation to 20 µPa)..... :		N
	- the A-weighted sound power level emitted by the machinery, where the A-weighted emission sound pressure level at workstations exceeds 80 dB(A)..... :		N
7.12.ZE2	The instructions includes a warning to disconnect the appliance from its power source during service and when replacing parts		N
	If the removal of the plug is foreseen, it is clearly indicated that the removal of the plug has to be such that an operator can check from any of the points to which he has access that the plug remains removed		N
	If this is not possible, due to the construction of the appliance or its installation, a disconnection with a locking system in the isolated position is provided		N
19.11.4.8	The appliance continues to operate, without causing any hazard to the user, from the same point in its operating cycle at which the voltage fluctuation occurred, or		N
	a manual operation is required to restart it		N
20.1	Appliances and their components and fittings have adequate mechanical stability during transportation, assembly, dismantling and any other action involving the appliance		N
20.2	Dangerous moving transmission parts safeguarded either by design or guards		N
	When guards are used, they are fixed guards, interlocking movable guards or protective devices		N
	Moving parts directly involved in the function of the appliance which cannot be made completely inaccessible fitted with:		N
	- fixed guards or interlocking movable guards preventing access to those sections of the parts that are not used in the work, and		N
	- adjustable guards restricting access to those sections of the moving parts where access is necessary		N
	Interlocking movable guards used where frequent access is required		N
21.1	Appliances and their components and fittings have adequate mechanical strength and is constructed to withstand such rough handling that may be expected in normal use, during transportation, assembly, dismantling, scrapping and any other action involving the appliance		N



22.ZE.1	For appliances provided with a seat, the seat gives adequate stability		N
	The distance between the seat and the control devices capable of being adapted to the operator		N
22.ZE.2	For appliances provided with separate devices for the start and the stop functions, the stop function is unambiguously identifiable and does always override the start function		N
	For appliances provided with one device performing the start and the stop function, the stop function is unambiguously identifiable and does always override the start function		N
22.ZE.3	Appliances designed in such a way that incorrect mounting is avoided, if this can lead to an unsafe situation		N
	If this is not possible, information on the correct mounting is given directly on the part and/or the enclosure		N
22.ZE.4	Where the weight, size or shape prevents appliances from being moved manually, they are fitted with attachments for lifting gear, or		N
	so designed that they can be fitted with such attachments, or		N
	be shaped in such a way that standard lifting gear can easily be used		N
	Appliances to be moved manually are constructed or equipped so that they can be moved easily and safely		N
22.ZE.5	The fixing systems of fixed guards which prevent access to dangerous moving transmission parts only removable with the use of tools		N
	If such guards have to be removed by the user for routine cleaning or maintenance their fixing systems remain attached to the fixed guards or to the machine after removal		N
	Where possible, guards are incapable of remaining in place without their fixings		N
	This does not apply if, after removal of the screws, or if the component is incorrectly repositioned, the appliance becomes inoperative		N
	Movable guards are interlocked		N
	The interlocking devices prevent the start of hazardous appliance functions until the guards are fixed in their position, and give a stop command whenever they are no longer closed		N
	Where it is possible for an operator to reach the danger zone before the risk due to hazardous appliance functions has ceased, movable guards associated with a guard locking device in addition to an interlocking device that:		—



	- prevents the start of hazardous appliance functions until the guard is closed and locked, and		N
	- keeps the guard closed and locked until the risk of injury from the hazardous appliance functions has ceased		N
	Interlocking movable guards remain attached to the appliance when open, and		N
	they are designed and constructed in such a way that they can be adjusted only by means of an intentional action		N
22.ZE.6	Interlocking movable guards designed in such a way that the absence or failure of one of their components prevents starting or stops the hazardous appliance functions		N
	The guard is opened to the extent needed to cause the interlocking to operate and is then closed, the number of operations being defined in the specific Part 2..... :		N
	After this test any defect that may be expected in normal use is applied to the interlock system, including interruption of the supply, only one defect being simulated at a time		N
	After these tests the interlock system is fit for further use		N
22.ZE.7	Adjustable guards restricting access to areas of the moving parts strictly necessary for the work are:		—
	- adjustable manually or automatically, depending on the type of work involved, and		N
	- readily adjustable without the use of tools		N
22.ZE.8	In case of interruption, re-establishment after an interruption or fluctuation in whatever manner of the power supply, the appliance does not restart		N
	However, automatic restarting of the operation is allowed if the appliance may continue to operate, without causing any hazard to the user, from the same point in its operating cycle at which the voltage interruption or fluctuation occurred		N
22.ZE.9	Appliances fitted with means to isolate them from all energy sources		N
	Such isolators are clearly identified, and		N
	they are capable of being locked if reconnection endanger persons		N
	After the energy source is disconnected, it is possible to dissipate any energy remaining or stored in the circuits of the appliance without risk to persons		N



<b>ZF</b>	<b>ANNEX ZF (INFORMATIVE)</b> <b>CRITERIA APPLIED FOR THE ALLOCATION OF PRODUCTS COVERED BY STANDARDS IN THE EN 60335 SERIES UNDER LVD OR MD</b>		—
	List of standards under CENELEC/TC61 with the allocation under the LVD (Low Voltage Directive) or the MD (Machinery Directive).....:		N
<b>ZG</b>	<b>ANNEX ZG (NORMATIVE)</b> <b>UV APPLIANCES</b>		—
	The following modifications to this standard apply to appliances having UV emitters		N
	This annex is not applicable to appliances covered by the scopes of IEC 60335-2-27, IEC 60335-2-59 or IEC 60335-2-109		N
7.12.ZG	The instructions for appliances incorporating UVC emitters include the substance of the following: WARNING — This appliance contains a UV emitter. Do not stare at the light source		N
32	For appliances incorporating UV emitters the manufacturer delivers a declaration providing evidence that the plastic material exposed to the radiation is UV resistant		N
<b>ZZ</b>	<b>ANNEX ZZ (INFORMATIVE)</b> <b>COVERAGE OF ESSENTIAL REQUIREMENTS OF EC DIRECTIVES</b>		—
	Description of the relation between this European standard and the LVD (Low Voltage Directive, 2006/95/EC) and the MD (Machinery Directive, 2006/42/EC)		N



## ANNEX A: Photo-documentation

EUT Photo 1



EUT Photo 2







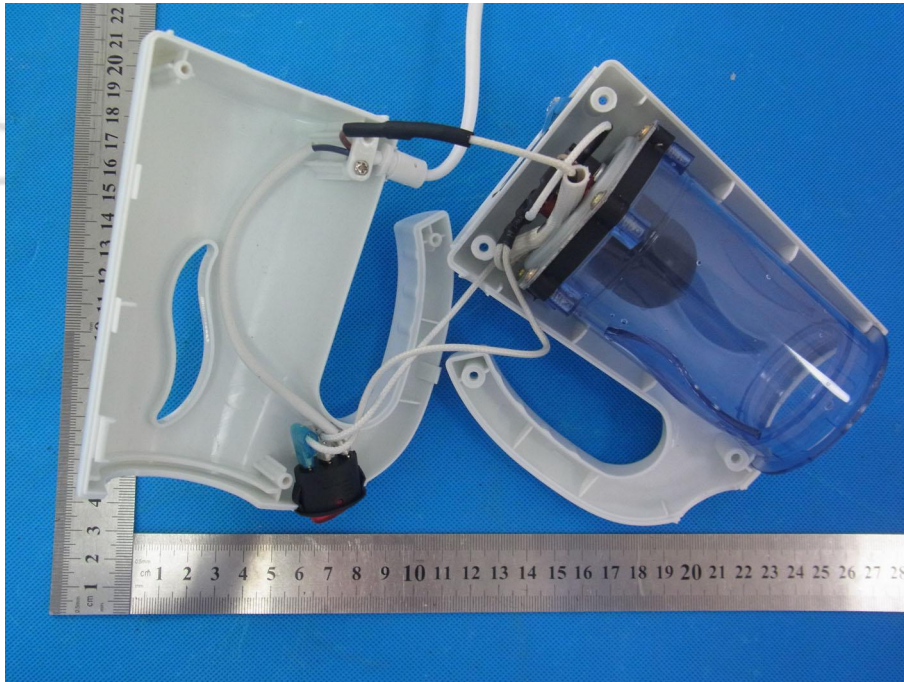
EUT Photo 3



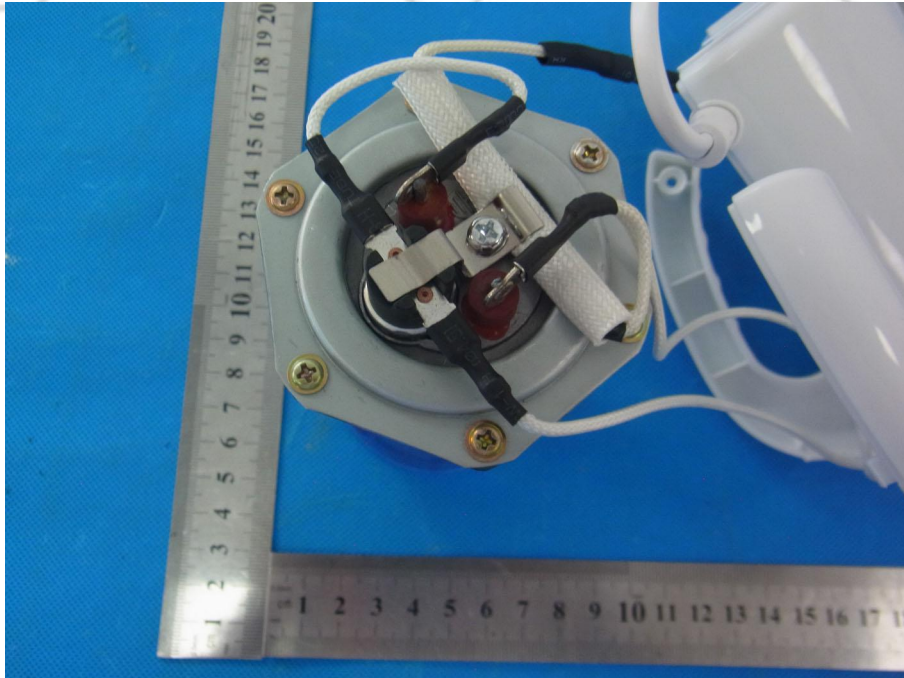
EUT Photo 4



EUT Photo 5



EUT Photo 6



\*\*\*\*\* END OF REPORT \*\*\*\*\*