Test Report issued under the responsibility of:

TEST REPORT

EN 60335-2-29

Safety of household and similar electrical appliances

Part 2: Particular requirements for battery chargers

Report Reference No.....:	SA1812129L 01001
Date of issue.....:	2019-01-18
Total number of page.....:	79 pages
Testing Laboratory.....:	Dong Guan Anci Electronic Technology Co., Ltd.
Address.....:	No.A222, Building A, Shifu Hardware plaza, Changan Town, Dongguan City, Guangdong P.R., China.
Engineer by(name +signature):	Apple Hu
Approved by(name+signature):	Eric Liu
Applicant's name.....:	XUN WINR ELECTRONICS CO.,LTD.
Address.....:	No. 11, Minying 3rd Road, Shangnan Industry Zone, Yuanzhou Town 516123, Huizhou City, Guangdong Province, PRC
Factory's name.....:	Same as applicant
Address.....:	Same as applicant
Test specification:	
Standard.....:	EN 60335-1:2012 +A11:2014 + A13:2017 used in conjunction with EN 60335-1:2012 + A11: 2014
Test procedure.....:	CE-LVD
Non-standard test method.....:	N/A
Test Report Form No.....:	IEC60335_2_29L
Test Report Form(s) Originator.....:	SIQ
Master TRF.....:	Dated 2017-11

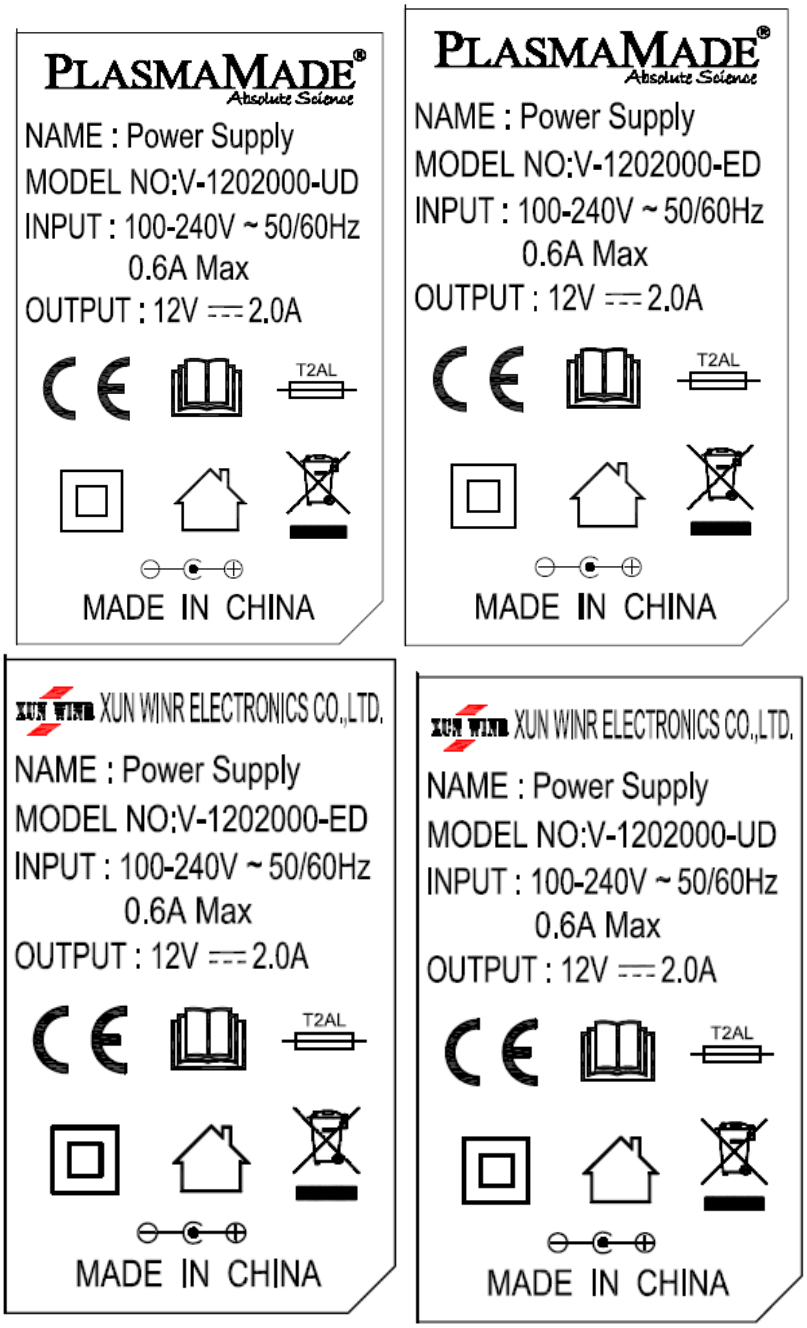
Type of test object……..…:	Power Supply
Trademark……..……..:	XUN WINR or PLASMAMADE® Absolute Science
Manufacturer……..……..:	Same as applicant
Model and/or type reference……..……:	V-1202000-ED, V-1202000-UD
Rating(s)……..:	I/P: 100-240V~,50/60Hz,0.6AMax O/P: 12Vdc,2.0A

List of Attachments (including a total number of pages in each attachment):
Attachment 1: EUT photos,5 pages

Summary of testing:	
Tests performed (name of test and test clause): The submitted samples were tested and found to comply with the requirements of: - EN 60335-2-29:2004 + A2:2010; - EN 60335-1:2012+A11:2014; - EN 62233:2008; Based on **General product information**, full tests were carried out on model V-1202000-UD The EUTs passed the test.	**Testing location:** All tests as described in Test Clause and Measurement Sections were performed at the laboratory described on page 1.

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.



Remark:
- The above markings are the minimum requirements required by the safety standard. For the final productions samples, the additional markings which do not give rise to misunderstanding may be added.
- Other model's rating label is identical, except the model name and rating. The name and address of importer will mark on the product.
- The height of CE mark should be min. 5mm high and the height of WEEE symbol should be min. 7mm high.

Test item particulars .....:	Power Supply
Classification of installation and use.....:	Portable appliance
Supply Connection.....:	Desk top
Possible test case verdicts:	
- 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)
Testing ..... :	
Date of receipt of test item ..... :	2019-01-04
Date (s) of performance of tests..... :	2019-01-04 to 2019-01-17

General remarks:

"(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 ☒ comma / ☒ point is used as the decimal separator.

General product information:

1. This battery charger is used for household used.
2. The specified Max. ambient temperature is +40°C.
3. The product is applied for 2000m altitude.
4. Model V-1202000-UD is class II with appliance inlet
5. Mode V-1202000-ED is class II with Non-detachable supply cord
6. Model V-1202000-ED and model V-1202000-UD used the same schematics and PCB layout.

EN 60335-2-29			
Clause	Requirement - Test	Result - Remark	Verdict
5	GENERAL CONDITIONS FOR THE TESTS		P
	Tests performed according to cl. 5, e.g. nature of supply, sequence of testing, etc.	Performed	P
5.2	If the test of 21.101 is carried out two additional battery chargers are required (EN 60335-2-29)	Performed	P
5.3	The test of 19.14 carried out before the test of 19.11(EN 60335-1/A2)	No relays used.	N/A
5.101	Battery chargers are tested as motor-operated appliances (EN 60335-2-29)		P
6	CLASSIFICATION		P
6.1	Protection against electric shock: Class I, II, III .....:	Class II	P
6.2	Protection against harmful ingress of water	IP 20 (not marked)	P
7	MARKING AND INSTRUCTIONS		P
7.1	Rated voltage or voltage range (V) .....:	100-240V~	P
	Nature of supply.....:	AC	P
	Rated frequency (Hz).....:	50/60Hz	P
	Rated power input (W).....:		N/A
	Rated current (A) .....:	0.6A max	P
	Manufacturer's or responsible vendor's name, trademark or identification mark .....:	See label for detail	P
	Model or type reference.....:	See label for detail	P
	Symbol 5172 of IEC 60417, for Class II appliances	Symbol for Class II used	P
	IP number, other than IPX0 .....:	IP 20 or not marked, IP44	P
	Symbol IEC 60417-5036, for the enclosure of electrically-operated water valves in external hose-sets for connection of an appliance to the water mains		N/A
	Battery chargers marked with (EN 60335-2-29):		P
	- rated d.c. output voltage (V)	See label for detail	P
	- rated d.c. output current (A)	See label for detail	P
	- rated current (A) of protective devices incorporated in a d.c. distribution board		N/A
	- polarity of the output terminals	See label for detail	P
	- time-current characteristic of fuse-links of the time-lag type	See label for detail	P
	If the output exceeds 20 VA, battery chargers marked with (EN 60335-2-29):		N/A
	- before charging, read the instructions	“See the instruction before use” on label	P

EN 60335-2-29			
Clause	Requirement - Test	Result - Remark	Verdict
	- for indoor use or do not expose to rain, unless appliance is at least IPX4		N/A
	If the output exceeds 20 VA and the battery charger is for lead-acid batteries, battery chargers marked with (EN 60335-2-29):		N/A
	- disconnect the supply before making or breaking the connections to the battery		N/A
	- WARNING: Explosive gases. Prevent flames and sparks. Provide adequate ventilation during charging.		N/A
	Battery chargers incorporating an engine cracking switch allowing the charger to supply a supplementary starting current for the engine marked with (EN 60335-2-29):	No such device	N/A
	- maximum “on” time		N/A
	- minimum “off” time or maximum ratio between “on” time and “off” time		N/A
7.2	Warning for stationary appliances for multiple supply		N/A
	Warning placed in vicinity of terminal cover		N/A
7.3	Range of rated values marked with the lower and upper limits separated by a hyphen	100-240V	P
	Different rated values marked with the values separated by an oblique stroke	50/60Hz	P
7.4	Appliances adjustable for different rated voltages, the voltage setting is clearly discernible	Non-adjustable	N/A
	Output voltage clearly discernible if the battery charger can be adjusted to different rated d.c. output voltages (EN 60335-2-29)		N/A
7.5	Appliances with more than one rated voltage or one or more rated voltage ranges, marked with rated input or rated current for each rated voltage or range, unless		P
	the power input is related to the mean value of the rated voltage range(EN 60335-1/A2)		N/A
	Relation between marking for upper and lower limits of rated power input or rated current and voltage is clear		P
7.6	Correct symbols used (EN 60335-1/A2)		P
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply	Single supply	N/A
7.8	Except for type Z attachment, terminals for connection to the supply mains indicated as follows:		N/A

EN 60335-2-29			
Clause	Requirement - Test	Result - Remark	Verdict
	- marking of terminals exclusively for the neutral conductor (N)		N/A
	- marking of protective earthing terminals (symbol 5019 of IEC 60417)		N/A
	- marking not placed on removable parts		N/A
7.9	Marking or placing of switches which may cause a hazard	No switch	N/A
7.10	Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means .....:	No switch	N/A
	The figure 0 indicates only OFF position, unless no confusion with the OFF position		N/A
7.11	Indication for direction of adjustment of controls	No adjustable control	N/A
7.12	Instructions for safe use provided	Provided	P
	Instructions for safe use contains (EN 60335-2-29):		P
	- specification of types, number of cells and rated capacity of batteries that can be charged	Stated in instruction.	P
	- warning against recharging non-rechargeable batteries	Stated in instruction.	P
	- statement that during charging, batteries must be placed in the well ventilated area, only for battery chargers for lead-acid batteries		N/A
	- statement that battery chargers must only be plugged into an earthed socket-outlet, only for portable Class I battery chargers for outdoor use	Class II battery charger	N/A
	- explanation of automatic function stating any limitation, only for automatic battery chargers		P
	Battery chargers for charging automobile batteries include substance concerning (EN 60335-2-29):		N/A
	- way of connection of battery terminal to chassis		N/A
	- way of disconnection of battery charger and chassis connection		N/A
	- statement that the appliance is not to be used by children or persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction (EN 60335-1/A2:2006)		N/A
	- statement that children being supervised not to play with the appliance (EN 60335-1/A2:2006)		N/A
7.12.1	Sufficient details for installation supplied		N/A

EN 60335-2-29			
Clause	Requirement - Test	Result - Remark	Verdict
	Statement above connection to the supply, only for battery chargers for installation in caravans and similar vehicles (EN 60335-2-29)		N/A
7.12.2	Stationary appliances not fitted with means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under overvoltage category III, the instructions state that means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules	Not stationary appliance.	N/A
7.12.3	Insulation of the fixed wiring in contact with parts exceeding 50 K during clause 11; instructions stating that the fixed wiring must be protected		N/A
7.12.4	Instructions for built-in appliances:		N/A
	- dimensions of space		N/A
	- dimensions and position of supporting means		N/A
	- distances between parts and surrounding structure		N/A
	- dimensions of ventilation openings and arrangement		N/A
	- connection to supply mains and interconnection of separate components		N/A
	- allow disconnection of the appliance after installation, by accessible plug or a switch in the fixed wiring, unless		N/A
	a switch complying with 24.3		N/A
7.12.5	Replacement cord instructions, type X attachment with a specially prepared cord		P
	Replacement cord instructions, type Y attachment		N/A
	Replacement cord instructions, type Z attachment		N/A
7.12.6	Caution in the instructions for heating appliances with a non-self-resetting thermal cut-out		N/A
7.12.7	Instructions for fixed appliances stating how the appliance is to be fixed	Portable appliances	N/A
7.12.8	Instructions for appliances connected to the water mains:		N/A
	- max. inlet water pressure (Pa) .....:		N/A
	- min. inlet water pressure, if necessary (Pa).....:		N/A
	Instructions concerning new and old hose-sets for appliances connected to the water mains by detachable hose-sets		N/A
7.13	Instructions and other texts in an official language	In English	P

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Clause	Requirement - Test	Result - Remark	Verdict
7.14	Marking clearly legible and durable	After test for marking, the label is not curled, and the marking is legible	P
7.15	Marking on a main part	On enclosure	P
	Marking clearly discernible from the outside, if necessary after removal of a cover	No cover used.	P
	For portable appliances, cover can be removed or opened without a tool	No cover used.	N/A
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation	Not stationary appliance.	N/A
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions	Not fixed appliance.	N/A
	Indications for switches and controls placed on or near the components. Marking not on parts which can be positioned or repositioned in such a way that the marking is misleading	No switch or controls used.	N/A
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link	Marking on label and PCB for fuse link	P
7.101	D.C. distribution boards marked with (EN 60335-2-29):		N/A
	- maximum output current (A) for each output circuit .....:	No such devices	N/A
	- types of any additional power supply which can be connected		N/A
8	PROTECTION AGAINST ACCESS TO LIVE PARTS		P
8.1	Adequate protection against accidental contact with live parts		P
8.1.1	Requirement applies for all positions, detachable parts removed	No detachable parts	N/A
	Insertion or removal of lamps, protection against contact with live parts of the lamp cap	No lamps.	P
	Use of test probe B of IEC 61032: no contact with live parts		P
8.1.2	Use of test probe 13 of IEC 61032 through openings in class 0 appliances and class II appliances/ constructions: no contact with live parts	For class II construction.	P
	Test probe 13 also applied through openings in earthed metal enclosures having a non-conductive coating: no contact with live parts	Plastic enclosure used	N/A

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Clause	Requirement - Test	Result - Remark	Verdict
8.1.3	For appliances other than class II, use of test probe 41 of IEC 61032: no contact with live parts of visible glowing heating elements	Class II appliance	N/A
8.1.4	Accessible part not considered live if:		N/A
	- safety extra-low a.c. voltage: peak value not exceeding 42,4 V		N/A
	- safety extra-low d.c. voltage: not exceeding 42,4 V		N/A
	- or separated from live parts by protective impedance		N/A
	If protective impedance: d.c. current not exceeding 2 mA, and		N/A
	a.c. peak value not exceeding 0,7 mA		N/A
	- for peak values over 42,4 V up to and including 450 V, capacitance not exceeding 0,1 μF		N/A
	- for peak values over 450 V up to and including 15 kV, discharge not exceeding 45 μC		N/A
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		N/A
	- built-in appliances		N/A
	- fixed appliances		N/A
	- appliances delivered in separate units		N/A
8.2	Class II appliances and constructions constructed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only	No metal part used	N/A
	Only possible to touch parts separated from live parts by double or reinforced insulation		P
9	STARTING OF MOTOR-OPERATED APPLIANCES		N/A
	Requirements and tests are specified in part 2 when necessary		N/A
10	POWER INPUT AND CURRENT		P
10.1	Power input at normal operating temperature, rated voltage and normal operation not deviating from rated power input by more than shown in table 1		N/A
	Test for an appliance with one or more rated voltageranges (EN 60335-1/A2)		N/A
10.2	Current at normal operating temperature, rated voltage and normal operation not deviating from rated current by more than shown in table 2	(See appended table 10.2)	P

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Clause	Requirement - Test	Result - Remark	Verdict
	Test for an appliance with one or more rated voltageranges (EN 60335-1/A2)		P
10.101	No-load d.c. output voltage does not exceed 42,2 V (EN 60335-2-29)..... :	No load output voltage:12.05V	P
10.102	Arithmetic mean value of output current does not deviate from rated d.c. output current by more than 10 % (EN 60335-2-29)	(See appended table 10.102)	P
11	HEATING		P
11.1	No excessive temperatures in normal use	(See appended table 11.1)	P
11.2	Placing and mounting of battery chargers in the test corner as specified for heating appliances (EN 60335-2-29)		P
11.3	Temperature rises, other than of windings, determined by thermocouples		P
	Temperature rises of windings determined by resistance method, unless		N/A
	the windings makes it difficult to make the necessary connections		N/A
11.4	Heating appliances operated under normal operation at 1,15 times rated power input .....:	Not heating appliance	N/A
11.5	Battery chargers supplied only at 1,06 times rated voltage (EN 60335-2-29) .....:	106V and 254,4V	P
11.6	Combined appliances operated under normal operation at most unfavourable voltage between 0.94 and 1,06 times rated voltage .....:	The appliance is not combined appliances	N/A
11.7	Battery chargers operate until steady conditions are established (EN 60335-2-29)	Steady condition are established	P
11.8	Temperature rises not exceeding values in table 3	(see appended table 11.8)	P
	Sealing compound does not flow out		N/A
	Protective devices do not operate, except		P
	components in protective electronic circuits tested for the number of cycles specified in 24.1.4		N/A
13	LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE		P
13.1	Leakage current not excessive and electric strength adequate	(see appended table 13.2)	P
	Heating appliances operated at 1,15 times rated power input.....:		N/A
	Motor-operated appliances and combined appliances supplied at 1,06 times rated voltage.....:		P

EN 60335-2-29			
Clause	Requirement - Test	Result - Remark	Verdict
	Protective impedance and radio interference filters disconnected before carrying out the tests		P
13.2	Leakage current measured by means of the circuit described in figure 4 of IEC 60990		P
	Leakage current measurements	(see appended table 13.2)	P
13.3	The appliance is disconnected from the supply		P
	Electric strength tests according to table 4	(see appended table 13.3)	P
	No breakdown during the tests		P
14	TRANSIENT OVERVOLTAGES		N/A
	Appliances withstand the transient overvoltages to which they may be subjected		N/A
	Clearances having a value less than specified in table 16 subjected to an impulse voltage test, the test voltage specified in table 6		N/A
	No flashover during the test, unless of functional insulation		N/A
	In case of flashover of functional insulation, the appliance complies with clause 19 with the clearance short circuited		N/A
15	MOISTURE RESISTANCE		P
15.1	Enclosure provides the degree of moisture protection according to classification of the appliance	IP 20, or not marked	P
	Compliance checked as specified in 15.1.1, taking into account 15.1.2, followed by the electric strength test of 16.3		N/A
	No trace of water on insulation which can result in a reduction of clearances and creepage distances below values specified in clause 29		N/A
15.1.1	Appliances, other than IPX0, subjected to tests as specified in IEC 60529.....:		N/A
	Water valves in external hoses for connection of an appliance to the water mains tested as specified for IPX7 appliances		N/A
15.1.2	Hand-held appliance turned continuously through the most unfavourable positions during the test		N/A
	Built-in appliances installed according to the instructions		N/A
	Appliances placed or used on the floor or table placed on a horizontal unperforated support		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	Appliances normally fixed to a wall and appliances with pins for insertion into socket-outlets are mounted on a wooden board		N/A
	For IPX3 appliances, the base of wall mounted appliances is placed at the same level as the pivot axis of the oscillating tube		N/A
	For IPX4 appliances, the horizontal centre line of the appliance is aligned with the pivot axis of the oscillating tube		N/A
	However, for appliances normally used on the floor or table, the movement is limited to two times 90° for a period of 5 min, the support being placed at the level of the pivot axis of the oscillating tube		N/A
	Appliances normally fixed to a ceiling are mounted underneath a horizontal unperforated support, the pivot axis of the oscillating tube located at the level of the underside of the support		N/A
	For IPX4 appliances, the movement of the tube is limited to two times 90° from the vertical for a period of 5 min		N/A
	Wall-mounted appliances, take into account the distance to the floor stated in the instructions		N/A
	Appliances with type X attachment fitted with a flexible cord as described		N/A
	Detachable parts tested as specified		N/A
15.2	Spillage of liquid does not affect the electrical insulation	No liquid used	N/A
	Appliances with type X attachment fitted with a flexible cord as described		N/A
	Appliances incorporating an appliance inlet tested with or without an connector, whichever is most unfavourable		N/A
	Detachable parts removed		N/A
	Overfilling test with additional amount of water, over a period of 1 min (l).....:		N/A
	The appliance withstands the electric strength test of 16.3		N/A
	No trace of water on insulation that can result in a reduction of clearances and creepage distances below values specified in clause 29		N/A
15.3	Appliances proof against humid conditions	(see appended table 15.3)	P
	Humidity test for 48 h in a humidity cabinet	48h; t=30°C; 93% R.H.	P
	The appliance withstands the tests of clause 16	(see appended table 15.3)	P

EN 60335-2-29			
Clause	Requirement - Test	Result - Remark	Verdict
16	LEAKAGE CURRENT AND ELECTRIC STRENGTH		P
16.1	Leakage current not excessive and electric strength adequate	(see appended table 16.2)	P
	Protective impedance disconnected from live parts before carrying out the tests		P
16.2	Single-phase appliances: test voltage 1,.06times rated voltage .....:	1.06 x 240V = 254.4V	P
	Three-phase appliances: test voltage 1,.06 times rated voltage divided by √3.....:		N/A
	Leakage current measurements	(see appended table 16.2)	P
16.3	Electric strength tests according to table 7	(see appended table 16.3)	P
	No breakdown during the tests		P
17	OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS		P
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use	Most unfavourable load (overload) condition was applied	P
	Appliance supplied with 1.06 or 0,9 times rated voltage and the most unfavourable short-circuit or overload likely to occur in normal use applied .....:	1.06 times; 254.4V	P
	Output terminals of battery chargers are short-circuited (EN 60335-2-29)		P
	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	(see appended table 17)	P
	Temperature of the winding not exceeding the value specified in table 8,		P
	however limits do not apply to fail-safe transformers complying with sub-clause 15.5 of IEC 61558-1		N/A
18	ENDURANCE		N/A
	Requirements and tests are specified in part 2 when necessary		N/A
19	ABNORMAL OPERATION		P
19.1	The risk of fire or mechanical damage under abnormal or careless operation obviated		P
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe		P
	Appliances incorporating contactors or relays subjected to the test of 19.14, being carried out before the tests of 19.11 (EN 60335-1/A2)		N/A

EN 60335-2-29			
Clause	Requirement - Test	Result - Remark	Verdict
	Battery chargers subjected to the tests of 19.11, 19.12 and 19.101 to 19.103 (EN 60335-2-29)		P
19.2	Test of appliance with heating elements with restricted heat dissipation; test voltage (V): power input of 0,85 times rated power input .....:	No heating elements.	N/A
19.3	Test of 19.2 repeated; test voltage (V): power input of 1,24 times rated power input .....:		N/A
19.4	Test conditions as in cl. 11, any control limiting the temperature during tests of cl. 11 short-circuited	No this control device used	N/A
19.5	Test of 19.4 repeated on Class 0I and I appliances with tubular sheathed or embedded heating elements. No short-circuiting, but one end of the element connected to the elements sheath		N/A
	The test repeated with reversed polarity and the other end of the heating element connected to the sheath		N/A
	The test is not carried out on appliances intended to be permanently connected to fixed wiring and on appliances where an all-pole disconnection occurs during the test of 19.4		N/A
19.6	Appliances with PTC heating elements tested at rated voltage, establishing steady conditions	No PTC heating element	N/A
	The working voltage of the PTC heating element is increased by 5% and the appliance is operated until steady conditions are re-established. The voltage is then increased in similar steps until 1.5 times working voltage or until the PTC heating element ruptures		N/A
19.7	Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque or locking moving parts of other appliances	No rotor incorporated	N/A
	Locked rotor, motor capacitors open-circuited or short-circuited, if required		N/A
	Locked rotor, capacitors open-circuited one at a time		N/A
	Test repeated with capacitors short-circuited one at a time, if required		N/A
	Appliances with timer or programmer supplied with rated voltage for each of the tests, for a period equal to the maximum period allowed		N/A
	Other appliances supplied with rated voltage for a period as specified		N/A
	Winding temperatures not exceeding values specified in table 8		N/A

EN 60335-2-29			
Clause	Requirement - Test	Result - Remark	Verdict
19.8	Three-phase motors operated at rated voltage with one phase disconnected		N/A
19.9	Running overload test on appliances incorporating motors intended to be remotely or automatically controlled or liable to be operated continuously		N/A
	Winding temperatures not exceeding values as specified		N/A
19.10	Series motor operated at 1,3 times rated voltage for 1 min .....:		N/A
	During the test, parts not being ejected from the appliance		N/A
19.11	Electronic circuits, compliance checked by evaluation of the fault conditions specified in 19.11.2 for all circuits or parts of circuits, unless they comply with the conditions specified in 19.11.1		P
	Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.3 and 19.11.4 (EN 60335-1/A2)		P
	Appliances incorporating an electronic circuit that relies upon a programmable component to function correctly, subjected to the test of 19.11.4.8 unless(EN 60335-1/A2)		P
	Restarting at any point in the operating cycle after interruption of operation due to supply voltage not result in a hazard (EN 60335-1/A2)		P
	Appliances having a switch device with an off position obtained by electronic disconnection, or a switch device placing the appliance in a stand-by mode, subjected to the tests of 19.11.4 (EN 60335-1/A2)		N/A
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/A
	- the electronic circuit is a low-power circuit, that is, the maximum power at low-power points does not exceed 15 W according to the tests specified		N/A
	- 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/A
19.11.2	Fault conditions applied one at a time, the appliance operated under conditions specified in cl. 11, but supplied at rated voltage, the duration of the tests as specified:		P
	a) short circuit of functional insulation if clearances or creepage distances are less than the values specified in 29		P
	b) open circuit at the terminals of any component		P

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Clause	Requirement - Test	Result - Remark	Verdict
	c) short circuit of capacitors, unless they comply with IEC 60384-14		P
	d) short circuit of any two terminals of an electronic component, other than integrated circuits. This fault condition is not applied between the two circuits of an optocoupler		P
	e) failure of triacs in the diode mode		P
	f) failure of an integrated circuit		P
	g) failure of an electronic power switching device (EN 60335-1/A2)	No switch used	N/A
19.11.3	If the appliance incorporates a protective electronic circuit which operates to ensure compliance with clause 19, the relevant test is repeated with a single fault simulated, as indicated in a) to f) of 19.11.2		N/A
	During and after each test the following is checked:		N/A
	- the temperature rise of the windings do not exceed the values specified in table 8		N/A
	- the appliance complies with the conditions specified in 19.13		N/A
	- any current flowing through protective impedance not exceeding the limits specified in 8.1.4		N/A
	If a conductor of a printed board becomes open-circuited, the appliance is considered to have withstood the particular test, provided all three of the following conditions are met:		N/A
	- the material of the printed circuit board withstands the burning test of annex E		N/A
	- any loosened conductor does not reduce the clearances or creepage distances between live parts and accessible metal parts below the values specified in cl. 29		N/A
	- the appliance withstands the tests of 19.11.2 with open-circuited conductor bridged		N/A
19.11.4	Appliances having a switch with an off position obtained by electronic disconnection, or		N/A
	a switch that can be placed in the stand-by mode,		N/A
	subjected to the tests of 19.11.4.1 to 19.11.4.7		N/A
	Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.4.1 to 19.11.4.7, except that		N/A
	appliances operated for 30 s or 5 min during the test of 19.7 are not subjected to the tests for electromagnetic phenomena.		N/A

EN 60335-2-29			
Clause	Requirement - Test	Result - Remark	Verdict
19.11.4.1	The appliance is subjected to electrostatic discharges in accordance with IEC 61000-4-2, test level 4		N/A
19.11.4.2	The appliance is subjected to radiated fields in accordance with IEC 61000-4-3, test level 3		N/A
19.11.4.3	The appliance is subjected to fast transient bursts in accordance with IEC 61000-4-4, test level 3 or 4 as specified		N/A
19.11.4.4	The power supply terminals of the appliance subjected to voltage surges in accordance with IEC 61000-4-5, test level 3 or 4 as specified		N/A
	Earthed heating elements in class I appliances disconnected		N/A
19.11.4.5	The appliance is subjected to injected currents in accordance with IEC 61000-4-6, test level 3		N/A
19.11.4.6	The appliance is subjected to voltage dips and interruptions in accordance with IEC 61000-4-11 (IEC 60335-1/A2)		N/A
19.11.4.7	The appliance is subjected to mains signals in accordance with IEC 61000-4-13, test level class 2		N/A
19.11.4.8	The appliance is supplied at rated voltage and operated under normal operation. After 60s the power supply is reduces to a level such that the appliance ceases to respond or a programmable component cease to operate. (IEC 60335-1/A2)		N/A
	The appliance continues to operate normally or requires a manual operation to restart (IEC 60335-1/A2)		N/A
19.12	If the safety of the appliance for any of the fault conditions specified in 19.11.2 depends on the operation of a miniature fuse-link complying with IEC 60127, the test is repeated, measuring the current flowing through the fuse-link; measured current (A); rated current of the fuse-link (A).....:		P
19.13	During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts		P
	Temperature rises not exceeding the values shown in table 9		P
	Winding temperatures not exceeding the values shown in table 8		P
	Enclosures not deformed to such an extent that compliance with cl. 8 is impaired		P
	If the appliance can still be operated it complies with 20.2		P

EN 60335-2-29			
Clause	Requirement - Test	Result - Remark	Verdict
	Insulation, other than of class III appliance, withstand the electric strength test of 16.3, the test voltage specified in table 4:		P
	- basic insulation .....:	1250Va.c.	P
	- supplementary insulation.....:		N/A
	- reinforced insulation.....:	3056Va.c.	P
	After operation or interruption of a control, clearances and creepage distances across the functional insulation withstanding the electric strength test of 16.3. the test voltage being twice the workingvoltage (IEC 60335-1/A2)	No control.	N/A
	The appliance does not undergo a dangerous malfunction, and		P
	no failure of protective electronic circuits, if the appliance is still operable		P
	Appliances tested with an electronic switch in the off position or in the stand-by mode： (IEC 60335-1/A2)	No switch used	N/A
	do not become operational,or		N/A
	- if they become operational, do not result in a dangerous malfunction during or after the tests of 19.11.4		N/A
19.14	Appliances operated under the conditions of Clause11. Contactors or relays contacts operating underthe conditions of clause 11 short-circuited (IEC60335-1/A2)		N/A
19.101	Battery chargers supplied at rated voltage and operated under normal operation, any control limiting the temperature during tests of clause 11 short-circuited (EN 60335-2-29)	No this control device	N/A
19.102	Reverse connection of battery chargers to a fully charged battery at rated voltage (EN 60335-2-29)	Protected	P
	The capacity of the battery (EN 60335-2-29).....:		P
19.103	Battery chargers intended to be used with a d.c. distribution board supplied at rated voltage and operated under normal operation, load increased as specified until protective device operates or short-circuit conditions are established (EN 60335-2-29)		N/A
20	STABILITY AND MECHANICAL HAZARDS		P
20.1	Adequate stability	Inlet appliance	N/A
	Tilting test through an angle of 10° (appliance placed on an inclined plane/horizontal plane); appliance does not overturn		N/A
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°	No heating element	N/A

EN 60335-2-29			
Clause	Requirement - Test	Result - Remark	Verdict
	Possible heating test in overturned position; temperature rise does not exceed values shown in table 9		N/A
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury	No moving part	N/A
	Protective enclosures, guards and similar parts are non-detachable	Same as above	N/A
	Adequate mechanical strength and fixing of protective enclosures		N/A
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard, by unexpected reclosure		N/A
	Not possible to touch dangerous moving parts with test probe		N/A
21	MECHANICAL STRENGTH		P
21.1	Appliance has adequate mechanical strength and is constructed as to withstand rough handling		P
	Checked by applying blows to the appliance in accordance with test Ehb of IEC 60068-2-75, spring hammer test, impact energy 1,0 J ± 0,05 J (EN 60335-2-29)	Three blows on enclosure, no damage.	P
	If necessary, supplementary or reinforced insulation subjected to the electric strength test of 16.3		N/A
	If necessary, repetition of groups of three blows on a new sample		N/A
21.2	Accessible parts of solid insulation having strength to prevent penetration by sharp implements		P
	The insulation is tested as specified, unless		N/A
	the thickness of supplementary insulation is at least 1 mm and reinforced insulation is at least 2 mm		N/A
21.101	Battery chargers, other than built-in battery chargers, having a mass not exceeding 5 kg, subjected to a drop test (EN 60335-2-29)	Test on three samples.	P
	Battery chargers show no damage that could impair compliance with 8.1, 15.1.1, 16.3 and cl. 29 (EN 60335-2-29)	No damage.	P
21.102	Battery chargers for installing in caravans and similar vehicles withstand vibrations to which they may be subjected (EN 60335-2-29)	Not for installing in caravan	N/A
	Vibration test as specified in IEC 60068-2-6 (EN 60335-2-29)		N/A

EN 60335-2-29			
Clause	Requirement - Test	Result - Remark	Verdict
	Battery chargers show no damage that could impair compliance with 8.1, 15.1.1, 16.3 and cl. 29 (EN 60335-2-29)		N/A
	Connections have not worked loose (EN 60335-2-29)		N/A
22	CONSTRUCTION		P
22.1	Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60529 are fulfilled	IPX0	N/A
22.2	Stationary appliance: means to provide all-pole disconnection from the supply provided, the following means being available:		N/A
	- a supply cord fitted with a plug		N/A
	- a switch complying with 24.3		N/A
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided		N/A
	- an appliance inlet		N/A
	Singe-pole switches and single-pole protective devices for the disconnection of heating elements in single-phase permanently connected class I appliances, connected in the phase conductor (EN 60335-1/A2)		N/A
22.3	Appliance provided with pins: no undue strain on socket-outlets		N/A
	Applied torque not exceeding 0.25 Nm		N/A
	Pull force of 50N to each pin after the appliance has being placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1mm		N/A
	Each pin subjected to a torque of 0.4Nm; the pins are not rotating unless rotating does not impair compliance with the standard		N/A
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets	No vibration occurred	N/A
22.5	No risk of electric shock when touching the pins of the plug, the appliance being disconnected from the supply at the instant of voltage peak. (EN 60335-1/A2)		P
22.6	Electrical insulation not affected by condensing water or leaking liquid	No liquid used	N/A
	Electrical insulation of Class II appliances not affected in case of a hose rupture or seal leak		N/A

EN 60335-2-29			
Clause	Requirement - Test	Result - Remark	Verdict
22.7	Adequate safeguards against the risk of excessive pressure in appliances provided with steam-producing devices	No liquid used	N/A
22.8	Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and that are likely to be cleaned in normal use	No such compartment	N/A
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances	No oil, grease or similar substances	P
	Adequate insulating properties of oil or grease to which insulation is exposed		N/A
22.10	Not possible to reset voltage-maintained non-self-resetting thermal cut-outs by the operation of an automatic switching device incorporated within the appliance	No reset button of non-self resetting control	N/A
	Non-self resetting thermal motor protectors have a trip-free action, unless		N/A
	they are voltage maintained		N/A
	Location or protection of reset buttons of non-self-resetting controls is so that accidental resetting is unlikely		N/A
22.11	Reliable fixing of non-detachable parts that provide the necessary degree of protection against electric shock, moisture or contact with moving parts		P
	Obvious locked position of snap-in devices used for fixing such parts	No snap-in device.	N/A
	No deterioration of the fixing properties of snap-in devices used in parts that are likely to be removed during installation or servicing	Same as above.	N/A
	Tests as described		N/A
22.12	Handles, knobs etc. fixed in a reliable manner	No handles knobs etc.	N/A
	Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible		N/A
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		N/A
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		N/A
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	Same as above	P

EN 60335-2-29			
Clause	Requirement - Test	Result - Remark	Verdict
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance	No sharp edge	P
	No exposed pointed ends of self tapping screws etc., liable to be touched by the user in normal use or during user maintenance	No self tapping screw extruded	N/A
22.15	Storage hooks and the like for flexible cords smooth and well rounded		N/A
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 cord reel	N/A
	Cord reel tested with 6000 operations, as specified		N/A
	Electric strength test of 16.3, voltage of 1000 V applied		N/A
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner	No spacer	N/A
22.18	Current-carrying parts and other metal parts resistant to corrosion under normal conditions of use		P
22.19	Driving belts not used as electrical insulation	No driving belt	N/A
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless material used is non-corrosive, non-hygroscopic and non-combustible	No thermal insulation	N/A
	Compliance is checked by inspection and, if necessary, by appropriate test		N/A
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless impregnated	No such material used as insulation	P
	This requirement does not apply to magnesium oxide and mineral ceramic fibres used for the electrical insulation of heating elements (EN 60335-1/A2)		P
22.22	Appliances not containing asbestos	No asbestos incorporated	N/A
22.23	Oils containing polychlorinated biphenyl (PCB) not used	No oil	N/A
22.24	Bare heating elements adequately supported	No heating element	N/A
	In case of rupture, the heating conductor is unlikely to come in contact with accessible metal parts		N/A
22.25	Sagging heating conductors cannot come into contact with accessible metal parts	Same as above	N/A
22.26	Output circuit supplied through a safety isolating transformer (EN 60335-2-29)		P

EN 60335-2-29			
Clause	Requirement - Test	Result - Remark	Verdict
	No connection between the output circuit and accessible metal parts or an earthing terminal (EN 60335-2-29)	No this parts used	N/A
	Insulation between parts operating at safety extra-low voltage and live parts complies with the requirements for double or reinforced insulation (EN 60335-2-29)		P
22.27	Parts connected by protective impedance separated by double or reinforced insulation		P
22.28	Metal parts of Class II appliances conductively connected to gas pipes or in contact with water: separated from live parts by double or reinforced insulation	No metal parts used	N/A
22.29	Class II appliances permanently connected to fixed wiring so constructed that the required degree of access to live parts is maintained after installation		N/A
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		P
	so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete		N/A
22.31	Clearances and creepage distances over supplementary and reinforced insulation not reduced below values specified in clause 29 as a result of wear	Electrical and mechanical connections can be expected to withstand usual mechanical stress	P
	Clearances and creepage distances between live parts and accessible parts not reduced below values for supplementary insulation, if wires, screws etc. become loose		P
22.32	Supplementary and reinforced insulation designed or protected against deposition of dirt or dust	Equipment designed adequately. No reductions to be expected in normal use	P
	Supplementary insulation of natural or synthetic rubber resistant to ageing, or arranged and dimensioned so that creepage distances are not reduced below values specified in 29.2		N/A
	Ceramic material not tightly sintered, similar material or beads alone not used as supplementary or reinforced insulation		N/A
	Oxygen bomb test at 70℃ for 96 h and 16 h at room temperature		N/A
	Insulating material in which heating conductors are embedded is considered to be basic insulation and not reinforced insulation (EN 60335-1/A2)		N/A

EN 60335-2-29			
Clause	Requirement - Test	Result - Remark	Verdict
22.33	Conductive liquids that are or may become accessible in normal use are not in direct contact with live parts	No any liquid used	N/A
	Electrodes not used for heating liquids		N/A
	For class II constructions, conductive liquids that are or may become accessible in normal use, not in direct contact with basic or reinforced insulation		N/A
	For class II constructions, conductive liquids which are in contact with live parts, not in direct contact with reinforced insulation		N/A
22.34	Shafts of operating knobs, handles, levers etc. not live, unless the shaft is not accessible when the part is removed	No knob, handle etc	N/A
22.35	Handles, levers and knobs, held or actuated in normal use, not becoming live in the event of an insulation fault (EN 60335-1/A2)		N/A
	Such parts being of metal, and their shafts or fixings are likely to become live in the event of an insulation fault, they are either adequately covered by insulation material, or their accessible parts are separated from their shafts or fixings by supplementary insulation		N/A
	This requirement does not apply to handles, levers and knobs on stationary appliances other than those of electrical components, provided they are either reliably connected to an earthing terminal or earthing contact, or separated from live parts by earthed metal		N/A
22.36	Handles continuously held in the hand in normal use are so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts, unless they are separated from live parts by double or reinforced insulation	No handle	N/A
22.37	Capacitors in Class II appliances not connected to accessible metal parts, unless complying with 22.42	Plastic enclosure	N/A
	Metal casings of capacitors in Class II appliances separated from accessible metal parts by supplementary insulation, unless complying with 22.42		N/A
22.38	Capacitors not connected between the contacts of a thermal cut-out		N/A
22.39	Lamp holders used only for the connection of lamps		N/A

EN 60335-2-29			
Clause	Requirement - Test	Result - Remark	Verdict
22.40	Motor-operated appliances and combined appliances intended to be moved while in operation, or having accessible moving parts, fitted with a switch to control the motor. The actuating member of the switch being easily visible and accessible	Not intended to be moved while in operation	N/A
	Unless the appliance can operate continuously, automatically or remotely without giving rise to a hazard, appliances for remote operation being fitted with a switch. The actuating member of the switch being easily visible and accessible (EN 60335-1/A2)		N/A
22.41	No components, other than lamps, containing mercury		N/A
22.42	Protective impedance consisting of at least two separate components	Two Y-cap used	P
	Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited		P
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		N/A
22.44	Appliances are not allowed to have an enclosure that is shaped and decorated so that the appliance is likely to be treated as a toy by children	The appliance is not like a toy.	N/A
22.45	When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.4 due to deformation as a result of an external force applied to the enclosure		P
22.46	Software used in protective electronic circuits is software class B or C .....:		N/A
22.47	Appliances connected to the water mains withstand the water pressure expected in normal use		N/A
	No leakage from any part, including any inlet water hose		N/A
22.48	Appliances connected to the water mains constructed to prevent backsiphonage of non-potable water		N/A
22.49	For remote operation, the duration of operation set before the appliance can be started, unless	No this function	N/A
	the appliance switches off automatically or operate continuously without hazard (EN 60335-1/A2)		N/A
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation (EN 60335-1/A2)		N/A

EN 60335-2-29			
Clause	Requirement - Test	Result - Remark	Verdict
	A control on the appliance being manually adjusted to the setting for remote operation before the appliance operated in this mode (EN 60335-1/A2)		N/A
	Visual indication showing that the appliance is adjusted for remote operation (EN 60335-1/A2)		N/A
	Manual setting and visual indication not necessary on appliances that can operate as follows, without giving rise to a hazard: (EN 60335-1/A2)		N/A
	- operate continuously,		N/A
	- operate automatically, or		N/A
	- be operated remotely		N/A
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 (EN 60335-1/A2)		N/A
22.101	Conductors for connection to the terminals of the battery coloured as specified (EN 60335-2-29)		P
22.102	Each circuit supplied from a d.c. distribution board incorporates an overload protective device (EN 60335-2-29)		N/A
22.103	Battery chargers for installing in caravans or similar vehicles constructed so that they can be securely fixed to a support (EN 60335-2-29)	Not for caravan	N/A
23	INTERNAL WIRING		P
23.1	Wireways smooth and free from sharp edges		P
	Wires protected against contact with burrs, cooling fins etc.		P
	Wire holes in metal well rounded or provided with bushings		N/A
	Wiring effectively prevented from coming into contact with moving parts		N/A
23.2	Beads etc. on live wires cannot change their position, and are not resting on sharp edges or corners	Not provided	N/A
	Beads inside flexible metal conduits contained within an insulating sleeve	Not provided	N/A
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress	No undue stress exposed to internal conductor	N/A
	Flexible metallic tubes not causing damage to insulation of conductors		N/A
	Open-coil springs not used		N/A

EN 60335-2-29			
Clause	Requirement - Test	Result - Remark	Verdict
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N/A
	No damage after 10 000 flexings for conductors flexed during normal use or 100 flexings for conductors flexed during user maintenance		N/A
	Electric strength test, 1000 V between live parts and accessible metal parts		N/A
23.4	Bare internal wiring sufficiently rigid and fixed	Output lead wire fixed on the PCB by soldering and glue	P
23.5	The insulation of internal wiring withstanding the electrical stress likely to occur in normal use		N/A
	No breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation		N/A
23.6	Sleeving used as supplementary insulation on internal wiring retained in position by positive means		N/A
23.7	The colour combination green/yellow used only for earthing conductors	Class II appliances	N/A
23.8	Aluminium wires not used for internal wiring	Aluminium wires not used	N/A
23.9	No lead-tin soldering of stranded conductors where they are subject to contact pressure, unless		N/A
	clamping means so constructed that there is no risk of bad contact due to cold flow of the solder		N/A
23.10	The insulation and sheath of internal wiring, incorporated in external hoses for the connection of an appliance to the water mains, at least equivalent to that of light polyvinyl chloride sheathed flexible cord (60227 IEC 52)		N/A
24	COMPONENTS		P
24.1	Components comply with safety requirements in relevant IEC standards		P
	List of components	(see appended table 24.1)	P
	Components not tested and found to comply with relevant IEC standard for the number of cycles specified are tested in accordance with 24.1.1 to 24.1.6		P
	Components not tested and found to comply with relevant IEC standard, components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance		P

EN 60335-2-29			
Clause	Requirement - Test	Result - Remark	Verdict
	Lampholders and starterholders not being tested and found to comply with the relevant IEC standard,tested as a part of the appliance and additionally according to the gauging and interchangeability requirements of the relevant IEC standard (EN 60335-1/A2)		N/A
24.1.1	Capacitors likely to be permanently subjected to the supply voltage and used for radio interference suppression or for voltage dividing, complying with IEC 60384-14, or		N/A
	tested according to annex F		N/A
24.1.2	Safety isolating transformers complying with IEC 61558-2-6, or		N/A
	tested according to annex G		P
24.1.3	Switches complying with IEC 61058-1, the number of cycles of operation being at least 10 000, or	No switch provided	N/A
	tested according to annex H		N/A
	If the switch operates a relay or contactor, the complete switching system is subjected to the test		N/A
24.1.4	Automatic controls complying with IEC 60730-1 with relevant part 2. The number of cycles of operation being:		N/A
	- thermostats:		N/A
	- temperature limiters:		N/A
	- self-resetting thermal cut-outs:		N/A
	- voltage maintained non-self-resetting thermal cut-outs:		N/A
	- other non-self-resetting thermal cut-outs:		N/A
	- timers:		N/A
	- energy regulators:		N/A
	Thermal motor protectors are tested in combination with their motor under the conditions specified in Annex D		N/A
	For water valves containing live parts and that are incorporated in external hoses for connection of an appliance to the water mains, the degree of protection declared for subclause 6.5.2 of IEC 60730-2-8 is IPX7		N/A
24.1.5	Appliance couplers complying with IEC 60320-1		P
	However, appliances classified higher than IPX0, the appliance couplers complying with IEC 60320-2-3		N/A
	Interconnection couplers complying with IEC 60320-2-2		N/A

EN 60335-2-29			
Clause	Requirement - Test	Result - Remark	Verdict
24.1.6	Small lamp holders similar to E10 lampholders complying with IEC 60238, the requirements for E10 lampholders being applicable		N/A
24.1.7	If the remote operation of the appliance is via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is IEC 62151 (EN 60335-1/A2)		N/A
24.1.8	The relevant standard for thermal links is IEC 60691.Thermal links not complying with IEC 60691 are considered to be an intentionally weak part for the purposes of Clause 19 (EN 60335-1/A2)		N/A
24.1.9	Relays, other than motor starting relays, tested as part of the appliance (EN 60335-1/A2) They also tested in accordance with Clause 17 of IEC 60730-1, the number of operations in 24.1.4 selected according to the relay function in the appliance (EN 603351/A2).....:		N/A
24.2	No switches or automatic controls in flexible cords	The flexible cords is not used	N/A
	No devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance		N/A
	No thermal cut-outs that can be reset by soldering		N/A
24.3	Switches intended for all-pole disconnection of stationary appliances are directly connected to the supply terminals and having a contact separation in all poles, providing full disconnection under overvoltage category III conditions		N/A
24.4	Plugs and socket-outlets for extra-low voltage circuits and heating elements, not interchangeable with plugs and socket-outlets listed in IEC 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1		N/A
24.5	Capacitors in auxiliary windings of motors marked with their rated voltage and capacitance and used accordingly		N/A
	Voltage across capacitors in series with a motor winding does not exceed 1,1 times rated voltage, when the appliance is supplied at 1,1 times rated voltage under minimum load		N/A
24.6	Working voltage of motors connected to the supply mains and having basic insulation that is inadequate for the rated voltage of the appliance, not exceeding 42V		N/A

EN 60335-2-29			
Clause	Requirement - Test	Result - Remark	Verdict
	In addition, the motors are complying with the requirements of Annex I		N/A
24.7	Hose-sets for connection of appliances to the water mains, complying with IEC 61770 and supplied with the appliance		N/A
25	SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS		P
25.1	Appliance not intended for permanent connection to fixed wiring, means for connection to the supply:		P
	- supply cord fitted with a plug		N/A
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance		P
	- pins for insertion into socket-outlets		N/A
25.2	Appliance not provided with more than one means of connection to the supply mains		P
	Stationary appliance for multiple supply may be provided with more than one means of connection, provided electric strength test of 1250 V for 1 min between each means of connection causes no breakdown	Portable appliance	N/A
25.3	Connection of supply conductors for appliance intended to be permanently connected to fixed wiring possible after the appliance has been fixed to its support	Not permanently connected appliance.	N/A
	Appliance provided with a set of terminals for the connection of cables or fixed wiring, cross-sectional areas specified in 26.6		N/A
	Appliance provided with a set of terminals allowing the connection of a flexible cord		N/A
	Appliance provided with a set of supply leads accommodated in a suitable compartment		N/A
	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/A
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimension according to table 10		N/A
	Introduction of conduit or cable does not reduce clearances or creepage distances below values specified in 29		N/A
25.5	Method for assemble supply cord with the appliance:		N/A
	- type X attachment		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	- type Y attachment		N/A
	- type Z attachment, if allowed in part 2		N/A
	Type X attachment, other than those with a specially prepared cord, not used for flat twin tinsel cords		N/A
25.6	Plugs fitted with only one flexible cord		N/A
25.7	Supply cord not lighter than:		N/A
	- braided cord (60245 IEC 51)		N/A
	- ordinary tough rubber sheathed cord (60245 IEC 53)		N/A
	- ordinary polychloroprene sheathed flexible cord (60245 IEC 57)		N/A
	- flat twin tinsel cord (60227 IEC 41)		N/A
	- light polyvinyl chloride sheathed cord (60227 IEC 52), appliance not exceeding 3 kg		N/A
	- ordinary polyvinyl chloride sheathed cord (60227 IEC 53), appliance exceeding 3 kg		N/A
	Natural rubber supply cords not used for battery chargers for charging automobile batteries (IEC 60335-2-29)		N/A
	Temperature rise of external metal parts exceeding 75 K, PVC cord not used, unless		N/A
	appliance so constructed that the supply cord is not likely to touch external metal parts in normal use, or		N/A
	the supply cord is appropriate for higher temperatures, type Y or type Z attachment used		N/A
25.8	Nominal cross-sectional area of supply cords according to table 11; rated current (A); cross-sectional area (mm²).....:		N/A
25.9	Supply cord not in contact with sharp points or edges		N/A
25.10	Green/yellow core for earthing purposes in Class I appliance		N/A
25.11	Conductors of supply cords not consolidated by lead-tin soldering where they are subject to contact pressure, unless		N/A
	clamping means so constructed that there is no risk of bad contacts due to cold flow of the solder		N/A
25.12	Moulding the cord to part of the enclosure does not damage the insulation of the supply cord		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
25.13	Inlet opening so shaped as to prevent damage to the supply cord		N/A
	Unless the enclosure at the inlet opening is of insulation material, a non-detachable lining or bushing complying with 29.3 for supplementary insulation provided		N/A
	If unsheathed supply cord, a similar additional bushing or lining is required, unless		N/A
	the appliance is class 0		N/A
25.14	Supply cords adequately protected against excessive flexing		N/A
	Flexing test:		N/A
	- applied force (N) .....:		N/A
	- number of flexings ....:		N/A
	The test does not result in:		N/A
	- short circuit between the conductors		N/A
	- breakage of more than 10% of the strands of any conductor		N/A
	- separation of the conductor from its terminal		N/A
	- loosening of any cord guard		N/A
	- damage, within the meaning of the standard, to the cord or the cord guard		N/A
	- broken strands piercing the insulation and becoming accessible		N/A
25.15	Conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorage		N/A
	The cord cannot be pushed into the appliance to such an extent that the cord or internal parts of the appliance can be damaged		N/A
	Pull and torque test of supply cord, values shown in table 10: pull (N); torque (not on automatic cord reel) (Nm) .....:		N/A
	Max. 2 mm displacement of the cord, and conductors not moved more than 1 mm in the terminals		N/A
	Creepage distances and clearances not reduced below values specified in 29.1		P
25.16	Cord anchorages for type X attachments constructed and located so that:		N/A
	- replacement of the cord is easily possible		N/A

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

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Clause	Requirement - Test	Result - Remark	Verdict
	For portable appliances, the uninsulated end of a conductor prevented from any contact with accessible metal parts, unless the end of the cord is such that the conductors are unlikely to slip free		N/A
25.22	Appliance inlet:		P
	- live parts not accessible during insertion or removal		P
	- connector can be inserted without difficulty		P
	- the appliance is not supported by the connector		P
	- is not for cold conditions if temp. rise of external metal parts exceeds 75 K, unless the supply cord is not likely to touch such metal parts		N/A
25.23	Interconnection cords comply with the requirements for the supply cord, except as specified		N/A
	If necessary, electric strength test of 16.3		N/A
25.24	Interconnection cords not detachable without the aid of a tool if compliance with the standard is impaired when they are disconnected		N/A
25.25	Dimensions of pins compatible with the dimensions of the relevant socket-outlet. Dimensions of pins and engagement face in accordance with the relevant plug in IEC 60083		N/A
26	TERMINALS FOR EXTERNAL CONDUCTORS		P
26.1	Appliances provided with terminals or equally effective devices for connection of external conductors	Non-detachable supply cord with AC plug for model V-1202000-UD, Appliance inlet for model V-1202000-ED	P
	Terminals only accessible after removal of a non-detachable cover		N/A
	However, earthing terminals may be accessible if a tool is required to make the connections and means are provided to clamp the wire independently from its connection		N/A
26.2	Appliances with type X attachment and appliances for connection to fixed wiring provided with terminals in which connections are made by means of screws, nuts or similar devices, unless the connections are soldered		N/A
	Screws and nuts serve only to clamp supply conductors, except		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N/A
	If soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone		N/A
	Soldering alone used, barriers provided, clearances and creepage distances satisfactory if the conductor becomes free at the soldered joint		N/A
26.3	Terminals for type X attachment and for connection to fixed wiring so constructed that the conductor is clamped between metal surfaces with sufficient contact pressure and without damaging the conductor		N/A
	Terminals for type X attachment and those for connection to fixed wiring so fixed that when tightening or loosening the clamping means:		N/A
	- the terminal does not loosen		N/A
	- internal wiring is not subjected to stress		N/A
	- clearances and creepage distances are not reduced below the values in 29		N/A
	Compliance checked by inspection and by the test of subclause 8.6 of IEC 60999-1, the torque applied being equal to two-thirds of the torque specified. Nominal diameter of thread (mm); screw category; torque (Nm) (IEC 60335-1/A2)…….:::		N/A
26.4	Terminals for type X attachment, except those with a specially prepared cord, and those for connection to fixed wiring, no special preparation of conductors required, and so constructed or placed that conductors prevented from slipping out		N/A
26.5	Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection to other parts that result in a hazard		N/A
	Stranded conductor test, 8 mm insulation removed		N/A
	No contact between live parts and accessible metal parts and, for class II constructions, between live parts and metal parts separated from accessible metal parts by supplementary insulation only		N/A
26.6	Terminals for type X attachment and for connection to fixed wiring suitable for connection of conductors with required cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm²).....:		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	Terminals only suitable for a specially prepared cord		N/A
26.7	Terminals for type X attachment accessible after removal of a cover or part of the enclosure	No such terminal	N/A
26.8	Terminals for the connection to fixed wiring, including the earthing terminal, located close to each other	Not fixed wiring	N/A
26.9	Terminals of the pillar type constructed and located as specified		N/A
26.10	Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless conductors ends fitted with a device suitable for screw terminals		N/A
	Pull test of 5 N to the connection		N/A
26.11	For type Y and Z attachment: soldered, welded, crimped and similar connections may be used		N/A
	For Class II appliances: the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone		N/A
	For Class II appliances: soldering, welding or crimping alone used, barriers provided, clearances and creepage distances satisfactory if the conductor becomes free		N/A
27	PROVISION FOR EARTHING		P
27.1	Accessible metal parts of Class 0I and I appliances, permanently and reliably connected to an earthing terminal or contact of the appliance inlet	Class II appliances, no earthing terminal	N/A
	Earthing terminals not connected to neutral terminal		N/A
	Class 0, II and III appliance have no provision for earthing		P
	Safety extra-low voltage circuits not earthed, unless protective extra-low voltage circuits		P
27.2	Clamping means adequately secured against accidental loosening		N/A
	Terminals used for the connection of external equipotential bonding conductors allow connection of conductors of 2.5 to 6 mm², and		N/A
	do not provide earthing continuity between different parts of the appliance		N/A
	Conductors cannot be loosened without the aid of a tool		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
27.3	For detachable parts that are plugged into another part of the appliance, and having an earth connection, the earth connection made before and separated after current-carrying connections when removing the part		N/A
	For appliances with supply cord, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		N/A
27.4	No risk of corrosion resulting from contact between metal of earthing terminal and other metal		N/A
	Adequate resistance to corrosion of coated or uncoated parts providing earthing continuity, other than parts of a metal frame or enclosure		N/A
	Parts of steel providing earthing continuity provided at the essential areas with an electroplated coating, thickness at least 5 µm		N/A
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		N/A
	In case of aluminium alloys precautions taken to avoid risk of corrosion		N/A
27.5	Low resistance of connection between earthing terminal and earthed metal parts		N/A
	This requirement does not apply to connections providing earthing continuity in the protective extra-low voltage circuit, provided that clearances of basic insulation are based on the rated voltage of the appliance		N/A
	Resistance not exceeding 0,1 Ω at the specified low-resistance test		N/A
27.6	The printed conductors of printed circuit boards not used to provide earthing continuity in hand held appliances		N/A
	They may be used in other appliances if:		N/A
	- at least two tracks are used with independent soldering points and the appliance complies with requirements of 27.5 for each circuit		N/A
	- the material of the printed circuit board complies with IEC 60249-2-4 or IEC 60249-2-5		N/A
28	SCREWS AND CONNECTIONS		N/A
28.1	Fixings, electrical connections and connections providing earthing continuity withstand mechanical stresses	No screw used.	N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	Screws not of soft metal liable to creep, such as zinc or aluminium		N/A
	Diameter of screws of insulating material min. 3 mm		N/A
	Screws of insulating material not used for any electrical connection or connections providing earthing continuity		N/A
	Screws used for electrical connections or connections providing earthing continuity screw into metal		N/A
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		N/A
	Type X attachment, screws to be removed for replacement of supply cord or for user maintenance, not of insulating material if their replacement by a metal screw can impair basic insulation		N/A
	For screws and nuts; test as specified		N/A
28.2	Electrical connections and connections providing earthing continuity constructed so that contact pressure not transmitted through insulating material liable to shrink or distort, unless shrinkage or distortion compensated		N/A
	This requirement does not apply to electrical connections in circuits carrying a current not exceeding 0.5A		N/A
28.3	Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together		N/A
	Thread-cutting (self-tapping) screws only used for electrical connections if they generate a full form standard machine screw thread (EN 60335-1/A2)		N/A
	Thread-cutting (self-tapping) screws not used if they are likely to be operated by the user or installer (EN 60335-1/A2)		N/A
	Thread-cutting and space-threaded screws may be used in connections providing earthing continuity, provided unnecessary to disturb the connection and at least two screws are used for each connection		N/A
	- in normal use,		N/A
	- during user maintenance,		N/A
	- when replacing a supply cord having a type X attachment, or		N/A
	- during installation		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	At least two screws being used for each connection providing earthing continuity, unless (EN 60335-1/A2)		N/A
	the screw forms a thread having a length of at least half the diameter of the screw (EN 60335-1/A2)		N/A
28.4	Screws and nuts that make mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity		N/A
	Rivets for electrical connections or connections providing earthing continuity secured against loosening if subjected to torsion		N/A
29	CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION		P
	Clearances, creepage distances and solid insulation withstand electrical stress		P
	For coatings used on printed circuits boards to protect the microenvironment (Type A) or to provide basic insulation (Type B), annex J applies.:		N/A
	The microenvironment is pollution degree 1 under Type A coating		N/A
	No creepage distance or clearance requirements under Type B coating		N/A
	For coatings used on printed circuits boards to protect the microenvironment (Type 1) or to provide basic insulation (Type 2), annex J applies (EN 60335-1/A2)		N/A
29.1	Clearances not less than the values specified in table 16, taking into account the rated impulse voltage for the overvoltage categories of table 15, unless		P
	for basic insulation and functional insulation they comply with the impulse voltage test of clause 14		N/A
	However, if the construction is affected by wear, distortion, movement of the parts or during assembly, the clearances for rated impulse voltages of 1500V and above are increased by 0,5 mm and the impulse voltage test is not applicable		P
	Impulse voltage test not applicable:		N/A
	- when the microenvironment is pollution degree 3		N/A
	- for basic insulation of class 0 and class 01 appliances		N/A
	Appliances are in overvoltage category II		P

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Clause	Requirement - Test	Result - Remark	Verdict
	Clearances less than specified in table 16 not allowed for basic insulation of class 0 and class 0I appliances,		N/A
	or if pollution degree 3 is applicable		N/A
	Compliance is checked by inspection and measurements as specified		P
29.1.1	Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage		P
	Clearance at the terminals of tubular sheathed heating elements may be reduced to 1mm if the microenvironment is pollution degree 1		N/A
	Lacquered conductors of windings considered to be bare conductors		N/A
29.1.2	Clearances of supplementary insulation not less than those specified for basic insulation in table 16		P
29.1.3	Clearances of reinforced insulation not less than those specified for basic insulation in table 16, but using the next higher step for rated impulse voltage		P
29.1.4	For functional insulation, the values of table 16 are applicable, unless		P
	the appliance complies with clause 19 with the functional insulation short-circuited		P
	Lacquered conductors of windings considered to be bare conductors		N/A
	However, clearances at crossover points are not measured		N/A
	Clearance between surfaces of PTC heating elements may be reduced to 1mm		N/A
29.1.5	Appliances having higher working voltage than rated voltage, the voltage used for determining clearances from table 16 is the sum of the rated impulse voltage and the difference between the peak value of the working voltage and the peak value of the rated voltage		N/A
	If the secondary winding of a step-down transformer is earthed, or if there is an earthed screen between the primary and secondary windings, clearances of basic insulation on the secondary side not less than those specified in table 16, but using the next lower step for rated impulse voltage		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	Circuits supplied with a voltage lower than rated voltage, clearances of functional insulation based on the working voltage used as the rated voltage in table 15		N/A
29.2	Creepage distances not less than those appropriate for the working voltage, taking into account the material group and the pollution degree		P
	Pollution degree 2 applies, unless		P
	precautions taken to protect the insulation; pollution degree 1		N/A
	insulation subjected to conductive pollution; pollution degree 3		N/A
	Compliance is checked by inspection and measurements as specified		P
29.2.1	Creepage distances of basic insulation not less than specified in table 17		P
	For pollution degree 1, creepage distance not less than the minimum specified for the clearance in table 16, if the clearance has been checked according to the test of clause 14		N/A
29.2.2	Creepage distances of supplementary insulation at least as specified for basic insulation in table 17		P
29.2.3	Creepage distances of reinforced insulation at least double as specified for basic insulation in table 17		P
29.2.4	Creepage distances of functional insulation not less than specified in table 18		P
	Creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited		P
29.3	Supplementary and reinforced insulation having adequate thickness, or a sufficient number of layers, to withstand the electrical stresses		P
	Compliance checked by:		P
	- measurement, in accordance with 29.3.1, or		P
	- an electric strength test in accordance with 29.3.2, or		P
	- an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3		N/A
29.3.1	Supplementary insulation having a thickness of at least 1 mm		P

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Clause	Requirement - Test	Result - Remark	Verdict
	Reinforced insulation having a thickness of at least 2 mm		P
29.3.2	Each layer of material withstand the electric strength test of 16.3 for supplementary insulation		P
	Supplementary insulation consisting of at least 2 layers		P
	Reinforced insulation consisting of at least 3 layers		P
29.3.3	The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by		N/A
	the electric strength test of 16.3		N/A
	If the temperature rise during the tests of Clause 19 does not exceed the value specified in Table 3, the test of IEC 60068-2-2 is not carried out		N/A
30	RESISTANCE TO HEAT AND FIRE		P
30.1	External parts of non-metallic material,		P
	parts supporting live parts, and		P
	thermoplastic material providing supplementary or reinforced insulation,		P
	sufficiently resistant to heat		P
	Ball-pressure test according to IEC 60695-10-2		P
	External parts: at 40℃ plus the maximum temperature rise determined during the test of clause 11, or at 75℃, whichever is the higher; temperature (℃).....:		P
	Parts supporting live parts: at 40℃ plus the maximum temperature rise determined during the test of clause 11, or at 125℃, whichever is the higher; temperature (℃) .....:	See appended table 30.1	P
	Parts of thermoplastic material providing supplementary or reinforced insulation, 25℃ plus the maximum temperature rise determined during clause 19, if higher; temperature (℃).....:	See appended table 30.1	P
30.2	Relevant parts of non-metallic material adequately resistant to ignition and spread of fire		P
	This requirement does not apply to decorative trims,knobs and other parts unlikely to be ignited or to propagate flames that originate inside the appliance		N/A
	Compliance checked by the test of 30.2.1. In addition:		P
	- attended appliances, 30.2.2 applies		N/A
	- unattended appliances, 30.2.3 applies		P
	Appliances for remote operation, 30.2.3 applies		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	Base material of printed circuit board, 30.2.4 applies		N/A
30.2.1	Glow-wire test of IEC 60695-2-11 at 550℃, unless		P
	the material is classified at least HB40 according to IEC 60695-11-10		N/A
	Parts for which the glow-wire test cannot be carried out meet the requirements in ISO9772 for category HBF material		N/A
30.2.2	Appliances operated while attended, parts of insulating material supporting current-carrying connections and parts within a distance of 3mm subjected to the glow-wire test of IEC 60695-2-11 at a temperature of:		N/A
	-750℃, for connections carrying a current exceeding 0,5A during normal operation		N/A
	-650℃, for other connections		N/A
	Test not applicable to conditions as specified		N/A
	When the glow-wire test of IEC 60695-2-11 is carried out, the temperatures are:		N/A
	-750°C, for connections carrying a current exceeding 0,5A during normal operation		N/A
	-650°C, for other connections		N/A
	Test not applicable to conditions as specified		N/A
30.2.3	Appliances operated while unattended, tested as specified in 30.2.3.1 and 30.2.3.2		P
	Test not applicable to conditions as specified		N/A
30.2.3.1	Parts of insulating material supporting connections carrying a current exceeding 0.2A during normal operation, and		P
	parts of insulating material within a distance of 3mm,		P
	having a glow-wire flammability index of at least 850℃ according to IEC 60695-2-12	PCB	P
	Glow-wire test not carried out on parts of material classified as having a glow-wire flammability index of at least 850°C according to IEC 60695-2-12		P
	Glow-wire test not carried out on small parts that comply with the needle-flame test of Annex E or on small parts of material classified as V-0 or V-1 according to IEC 60695-11-10		P
	Test as specified for an interposed shielding material		N/A
30.2.3.2	Parts of insulating material supporting current-carrying connections, and		P
	parts of insulating material within a distance of 3mm,		P

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Clause	Requirement - Test	Result - Remark	Verdict
	subjected to glow-wire test of IEC 60695-2-11		P
	Test not carried out on material having a glow-wire ignition temperature according to IEC 60695-2-13 as specified		N/A
	-775°C, for connections carrying a current exceeding 0,2A during normal operation		N/A
	-675°C, for other connections		N/A
	Glow-wire test of IEC 60695-2-11, the temperature being:		P
	-750℃, for connections carrying a current exceeding 0,2A during normal operation		P
	-650℃, for other connections		P
	Parts that during the test produce a flame persisting longer than 2 s, tested as specified		N/A
	If a flame persists longer than 2 s during the test, parts above the connection, as specified, subjected to the needle-flame test of annex E, unless		N/A
	the material is classified as V-0 or V-1 according to IEC 60695-11-10		N/A
30.2.4	Base material of printed circuit boards subjected to needle-flame test of annex E		N/A
	Test not applicable to conditions as specified		N/A
31	RESISTANCE TO RUSTING		P
	Relevant ferrous parts adequately protected against rusting		P
32	RADIATION, TOXICITY AND SIMILAR HAZARDS		P
	Appliance does not emit harmful radiation		P
	Appliance does not present a toxic or similar hazard		P
A	ANNEX A (INFORMATIVE) ROUTINE TESTS		P
	Description of routine tests to be carried out by the manufacturer		P
	Test voltage of electric strength test between the input and output circuits (EN 60335-2-29)		P
B	ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES		N/A
	The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance		N/A
	This annex does not apply to battery chargers		N/A

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

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Clause	Requirement - Test	Result - Remark	Verdict
19.103	Appliances having batteries replaceable by the user supplied at rated voltage under normal operation with the battery removed or in any position allowed by the construction		N/A
21.101	Appliances having pins for insertion into socket-outlets have adequate mechanical strength, checked according to procedure 2 of IEC 68-2-32		N/A
	Part of the appliance incorporating the pins subjected to the free fall test, procedure 2, of IEC 60068-2-32, the number of falls being:		N/A
	- 100, the mass of part does not exceed 250 g		N/A
	- 50, the mass of part exceeds 250 g		N/A
	After the test, the requirements of 8.1, 15.1.1, 16.3 and clause 29 are met		N/A
22.3	Appliances having pins for insertion into socket-outlets tested as fully assembled as possible		N/A
25.13	An additional lining or bushing not required for interconnection cords operating at safety extra-low voltage		N/A
30.2	For parts of the appliance connected to the supply mains during the charging period, 30.2.3 applies		N/A
	For other parts, 30.2.2 applies		N/A
C	ANNEX C (NORMATIVE) AGEING TEST ON MOTORS		N/A
	Tests, as described, carried out when doubt with regard to the temperature classification of the insulation of a motor winding		N/A
D	ANNEX D (NORMATIVE) THERMAL MOTOR PROTECTORS		N/A
	Applicable to appliances having motors that incorporate thermal motor protectors		N/A
E	ANNEX E (NORMATIVE) NEEDLE-FLAME TEST		N/A
	Needle-flame test carried out in accordance with IEC 60695-2-2, with the following modifications:		N/A
7	Severities		N/A
	The duration of application of the test flame is 30 s ± 1 s		N/A
9	Test procedure		N/A
9.1	The specimen so arranged that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1		N/A
9.2	The first paragraph does not apply		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	If possible, the flame is applied at least 10 mm from a corner		N/A
9.3	The test is carried out on one specimen		N/A
	If the specimen does not withstand the test, the test may be repeated on two further specimens, both withstanding the test	The specimen withstand the test	N/A
11	Evaluation of test results		N/A
	The duration of burning not exceeding 30 s		N/A
	However, for printed circuit boards, the duration of burning not exceeding 15 s		N/A
F	ANNEX F (NORMATIVE) CAPACITORS		N/A
	Capacitors likely to be permanently subjected to the supply voltage, and used for radio interference suppression or voltage dividing, comply with the following clauses of IEC 60384-14, with the following modifications:		N/A
1.5	Terminology		N/A
1.5.3	Class X capacitors tested according to subclass X2		N/A
1.5.4	This subclause is applicable		N/A
1.6	Marking		N/A
	Items a) and b) are applicable		N/A
3.4	Approval testing		N/A
3.4.3.2	Table II is applicable as described		N/A
4.1	Visual examination and check of dimensions		N/A
	This subclause is applicable		N/A
4.2	Electrical tests		N/A
4.2.1	This subclause is applicable		N/A
4.2.5	This subclause is applicable		N/A
4.2.5.2	Only table IX is applicable		N/A
	Values for test A apply		N/A
	However, for capacitors in heating appliances the values for test B or C apply		N/A
4.12	Damp heat, steady state		N/A
	This subclause is applicable		N/A
	Only insulation resistance and voltage proof are checked		N/A
4.13	Impulse voltage		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	This subclause is applicable		N/A
4.14	Endurance		N/A
	Subclauses 4.14.1, 4.14.3, 4.14.4 and 4.14.7 applicable		N/A
4.14.7	Only insulation resistance and voltage proof are checked		N/A
	Visual examination, no visible damage		N/A
4.17	Passive flammability test		N/A
	This subclause is applicable		N/A
4.18	Active flammability test		N/A
	This subclause is applicable		N/A
G	ANNEX G (NORMATIVE) SAFETY ISOLATING TRANSFORMERS		P
	The following modifications to this standard are applicable for safety isolating transformers:		P
7	Marking and instructions		P
7.1	Transformers for specific use marked with:		P
	-name, trademark or identification mark of the manufacturer or responsible vendor		P
	-model or type reference		P
17	Overload protection of transformers and associated circuits		P
	Fail-safe transformers comply with subclause 15.5 of IEC 61558-1		P
22	Construction		P
	Subclauses 19.1 and 19.1.2 of IEC 61558-2-6 are applicable		P
29	Clearances, creepage distances and solid insulation		P
29.1, 29.2 and 29.3	The distances specified in items 2a, 2c and 3 in table 13 of IEC 61558-1 apply		P
H	ANNEX H (NORMATIVE) SWITCHES		N/A
	Switches comply with the following clauses of IEC 61058-1, as modified:		N/A
	-The tests of IEC 61058-1 carried out under the conditions occurring in the appliance		N/A
	-Before being tested, switches are operated 20 times without load		N/A
8	Marking and documentation		N/A
	Switches are not required to be marked		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	However, switches that can be tested separately from the appliance marked with the manufacturer's name or trade mark and the type reference		N/A
13	Mechanism		N/A
	The tests may be carried out on a separate sample		N/A
15	Insulation resistance and dielectric strength		N/A
15.1	Not applicable		N/A
15.2	Not applicable		N/A
15.3	Applicable for full disconnection and micro-disconnection		N/A
17	Endurance		N/A
	Compliance is checked on three separate appliances or switches		N/A
	For 17.2.4.4, the number of cycles is 10 000, unless otherwise specified in 24.1.3 of the relevant part 2 of IEC 60335		N/A
	Switches for operation under no load and which can be operated only by a tool and switches operated by hand that are interlocked so that they cannot be operated under load, are not subjected to the tests		N/A
	Subclauses 17.2.2 and 17.2.5.2 not applicable		N/A
	The ambient temperature during the test is that occurring in the appliance during the test of Clause 11 in EN 60335-1		N/A
	Temperature rise of the terminals not more than 30 K above the temperature rise measured in clause 11 of EN 60335-1		N/A
20	Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies		N/A
	This clause is applicable to clearances and creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in table 24		N/A
I	ANNEX I (NORMATIVE) MOTORS HAVING BASIC INSULATION THAT IS INADEQUATE FOR THE RATED VOLTAGE OF THE APPLIANCE		N/A
	The following modifications to this standard are applicable for motors having basic insulation that is inadequate for the rated voltage of the appliance:		N/A
8	Protection against access to live parts		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
8.1	Metal parts of the motor are considered to be bare live parts		N/A
11	Heating		N/A
11.3	Temperature rise of the body of the motor is determined instead of the temperature rise of the windings		N/A
11.8	Temperature rise of the body of the motor, where in contact with insulating material, not exceeding values in table 3 for the relevant insulating material		N/A
16	Leakage current and electric strength		N/A
16.3	Insulation between live parts of the motor and its other metal parts not subjected to the test		N/A
19	Abnormal operation		N/A
19.1	The tests of 19.7 to 19.9 not carried out	No motor used	N/A
19.101	Appliance operated at rated voltage with each of the following fault conditions:		N/A
	- short circuit of the terminals of the motor, including any capacitor incorporated in the motor circuit		N/A
	- short circuit of each diode of the rectifier		N/A
	- open circuit of the supply to the motor		N/A
	- open circuit of any parallel resistor, the motor being in operation		N/A
	Only one fault simulated at a time, the tests carried out consecutively		N/A
22	Construction		N/A
22.101	For class I appliances incorporating a motor supplied by a rectifier circuit, the d.c. circuit being insulated from accessible parts of the appliance by double or reinforced insulation		N/A
	Compliance checked by the tests specified for double and reinforced insulation		N/A
J	ANNEX J (NORMATIVE) COATED PRINTED CIRCUIT BOARDS		N/A
	Testing of protective coatings of printed circuit boards carried out in accordance with IEC 60664-3 with the following modifications:		N/A
5.7	Climatic sequence		N/A
	When production samples are used, three samples of the printed circuit board are tested		N/A
5.7.1	Cold		N/A
	The test is carried out at -25℃		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
5.7.3	Rapid change of temperature		N/A
	Severity 1 is specified		N/A
6.8.6	Partial discharge extinction voltage		N/A
	Type A coatings not subjected to a partial discharge test		N/A
5.9	Additional tests		N/A
	This subclause is not applicable		N/A
K	ANNEX K (NORMATIVE) OVERVOLTAGE CATEGORIES		P
	The information on overvoltage categories is extracted from IEC 60664-1		P
	Overvoltage category is a numeral defining a transient overvoltage condition		N/A
	Equipment of overvoltage category IV is for use at the origin of the installation		N/A
	Equipment of overvoltage category III is equipment in fixed installations and for cases where the reliability and the availability of the equipment is subject to special requirements		N/A
	Equipment of overvoltage category II is energy consuming equipment to be supplied from the fixed installation		P
	If such equipment is subjected to special requirements with regard to reliability and availability, overvoltage category III applies		N/A
	Equipment of overvoltage category I is equipment for connection to circuits in which measures are taken to limit transient overvoltages to an appropriate low level		N/A
L	ANNEX L (INFORMATIVE) GUIDANCE FOR THE MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES		P
	Sequences for the determination of clearances and creepage distances		P
M	ANNEX M (NORMATIVE) POLLUTION DEGREE		P
	The information on pollution degrees is extracted from IEC 60664-1		P
	Pollution		P
	The microenvironment determines the effect of pollution on the insulation, taking into account the microenvironment		P

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Clause	Requirement - Test	Result - Remark	Verdict
	Means may be provided to reduce pollution at the insulation by effective enclosures or similar		P
	Minimum clearances specified where pollution may be present in the microenvironment		P
	Degrees of pollution in the microenvironment		P
	For evaluating creepage distances, the following degrees of pollution in the microenvironment are established:		P
	- pollution degree 1: no pollution or only dry, non-conductive pollution occurs. The pollution has no influence		N/A
	- pollution degree 2: only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be expected		P
	- pollution degree 3: conductive pollution occurs or dry non-conductive pollution occurs that becomes conductive due to condensation that is to be expected		N/A
	- pollution degree 4: the pollution generates persistent conductivity caused by conductive dust or by rain or snow		N/A
N	ANNEX N (NORMATIVE) PROOF TRACKING TEST		N/A
	The proof tracking test is carried out in accordance with IEC 60112 with the following modifications:		N/A
7	Test apparatus		N/A
7.3	Test solutions		N/A
	Test solution A is used		N/A
10	Determination of proof tracking index (PTI)		N/A
10.1	Procedure		N/A
	The proof voltage is 100V, 175V, 400V or 600V ....:		N/A
	The last paragraph of Clause 3 applies		N/A
	The test is carried out on five specimens		N/A
	In case of doubt, additional test with proof voltage reduced by 25V, the number of drops increased to 100		N/A
10.2	Report		N/A
	The report stating if the PTI value was based on a test using 100 drops with a test voltage of (PTI-25) V		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
O	ANNEX O (INFORMATIVE) SELECTION AND SEQUENCE OF THE TESTS OF CLAUSE 30		P
	Description of tests for determination of resistance to heat and fire		P
P	ANNEX P (INFORMATIVE) GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN WARM DAMP EQUABLE CLIMATES		N/A
	Modifications applicable for class 0 and 01 appliances having a rated voltage exceeding 150V, intended to be used in countries having a warm damp equable climate and that are marked WdaE		N/A
	Modifications may also be applied to class 1 appliances having a rated voltage exceeding 150V, intended to be used in countries having a warm damp equable climate and that are marked WdaE, if liable to be connected to a supply mains that excludes the protective earthing conductor		N/A
5	General conditions for the tests		N/A
5.7	The ambient temperature for the tests of Clauses 11 and 13 is 40 $^{+3}/_{0}$		N/A
7	Marking and instructions		N/A
7.1	The appliance marked with the letters WDaE		N/A
7.12	The instructions state that the appliance is to be supplied through a RCD having a rated residual operating current not exceeding 30 mA		N/A
	The instructions state that the appliance is considered to be suitable for use in countries having a warm damp equable climate, but may also be used in other countries		N/A
11	Heating		N/A
11.8	The values of Table 3 are reduced by 15 K		N/A
13	Leakage current and electric strength at operating temperature		P
13.2	The leakage current for class I appliances not exceeding 0,5 mA		N/A
15	Moisture resistance		N/A
15.3	The value of t is 37 ℃		N/A
16	Leakage current and electric strength		N/A
16.2	The leakage current for class I appliances not exceeding 0,5 mA		N/A
19	Abnormal operation		N/A
19.13	The leakage current test of 16.2 is applied in addition to the electric strength test of 16.3		N/A
Q	ANNEX Q (INFORMATIVE) SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS		P

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Clause	Requirement - Test	Result - Remark	Verdict

	Description of tests for appliances incorporating electronic circuits		P
R	ANNEX R (NORMATIVE) SOFTWARE EVALUATION		N/A
	Software evaluated in accordance with the following clauses of Annex H of IEC 60730-1, as modified		N/A
H.2	Definitions		N/A
	Only definitions H.2.16 to H.2.20 applicable		N/A
H.7	Information		N/A
	Only footnotes 12) to 18) of Table 7.2, as modified, applicable		N/A
H.11.12	Controls using software		N/A
	All the subclauses of H.11.12, as modified, except H.11.12.6 and H.11.12.6.1, applicable		N/A
H.11.12.7	Delete text		N/A
H.11.12.7.1	For appliances using software class C having a single channel with self-test and monitoring structure, the manufacturer provides the measures necessary to address the fault/errors in safety related segments and data		N/A
H.11.12.8	Software fault/error detection occurs before compliance with 19.13 of EN 60335-1 is impaired		N/A
H.11.12.8.1	Replace text		N/A
H.11.12.13	Software and safety related hardware under its control initializes and terminates before compliance with 19.13 of EN 60335-1 is impaired		N/A
AA	ANNEX AA (NORMATIVE) BATTERY CHARGERS FOR USE BY CHILDREN (EN 60335-2-29 / A1)		N/A
	The battery charger have a d.c. output at SELV not exceeding 30 V and a rated output not exceeding 50 VA		N/A
5.210	Use of rechargeable batteries giving the most unfavourable conditions		N/A
6.1	Protection against electric shock for battery chargers for outdoor use: Class III .....:		N/A
	Protection against electric shock for other battery chargers: Class II, III ....:		N/A
6.2	Protection against harmful ingress of water for battery chargers for outdoor use: IPX7 ……....:		N/A
6.201	Protection against ingress of solid foreign objects: IP3X .....:		N/A
7.1	Symbol 5957 of IEC 60417 or text “For indoor use only” for battery chargers for indoor use ……...:		N/A
	IP number .....:		N/A
	Smiling face symbol together with 8+		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
7.6	Correct symbols used		N/A
7.12	Instructions for safe use contains:		N/A
	-Warning to only allow children at least 8 years old to use battery charger		N/A
	Sufficient instructions for safe use of battery charger by a child		N/A
	Explanation that battery charger is not a toy		N/A
	-Instruction for child not to try and recharge non-rechargeable batteries		N/A
	-Warning to examine battery charger regularly for damage		N/A
	Warning in case battery charger is damaged		N/A
	Instruction for Class III battery charger to be supplied from transformer for toys		N/A
7.14	Height of symbol marked on the appliance at least 10 mm		N/A
	Height of lettering at least 3 mm		N/A
8.1.1	Use of test probe B of IEC 61032: no contact with live parts or metal parts separated from live parts by basic insulation only, even after use of a tool to remove parts of enclosure		N/A
10.101	The output voltage not exceed 42,4 V peek .....:		N/A
11.8	Temperature rises of parts that can be touched by test probe 18 of IEC 61032		N/A
17	Temperature rises of parts that can be touched by test probe 18 of IEC 61032		N/A
19.13	Temperature rises of parts that can be touched by test probe 18 of IEC 61032		N/A
21.201	Impact test Eha of IEC 60068-2-75, with impact energy of 2 J		N/A
	Free fall test Ed, Procedure 1 of IEC 60068-2-32, from the height of 500 mm		N/A
	Battery charger not damaged to such extend that compliance is impaired, live parts not accessible		N/A
22.201	Battery charger with only one rated voltage or rated voltage range		N/A
	Battery charger not incorporate means for manually adjusting output voltage		N/A
22.202	Construction of battery charger prevent reverse charging		N/A
24.201	Transformer for toys tested in accordance with subclauses 7.2, 20.5.1 and 20.101 and clause 15 of standard IEC 61558-2-7		N/A
25.1	Battery charger not provided with an appliance inlet		N/A
25.5	Battery charger provided with type Y or type Z attachment		N/A
	EN 60335-1:2001+A2: 2006 +A13:2008		
5	GENERAL CONDITIONS FOR THE TESTS		P
5.3	Addition: the test of 19.14 is carried out before the tests of 19.11		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
7.5	the power input is related to the arithmetic mean value of the rated voltage range		N/A
7.12	The instructions shall state the substance of the following:		P
	This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.	Statement included	P
	Children should be supervised to ensure that they do not play with the appliance.	Statement included	P
8	PROTECTION AGAINST ACCESS TO LIVE PARTS		P
8.1.4	– for voltages having a peak value over 15 kV, the energy in the discharge shall not exceed 350 mJ.		N/A
19	ABNORMAL OPERATION		P
19.1	Addition: appliances incorporating contactors or relays are subjected to the test of 19.14		N/A
19.11	Appliances having a device with an off position obtained by electronic disconnection, or a device placing the appliance in a stand-by mode, subjected to the tests of 19.11.4		N/A
	Add: appliances incorporating an electronic circuit that relies upon a programmable component to function correctly are subjected to the test of 19.11.4.8,unless		N/A
	Restarting at any point in the operating cycle after interruption of operation due to a supply voltage dip will not result in a hazard		N/A
19.11.2	g) failure of an electronic power switching device in a partial turn-on mode with loss of gate (base) control. During this test, winding temperatures shall not exceed the values given in 19.7.		N/A
19.11.4	Appliances having a device with an off position obtained by electronic disconnection, or		N/A
	a device that can be placed in the stand-by mode,		N/A
19.11.4.6	The appliance is subjected to the Class 3 voltage dips and interruptions in accordance with IEC 61000-4-11. The values specified in Table 1 and Table 2 of IEC 61000-4-11 are applied at zero crossing of the supply voltage.		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
19.11.4.8	The appliance is supplied at rated voltage and operated under normal operation. After approximately 60 s, the power supply voltage is reduced to a level such that the appliance ceases to respond to user inputs or parts controlled by the programmable component cease to operate, whichever occurs first. This value of supply voltage is recorded. The appliance is supplied at rated voltage and operated under normal operation. The voltage is then reduced to a value of approximately 10 % less than the recorded voltage. It is held at this value for approximately 60 s and then increased to rated voltage. The rate of decrease and increase of the power supply voltage is to be approximately 10 V/s.		N/A
	The appliance shall continue to either operate normally from the same point in its operating cycle at which the voltage decrease occurred or a manual operation shall be required to restart it.		N/A
19.13	After the tests, and when the appliance has cooled to approximately room temperature, compliance with Clause 8 shall not be impaired.		P
	If the appliance can still be operated it complies with 20.2		N/A
	if they become operational, not result in a dangerous malfunction during or after the tests of 19.11.4.		P
19.14	Appliances are operated under the conditions of clause 11, any contactor or relay contact that operates during clause 11 is short-circuited.		N/A
22	CONSTRUCTION		P
	Replace: single-pole switches and single-pole protective devices that disconnect heating elements from the supply mains in single-phase, permanently connected class 0I appliances and class I appliances shall be connected to the phase conductor.		N/A
22.21	This requirement does not apply to magnesium oxide and mineral ceramic fibres used for the electrical insulation of heating elements.		N/A
22.32	Insulating material in which heating conductors are embedded is considered to be basic insulation and not reinforced insulation.	No such parts	N/A
22.35	For constructions other than those of class III, handles, levers and knobs, held or actuated in normal use, not becoming live in the event of failure of basic insulation		N/A
	Such parts being of metal, and their shafts or fixings are likely to become live in the event of failure of basic insulation, they are either adequately covered by insulation material, or their accessible parts are separated from their shafts or fixings by supplementary insulation		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
22.40	Unless the appliance can operate continuously, automatically or remotely without giving rise to a hazard, appliances for remote operation shall be fitted with a switch for stopping the operation of the appliance. The actuating member of this switch shall be easily visible and accessible.		N/A
22.44	Appliances are not allowed to have an enclosure that is shaped and decorated like a toy.		P
22.49	For remote operation, the duration of operation shall be set before the appliance can be started unless the appliance swithes off automatically at the end of a cycle of it can operate continuously without giving rise to a hazard		N/A
22.50	Controls incorporated in the appliance, if any, shall take priority over controls actuated by remote operation.		N/A
22.51	A control on the appliance shall be manually adjusted to the setting for remote operation before the appliance can be operated in this mode. There shall be a visual indication on the appliance showing that the appliance is adjusted for remote operation. Unless		N/A
	the appliance can operate continuously, automatically or remotely without giving rise to a hazard		N/A
22.52	Socket-outlets on appliance accessible to the user shall be in accordance with the socked-outlet system used in the country in which the appliance is sold		P
24	COMPONENTS		P
24.1	Components not tested and found to comply with relevant IEC standard for the number of cycles specified are tested in accordance with 24.1.1 to 24.1.9		P
	Lampholders and starterholders that have not been previously tested and found to comply with the relevant IEC standard are tested as a part of the appliance and shall additionally comply with the gauging and interchangeability requirements of the relevant IEC standard under the conditions occurring in the appliance		P
24.1.7	If the remote operation of the appliance is via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is IEC 62151		N/A
24.1.8	The relevant standard for thermal links is IEC 60691		N/A
	Thermal links that do not comply with IEC 60691 are considered to be an intentionally weak part for the purposes of clause 19		N/A
24.1.9	Relays, other than motor starting relays, are tested as part of the appliance.		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	They are also tested in accordance with clause 17 of IEC 60730-1 under the maximum load conditions occurring in the appliance for at least the number of operation in 24.1.4 selected according to the relay function in the appliance.		N/A
25	SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS		P
25.7	Supply cords shall be one of the following types:		N/A
	-ordinary tough rubber sheathed cord (60245 IEC 53)		N/A
	-ordinary polychloroprene sheathed flexible cord (code designation 60245 IEC 57);		N/A
	-crosslinked polyvinyl chloride sheathed cords(code designation 60245 IEC 87);		N/A
	Polyvinyl chloride sheathed cords shall not be used if they are likely to touch metal parts having a temperature rise exceeding 75K during the test of clause 11		N/A
	-light polyvinyl chloride sheathed cord (60227 IEC 52), appliance not exceeding 3 kg		N/A
	-ordinary polyvinyl chloride sheathed cord (60227 IEC 53), appliance exceeding 3 kg		N/A
	Heat resistant polyvinyl chloride sheathed cords shall not be used for type X attachment other than specially prepared cords		N/A
	-heat resistant light polyvinyl chloride sheathed cord (60227 IEC 56), appliance not exceeding 3 kg		N/A
	-heat resistant polyvinyl chloride sheathed cord (60227 IEC 57), appliance exceeding 3 kg		N/A
27	PROVISION FOR EARTHING		N/A
27.6	They may be used to provide earthing continuity in other appliances if:		N/A
	at least two tracks are used with independent soldering points and the appliance complies with 27.5 for each circuit.		N/A
28	SCREWS AND CONNECTIONS		N/A
28.3	Thread-cutting (self-tapping) screws and thread rolling screws only used for electrical connections if they generate a full form standard machine screw thread		N/A
	Thread-cutting(self-tapping) screws shall not be used if they are likely to be operated by the user or installer		N/A
	Thread-cutting ,thread rolling and space-threaded screws may be used in connections providing earthing continuity provided it is not necessary to disturb the connection		N/A
	-in normal use		N/A
	-during user maintenance		N/A
	-when replacing a supply cord(X attachment)		N/A
	-during installation		N/A
	At least two screws must be used for each connection providing earthing continuity unless the screw forms a thread having a length of at least half the diameter of the screw.		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
29	CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION		P
	If coatings are used on printed circuit boards to protect the microenvironment(Type 1 coating) or to provide basic insulation(Type 2 coating), Annex J applies.		N/A
	Type 1 coating: pollution degree 1		N/A
	Type 2 coating: no creepage distance or clearance requirements		N/A
30	RESISTANCE TO HEAT AND FIRE		P
30.2	Appliances for remote operation are considered to be appliances that are operated while unattended and consequently they are subjected to the test of 30.2.3		N/A
30.2.2	The glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least		N/A
	-750°C, for connections carrying a current exceeding 0,5A during normal operation		N/A
	-650°C, for other connections		N/A
30.2.3.1	subjected to the glow-wire test of IEC 60695-2-11 at a temperature of 850°C or		P
	having a glow-wire flammability index of at least 850°C according to IEC 60695-2-12		P
32	RADIATION, TOXICITY AND SIMILAR HAZARDS		P
	Appliance does not emit harmful radiation or present a toxic or similar hazard		P
	If no limits or tests are specified in Part 2, the appliance is deemed to comply with the requirement without testing		P
E	ANNEX E (NORMATIVE) NEEDLE-FLAME TEST		N/A
	Needle-flame test carried out in accordance with IEC 60695-11-5, with the following modifications:		N/A
5	Severities		N/A
	The duration of application of the test flame is 30 s ± 1 s		N/A
9	Test procedure		N/A
9.1	The specimen so arranged that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1		N/A
9.2	The first paragraph does not apply		N/A
	If possible, the flame is applied at least 10 mm from a corner		N/A
9.3	The test is carried out on one specimen		N/A
	If the specimen does not withstand the test, the test may be repeated on two further specimens, both withstanding the test		N/A
11	Evaluation of test results		N/A
	The duration of burning not exceeding 30 s		N/A
	However, for printed circuit boards, the duration of burning not exceeding 15 s		N/A

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

ANNEX EMF			
4	**MEASURING METHODS(EN 62233:2008)**		**P**
EMF-ELECTROMAGNETICS FIELDS			
4.2	The frequency range considered is from 10Hz to 400kHz		P
	The tested product also complies with the requirements of EN 62233:2008		P
	Limit ……100%	Measured max. : 2.136%	P
Note: tested for all surfaces.			

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Clause	Requirement - Test	Result - Remark	Verdict

10.1	TABLE: Input power deviation				N/A
Input deviation of/at:	**P rated (W)**	**P measured (W)**	**ΔP (%)**	**Required ΔP (%)**	**Remark**
Supplementary information:					

10.2	TABLE: Current deviation				P
Current deviation of/at:	**I rated (A)**	**I measured (A)**	**Δ I**	**Required Δ I**	**Remark**
100Vac/50Hz	0.6	0.466	-22.33%	±10%	P
100Vac/60Hz	0.6	0.472	-21.33%	±10%	P
240Vac/50Hz	0.6	0.242	-59.67%	±10%	P
240Vac/60Hz	0.6	0.241	-59.83%	±10%	P

10.102	TABLE: Output current deviation					
Current deviation of/at:	**U_o rated (V)**	**I_o rated (A)**	**I_o measured (A)**	**ΔI_o (%)**	**Required ΔI_o (%)**	**Remark**
100Vac/50Hz	12	2	1.88	-6%	±10%	P
100Vac/60Hz	12	2	1.89	-5.5%	±10%	P
240Vac/50Hz	12	2	1.92	-4%	±10%	P
240Vac/60Hz	12	2	1.93	-3.5%	±10%	P

11.8	TABLE: Heating Test				P
	Test voltage (V) ..... :	94V, 60Hz; 254.4V, 50Hz			—
	Ambient (°C) ..... :	See below table			—
Thermocouple Locations	**Max. temperature rise measured, ΔT (K)**				**Max. temperature rise limit, ΔT (K)**
	94V, 60Hz Label up	94V, 60Hz Label down	254.4V, 50Hz Label up	254.4V, 50Hz Label down	--
Input wire	22.6	21.3	15.2	13.4	30
MOV1	26.0	26.7	18.7	17.9	45
CX1	35.5	34.4	24.6	22.8	60
LF1 winding	49.8	44.4	28.2	23.6	90
C11	63.1	57.7	30.4	26.2	65
C2	56.5	53.7	37.0	33.5	65
CY1	49.7	54.6	41.2	43.3	85
IC1	54.1	53.6	47.0	45.4	90
T1 winding	61.9	63.9	60.0	59.8	70
T1 core	59.7	60.6	58.0	57.3	70
IC3	55.8	56.8	56.3	56.6	60

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Clause	Requirement - Test	Result - Remark	Verdict

C7	34.0	37.2	32.4	33.7	65
PCB under D7	45.6	47.5	42.2	42.8	90
Output wire	58.0	59.7	54.5	55.5	40
PCB under BD1	21.5	24.7	22.0	23.0	90
L2 winding	74.0	71.1	40.4	37.2	90
Enclosure inside T1 top	49.4	50.2	48.0	46.2	80
Enclosure inside T1 bottom	38.2	39.7	36.9	34.3	80
Enclosure outside T1 top	37.3	36.5	31.8	32.2	45
Enclosure outside T1 bottom	26.1	28.6	25.1	25.2	45
Test corner	24.5	25.8	23.1	23.5	50
Ambient	24.3	24.1	24.3	24.2	--

Supplementary information:

1. Load: RC load Figure 101

2. The limits is corrected at Tma=25ºC.

3. Label up means the battery charger is placed on desk with rating label up position; Label down means the battery charger is placed on desk with rating label down position.

13.2	TABLE: Leakage current		P
	Heating appliances: 1.06 x rated input .....:	--	—
	motor-operated and combined appliances: at 1,1times rated voltage (V) .....:	254.4V, 60Hz	—

Leakage current between	I (mA)	Max. allowed I (mA)
Live parts and output terminal	0.166 peak	0.35 peak
Live parts and plastic enclosure	0.012 peak	0.35 peak

Remark: disconnected the protective impedance before this test.

13.3	TABLE: Electric strength	P

Test voltage applied between:	Voltage (Vac)	Breakdown (Yes/No)
Live and Neutral (fuse disconnect)	1250	No
Live parts and output terminal	3056	No
Live parts and plastic enclosure	3056	No

Note: N/A

14	**TABLE: Transient overvoltages**	**N/A**

Clearance between:	**CI (mm)**	**Required CI (mm)**	**Rated impulse voltage (V)**	**Impulse test voltage (V)**	**Flashover (Yes/No)**

Supplementary information:

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Clause	Requirement - Test	Result - Remark	Verdict

16.2	TABLE: Leakage current		P
	Single phase appliances: 1.06 x rated voltage.....:	254.4V 60Hz	—
	Three phase appliances 1.06 x rated voltage divided by √3:.....:	--	—

Leakage current between	I (mA)	Max. allowed I (mA)
Live parts and output terminal	0.170	0.25
Live parts and plastic enclosure	0.005	0.25
Note: N/A		

16.3	TABLE: Electric strength	P

Test voltage applied between:	Voltage (Vac)	Breakdown (Yes/No)
Live and Neutral (fuse disconnect)	1250	No
Live parts and output terminal	3056	No
Live parts and plastic enclosure	3056	No
Note: N/A		

17	**TABLE: Overload protection**	**P**

Thermocouple locations	**Max. temperature rise measured, ΔT (K)**	**Max. temperature rise limit, ΔT (K)**
T1 winding	109.2	165
T1 core	106.8	165
T2 winding	105.3	165
T2 core	101.6	165
Input wire	78.2	95
output wire	75.3	95
Supplementary information:		

17	Overload test of transformer		P
	test voltage (V) .....:	254.4Vac/60Hz	—
	Ambient (°C) .....:	25.4	—

Parts / Condition	Duration / Input Current	Result	Parts measured	temperature (°C)	Limit (°C)
For model: XY-0504000-E					
Output terminal of battery charger / Short	0.222A → 0.005A	Unit shut down, no hazards	T1 Winding	--	200-175-150
			T1 Core	--	ball pressure
			Output wire	--	95
Secondary output of transformer / Overload	0.222A → 0.246A → 0.254A → 0.004A	Overload to 2.7A, unit shut down, no hazards.	T1 Winding	115.6	~~200~~-175-~~150~~
			T1 Core	112.5	ball pressure
			Input wire	55.8	95
			Output wire	66.5	95
Secondary	0.222A →	Unit shut down, no	T1 Winding	--	200-175-150

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Clause	Requirement - Test	Result - Remark	Verdict

output winding of transformer (T1 PinA to PinB)/ Short	0.004A	hazards	T1 Core	--	ball pressure
			Input wire	--	85
			Output wire	--	95

19	**Abnormal operation conditions**	**P**

Operational characteristics	**YES/NO**	**Operational conditions**
Are there electronic circuits to control the appliance operation?	YES	Input: 254.4V/50Hz
Are there "off" or "stand-by" position?	NO	--
The unintended operation of the appliance results in dangerous malfunction?	NO	--

Sub-clause	**Operating conditions description**	**Test results description**	**PEC description**	**EMP 19.11.4**	**Software type required**	**19.11.3 PEC**	**Final result**
19.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.11.2	See clause 19.11.2	No hazard was found.	N/A	N/A	N/A	N/A	N/A
19.11.4.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.101	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.102	See clause 19.102	No hazard was found.	N/A	N/A	N/A	N/A	Pass
19.103	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Supplementary information: --							

19.7	**TABLE: Abnormal operation, locked rotor/moving parts**		**N/A**
	Test voltage (V) .....:		—
	Ambient, t_1 (°C).....:		—
	Ambient, t_2 (°C).....:		—

Temperature of winding	**R_1 (Ω)**	**R_2 (Ω)**	**ΔT (K)**	**T (°C)**	**Max. T (°C)**
Supplementary information: --					

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Clause	Requirement - Test	Result - Remark	Verdict

19.9	TABLE: Abnormal operation, running overload					N/A
	Test voltage (V) ..... :					—
	Ambient, t_1 (°C) ..... :					—
	Ambient, t_2 (°C) ..... :					—
Temperature of winding		R_1 (Ω)	R_2 (Ω)	ΔT (K)	T (°C)	Max. T (°C)
Supplementary information: --						

19.11	TABLE: fault condition tests					P
	ambient temperature (°C) ..... :				25°C	—
	model/type of appliance ..... :				See below	—
	rated markings of appliance ..... :				See page 1	—
component No.	fault	test voltage (V)	test time	fuse No.	fuse current (A)	result
BD1 "+" to "-"	SC	240	1S	F1	--	Fuse current (A) : 0.222A → 0A F1 opened immediately, no hazards.
C11	SC	240	1S	F1	--	Fuse current (A) : 0.222A → 0A F1 opened immediately, no hazards.
C2	SC	240	1S	F1	--	Fuse current (A) : 0.222A → 0A F1 opened immediately, no hazards.
IC1 Pin2 to 5	SC	240	10Mins	F1	--	Fuse current (A) : 0.222A → 0.008A Unit shut down, no hazards.
IC1 Pin3 to 5	SC	240	10Mins	F1	--	Fuse current (A) : 0.222A → 0.008A Unit shut down, no hazards.
IC1 Pin5 to 8	SC	240	1S	F1	--	Fuse current (A) : 0.222A → 0A F1 opened immediately, BD1 damaged, no hazards.
R7	SC	240	1S	F1	--	Fuse current (A) : 0.222A → 0A F1 opened immediately, BD1 damaged, no hazards.
D7	SC	240	10Mins	F1	--	Fuse current (A) : 0.222A → 0.009A Unit shut down, no hazards.
T1 Pin1 – Pin2	SC	240	10Mins	F1	--	Fuse current (A) : 0.222A → 0.009A Unit shut down, no hazards.
T1 Pin3 – Pin5	SC	240	10Mins	F1	--	Fuse current (A) : 0.222A → 0.011A

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Clause	Requirement - Test	Result - Remark	Verdict

						Unit shut down, no hazards.
T1 PinA – PinB	SC	240	10Mins	F1	--	Fuse current (A) : 0.222A → 0.010A Unit shut down, no hazards.
IC3 Pin1 – Pin2	SC	240	10Mins	F1	--	Fuse current (A) : 0.222A → 0.01A Unit shut down, no hazards.
IC3 Pin3 – Pin4	--	--	10Mins	F1	--	Fuse current (A) : 0.222A → 0.01A Unit shut down, no hazards.
IC3 Pin1	SC	240	10Mins	F1	--	Fuse current (A) : 0.222A → 0.01A Unit shut down, no hazards.

Supplementary information:

1. "SC" means short-circuited test; "OC" means open-circuited test; Uo means output voltage at normal load, Uoc means output voltage at no load.
2. Thermocouple method was used.
3. All faults which caused current fuse opened were repeated by using alternative current fuse separately, obtained the same results, measured fuse current >10A when fuse opened fault test.
4. All tests were considered in 100V/50Hz also, same result occurs.

19.13	**TABLE: Abnormal operation, temperature rises**	**N/A**

Thermocouple locations	**Max. temperature rise measured, ΔT (K)**	**Max. temperature rise limit, ΔT (K)**

Supplementary information:

21.1	**TABLE: Impact resistance**	**P**

Impacts per surface	**Surface tested**	**Impact energy (Nm)**	**Comments**
Three blows	Top enclosure	1.0	No hazards
Three blows	Right side enclosure	1.0	No hazards
Three blows	Left side enclosure	1.0	No hazards
Three blows	Bottom enclosure	1.0	No hazards
Three blows	Front enclosure	1.0	No hazards
Three blows	Rear enclosure	1.0	No hazards

Supplementary information: --

24.1	**Critical Components**				
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
Plastic enclosure	Sabic Innovative Plastics US L L C	FR60 (GG)	V-0, 125°C, Min. thick 2.0mm	UL 94	UL

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Clause	Requirement - Test	Result - Remark	Verdict

Alternative	Sabic Innovative Plastics B V	945 (GG)	V-0, 125°C, Min. thick 2.0mm	UL 94	UL
PCB	Kingboard Laminates Holdings Ltd	KB-3151S, KB-5150	V-0, 130°C	UL 94	UL
Alternative	Shandong Jinbao Electronics Co Ltd	ZD-90F	V-0, 130°C	UL 94	UL
Alternative	Various	Various	V-0, 130°C	UL 94	UL
Fuse (F1)	Shenzhen Lanson Electronics Co Ltd	3K	T2AL, 250V	IEC/EN 60127-1, IEC/EN 60127-3	VDE
Alternative	Sun Electric Co. O/B Heroday Ltd.	5B	T2AL, 250V	IEC/EN 60127-1, IEC/EN 60127-3	VDE
Alternative	Shenzhen Lanson Electronics Co. Ltd.	3N - Serie(s)	T2AL, 250V	IEC/EN 60127-1, IEC/EN 60127-3	VDE 40016660
Alternative	Walter Electronic Co Ltd	ICP-Series	T2AL, 250V	IEC/EN 60127-1, IEC/EN 60127-3	VDE
Alternative	Dongguan Hongda Electronic Technology Co., Ltd.	31 TD	T2AL, 250V	IEC/EN 60127-1, IEC/EN 60127-3	VDE 40030816
Alternative	Dongguan Anlu Electronics Technology Co. Ltd.	32GT	T2AL, 250V	IEC/EN 60127-1, IEC/EN 60127-3	VDE 40039890
Alternative	Dongguan Reomax Electronics Technology Co., Ltd.	FBP	T2AL, 250V	IEC/EN 60127-1, IEC/EN 60127-3	VDE 40034581
Heat shrinkable tube	Interchangeable	Interchangeable	VW-1, 600V, 125°C	UL 224	UL
Y-capacitor (CY1,CY2)	Success Electronics Co Ltd	SB, SE	Max.2200pF, Min.250VAC, 125°C, type Y1	IEC 60384-14, UL 1414	UL VDE
Alternative	Shantou High-New Technology Developmnt Zone Songtian Enterprise Co Ltd	CD	Max.2200pF, Min.250VAC, 125°C, type Y1	IEC 60384-14, UL 1414	UL VDE
Alternative	JYA-NAY CO LTD	JN	Max.2200pF, Min.250VAC, 125°C, type Y1	IEC 60384-14, UL 1414	UL VDE
Alternative	JYH Chung Electronics Co Ltd	JD	Max.2200pF, Min.250VAC, 125°C, type Y1	IEC 60384-14, UL 1414	UL VDE
Varistor (MOV) (optional)	Cerglass MFG Inc	10D471K	Min. 300V AC, 85°C	IEC 61051-1 IEC 61051-2 IEC 61051-2-2	UL VDE
Alternative	Centra Science Corp.	CNR-10D471K	Min. 300VAC, Min.85°C, V-0 coating	IEC/EN61051-1, IEC/EN61051-2+A1, IEC/EN	VDE

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Clause	Requirement - Test	Result - Remark	Verdict

				61051-2-2	
Alternative	Shantou High-New Technology Developmnt Zone Songtian Enterprise Co Ltd	10D471K	Min. AC 300V, 85ºC	IEC 61051-1 IEC 61051-2 IEC 61051-2-2	UL VDE
Alternative	Hongzhi Enterprises Ltd	HEL-10D471K (HEL10D471K)	Min. AC 300V, 85ºC	IEC 61051-2 IEC 61051-2-2 UL 1449	VDE UL
Alternative	Success Electronics Co., Ltd.	SVR10D471K	Min. 300VAC, Min.85°C, V-0 coating	IEC/EN61051-1, IEC/EN61051-2+A1, IEC/EN 61051-2-2	VDE
Alternative	Thinking Electronic Industrial Co., Ltd.	TVR10471-V	Min. 300VAC, Min.85°C, V-0 coating	IEC/EN61051-1, IEC/EN61051-2+A1, IEC/EN 61051-2-2	VDE
Alternative	Xiangtai Electronics (Shenzhen) Co., Ltd.	MYD-10K471	Min. 300VAC, Min. 85°C, V-0 coating	IEC/EN61051-1, IEC/EN61051-2+A1, IEC/EN 61051-2-2	VDE
Line Filter (L1)	Shenzhen WZY Technology Co., Ltd.	UU9.8	130 ºC, min. 15mH	IEC 60950-1	Tested in equipment
-Winding	Various	Various	130 ºC	UL 1446	UL
- Insulation tape	Jingjiang Yahua Pressure Sensitive Glue Co Ltd	PZ	130°C	UL 510	UL
Photo-couplers IC3	Lite-On Technology Corp	LTV-817	Dti≥0.4mm, cl=cr ≥ 6.5mm, 100°C	IEC/EN 60747-5-2, UL1577	VDE UL
Alternative	Sharp Corp Electronic Components And Devices Group	PC817	Dti≥0.4mm, cl=cr ≥ 6.5mm, 100°C	IEC/EN 60747-5-2, UL1577	VDE UL
Alternative	Bright Led Electronics Corp	BPC-817	Dti≥0.4mm, cl=cr ≥ 6.5mm, 100°C	IEC/EN 60747-5-2, UL1577	VDE UL
Alternative	Cosmo Electronics Corporation	K1010	Dti≥0.4mm, cl=cr ≥ 6.5mm, 115°C	IEC/EN 60747-5-2, UL1577	VDE UL
Alternative	Everlight Electronics Co., Ltd.	EL817 (EL817 V)	Cr.=min. 6.0mm; Dti. = 0.5mm, 110°C	IEC/EN 60747-5-2, UL1577	VDE UL
Insulation sheet	Mianyang Longhua Film Co Ltd	PC-870	V-0, 80°C	UL 94	UL
Input wire	Interchangeable	Interchangeable	Min 24AWG FT-1, VW-1, Min.80°C, 300V	UL 758	UL
Output wire	Interchangeable	Interchangeable	Min 24AWG VW-1, Min.80°C,300V	UL 758	UL

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Clause	Requirement - Test	Result - Remark	Verdict

Transformer (T1)	Dong guan shi shi jie zheng ying di Electric Factory	XY-1202000-T1	CLASS B	IEC/EN 60335-1, IEC/EN60335-2-29	Tested in equipment
- Bobbin	Chang Chun Plastics Co Ltd	T375J	V-0, 150°C, Min. thickness: 0.71mm	UL 94	UL
-Triple insulated wire	Dah Jin Technology Co.,Ltd	TLW-B	130°C	IEC 62368-1, UL 2353	VDE
Alternative	Suzhou Yusheng Electronic Co.,Ltd	TIW-B	130°C	IEC 62368-1, UL 2353	VDE
-Tube	Jiangyin Huayue Electrical Material Co Ltd	PT	200°C, 600V, VW-1	UL510	UL
- Insulation tape	Jingjiang Yahua Pressure Sensitive Glue Co Ltd	PZ	130°C	UL 510	UL
Alternative	Suzhou Mailaduona Electric Material Co Ltd	JY312(#)	130°C	UL 510	UL
-Winding	Various	Various	130 C	UL 1446	UL
X-capacitor (CX1)	Tenta Electric Industrial Co. Ltd.	MEX	0.1 µF, Min. 250VAC, 100°C	IEC 60384-14, UL 1414	UL VDE
Alternative	Xiangtai Electronic (shenzhen) Co Ltd	MPX/MKP	Min,0.1µF, Min. 250VAC, 100°C	IEC 60384-14, UL 1414	VDE UL
Alternative	Shantou High-New Technology Development Zone Songtian Enterprise Co Ltd	MPX	Min,0.1µF, Min. 250VAC, 100°C	IEC 60384-14, UL 1414	VDE UL
Alternative	Dain Electronics Co Ltd	MPX, NPX, MEX	0.1 µF, Min. 250VAC, 100°C	IEC 60384-14, UL 1414	UL VDE
Alternative	Dongguan city dafu Co Ltd	MPX	Min,0.1µF, Min. 250VAC, 100°C	IEC 60384-14, UL 1414	VDE UL
Y-capacitor (CY1, CY2)	Shantou High-New Technology Developmnt Zone Songtian Enterprise Co Ltd	CE series	4700pF, Min.250VAC, 125°C, type Y1	IEC 60384-14, UL 1414	UL VDE
Alternative	Success Electronics Co., Ltd.	SF, SB	4700pF, Min.250VAC, 125°C, type Y1	IEC 60384-14, UL 1414	UL VDE
Alternative	JYA-NAY Co., Ltd.	JY	4700pF, Min.250VAC, 125°C, type Y1	IEC 60384-14, UL 1414	UL VDE
Alternative	Dongguan City Dafu	CT7	4700pF,	IEC 60384-14,	VDE

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Clause	Requirement - Test	Result - Remark	Verdict

	Electronics Co. Ltd.		Min.250VAC, 125°C, type Y2	UL 1414	UL
Power plug for model V-1202000-ED	Ching Cheng Wire Material Co., Ltd.	EL-207	AC 250 V, 2.5A	EN 50075:1990	VDE 097225
Alternative	Hang Lee Industrial Co	HL-77	2.5A; 250VAC	EN50075	VDE
Alternative	Shenzhen YeTasu Electrical Co., Ltd.	YTV11	2.5A; 250VAC	EN50075	VDE
Alternative	Shenzhen Dong Ju Wire & Cable Co Ltd	DJ-011	2.5A; 250VAC	EN50075	VDE
Alternative	Sheng Yi Electrical Factory	SY-21	2.5A; 250VAC	EN50075	VDE
Alternative	Dongguan Poweryuan Wire Industries Co., Ltd.	LY-807	2.5A; 250VAC	EN50075	VDE
Alternative	Shangyu Jintao Electron Co.,Ltd	JT001	2.5A; 250VAC	EN50075	VDE
Alternative	Kenic Electric Mfg.Co. Ltd	KE-21	2.5A; 250VAC	EN50075	VDE 097182
Alternative	Longwell Company	LP-21	2.5A; 250VAC	EN50075	VDE 40008950
Alternative	Dongguan Chuangxu Wire Co Ltd	CX-21	2.5A; 250VAC	EN50075	VDE 40044783
Power cord for model V-1202000-ED	I-Sheng Electric Wire & Cable Co., Ltd.	H03VVH2-F, H03VV-F	Min.2x0.5mm^2, 300V	EN 50525-2-11	VDE
Alternative	Interchangeable	H03VVH2-F,H03VV-F	Min. 0.5mm^2 , 300V	EN 50525-2-11	VDE
Flexible-cord switch for model V-1202000-ED (optional)	DONGGUAN XIANGHUI ELEC ENGINEERING MATERIAL CO LTD	XH-304; XH-303	250V ,2A,1E4 , 55℃	EN61058-1, EN61058-2-1	ENEC
Alternative	Foshan Shunde Ojun Electrical Technology Co., Ltd.	OJ-304, OJ-303	250V ,2A,1E4 , 55℃	EN61058-1, EN61058-2-1	ENEC
Alternative	Foshan Ojun Electronic Technology Co,. Ltd.	8S.303	250V ,2A,1E4 , 55℃	EN61058-1, EN61058-2-1	VDE
Alternative	Openwise industrial Limited	304	250V ,2A,1E4 , 55℃	EN61058-1, EN61058-2-1	ECEC
Alternative	Openwise industrial Limited	303	250V ,2A,1E4 , 55℃	EN61058-1, EN61058-2-1	VDE
Supplementary information: 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039. *: Output wire less than 20AWG cannot be used unless it is evaluated and allowed by end product standard.					

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Clause	Requirement - Test	Result - Remark	Verdict

28.1	**TABLE: Threaded part torque test**		**N/A**
Threaded part identification	**Diameter of thread (mm)**	**Column number (I, II, or III)**	**Applied torque (Nm)**
Supplementary information: --			

29	Table: working voltage measurement		P
Location	Peak voltage (V)	RMS voltage (V)	Comments
T1 Pin1 to Pin A	233	388	--
T1 Pin2 to Pin A	262	488	--
T1 Pin3 to Pin A	187	372	--
T1 Pin5 to Pin A	185	376	--
T1 Pin1 to Pin B	231	340	--
T1 Pin2 to Pin B	**273**	**524**	Max. Vpeak and Max. Vrms
T1 Pin3 to Pin B	188	368	--
T1 Pin5 to Pin B	189	452	--
IC3 Pin1 to Pin3	192	372	--
IC3 Pin1 to Pin4	192	372	--
IC3 Pin2 to Pin3	191	368	--
IC3 Pin2 to Pin4	191	368	--
CY1 primary to CY2 secondary	185	376	--

29.1	**TABLE: Clearances**					**P**
	Overvoltage category .....:	II				—
		Type of insulation:				
Rated impulse voltage (V):	**Min. cl (mm)**	**Basic (mm)**	**Supplementary (mm)**	**Reinforced (mm)**	**Functional (mm)**	**Verdict / Remark**
330	0,2* / 0,5 / 0,8**	--	--	--	--	N/A
500	0,2* / 0,5 / 0,8**	--	--	--	--	N/A
800	0,2* / 0,5 / 0,8**	--	--	--	--	N/A
1 500	0,5 / 0,8** / 1,0***	--	--	--	--	N/A
2 500	1,5 / **2,0*** **	2.0[2)]	2.0[3)]	--	2.0[1)]	P
4 000	3,0 / **3,5*** **	--	--	5.5[4)]	--	P
6 000	5,5 / 6,0***	--	--	--	--	N/A

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Clause	Requirement - Test	Result - Remark	Verdict

29.1	TABLE: Clearances					P
	Overvoltage category .....:	II				—
		Type of insulation:				
Rated impulse voltage (V):	Min. cl (mm)	Basic (mm)	Supplementary (mm)	Reinforced (mm)	Functional (mm)	Verdict / Remark
8 000	8,0 / 8,5***	--	--	--	--	N/A
10 000	11,0 / 11,5***	--	--	--	--	N/A

Supplementary information:

*) For tracks on printed circuit boards if pollution degree 1 and 2
**) For pollution degree 2
***) If the construction is affected by wear, distortion, movement of the parts or during assembly

Functional 1):

The clearance between line to neutral before F1 is 4.6mm.

Basic 2):

The clearance between two terminals of F1 is 4.7mm.

The crearance between CY1 is 3.4mm.

Supplementary3):

The clearance between CY2 is 3.6mm.

Reinforced 4):

The clearance between C2 to enclosure outside surface is 6.5mm.

The clearance between iron core of T1 and secondary component HS2 is > 6.1mm.

The clearance between primary winding of T1 and secondary pins of T1 is 6.9mm.

The clearance between iron core of T1 and secondary pins of T1 is 6.0mm.

The clearance between primary trace to secondary trace of PCB is 6.8mm.

29.2	TABLE: Creepage distances, basic, supplementary and reinforced insulation										P
Working voltage (V)	Creepage distance (mm) Pollution degree										
	1	2			3			Type of insulation			
		Material group			Material group						
		I	II	IIIa/IIIb	I	II	IIIa/IIIb*	B**	S**	R**	Verdict
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9		—	—	N/A

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Clause	Requirement - Test	Result - Remark	Verdict

≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9	—		—	N/A
≤50	0,36	1,2	1,7	2,4	3,0	3,4	3,8	—	—		N/A
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4		—	—	N/A
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4	—		—	N/A
125	0,56	1,5	2,1	3,0	3,8	4,2	4,8	—	—		N/A
250	0,56	1,25	1,8	**2,5**	3,2	3,6	4,0	5.0	—	—	P
250	0,56	1,25	1,8	**2,5**	3,2	3,6	4,0	—	5.0	—	P
250	1,12	2,5	3,6	**5,0**	6,4	7,2	8,0	—	—	5.5	P
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3		—	—	N/A
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3	—		—	N/A
400	2,0	4,0	5,6	8,0	10,0	11,2	12,6	—	—		N/A
500	1,3	2,5	3,6	5,0	6,3	7,1	8,0		—	—	N/A
500	1,3	2,5	3,6	5,0	6,3	7,1	8,0	—		—	N/A
500	2,6	5,0	7,2	10,0	12,6	14,2	16,0	—	—		N/A
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0		—	—	N/A
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	—		—	N/A
>630 and ≤800	3,6	6,4	9,0	12,6	16,0	18,0	20,0	—	—		N/A
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5		—	—	N/A
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	—		—	N/A
>800 and ≤1000	4,8	8,0	11,2	16,0	20,0	22,0	25,0	—	—		N/A
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0		—	—	N/A
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	—		—	N/A
>1000 and ≤1250	6,4	10,0	14,2	20,0	25,0	28,0	32,0	—	—		N/A
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0		—	—	N/A
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	—		—	N/A
>1250 and ≤1600	8,4	12,6	18,0	25,0	32,0	36,0	40,0	—	—		N/A
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0		—	—	N/A
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	—		—	N/A
>1600 and ≤2000	11,2	16,0	22,0	32,0	40,0	44,0	50,0	—	—		N/A
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0		—	—	N/A
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	—		—	N/A
>2000 and ≤2500	15,0	20,0	28,0	40,0	50,0	56,0	64,0	—	—		N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0		—	—	N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	—		—	N/A

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Clause	Requirement - Test	Result - Remark	Verdict

>2500 and ≤3200	20,0	25,0	36,0	50,0	64,0	72,0	80,0	—	—		N/A
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0		—	—	N/A
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	—		—	N/A
>3200 and ≤4000	25,0	32,0	44,0	64,0	80,0	90,0	100,0	—	—		N/A
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0		—	—	N/A
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	—		—	N/A
>4000 and ≤5000	32,0	40,0	56,0	80,0	100,0	112,0	126,0	—	—		N/A
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0		—	—	N/A
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	—		—	N/A
>5000 and ≤6300	40,0	50,0	72,0	100,0	126,0	142,0	160,0	—	—		N/A
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0		—	—	N/A
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	—		—	N/A
>6300 and ≤8000	50,0	64,0	90,0	126,0	160,0	180,0	200,0	—	—		N/A
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0		—	—	N/A
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	—		—	N/A
>8000 and ≤10000	64,0	80,0	112,0	160,0	200,0	220,0	250,0	—	—		N/A
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0		—	—	N/A
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	—		—	N/A
>10000 and ≤12500	80,0	100,0	142,0	200,0	250,0	280,0	320,0	—	—		N/A

Supplementary information:

*) Material group IIIb is allowed if the working voltage does not exceed 50 V
**) B = Basic insulation, S = Supplementary insulation, R = Reinforced insulation

Functional 1):

The crearance between line to neutral before F1 is 4.6mm.

Basic 2):

The crearance between two terminals of F1 is 4.7mm.

The crearance between CY1 is 3.4mm.

Supplementary3):

The crearance between CY2 is 3.4mm.

Reinforced 4):

The crearance between C2 to enclosure outside surface is 6.5mm.

The crearance between iron core of T1 and secondary component HS2 is > 6.1mm.

The crearance between primary winding of T1 and secondary pins of T1 is 6.9mm.

The crearance between iron core of T1 and secondary pins of T1 is 6.0mm.

The crearance between primary trace to secondary trace of PCB is 6.8mm.

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Clause	Requirement - Test	Result - Remark	Verdict

29.2	**TABLE: Creepage distances, functional insulation**							**P**
Working voltage (V)	**Creepage distance (mm) Pollution degree**							
	1	**2**			**3**			
		Material group			**Material group**			
		I	**II**	**IIIa/IIIb**	**I**	**II**	**IIIa/IIIb***	**Verdict / Remark**
≤10	0,08	0,4	0,4	0,4	1,0	1,0	1,0	N/A
50	0,16	0,56	0,8	1,1	1,4	1,6	1,8	N/A
125	0,25	0,71	1,0	1,4	1,8	2,0	2,2	N/A
250	0,42	1,0	1,4	**2,0**	2,5	2,8	3,2	P
400	0,75	1,6	2,2	3,2	4,0	4,5	5,0	N/A
500	1,0	2,0	2,8	4,0	5,0	5,6	6,3	N/A
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	N/A
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	N/A
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	N/A
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	N/A
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	N/A
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	N/A
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	N/A
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	N/A
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	N/A
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	N/A
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	N/A
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	N/A

Supplementary information:

*) Material group IIIb is allowed if the working voltage does not exceed 50 V

Functional 1):

The crearance between line to neutral before F1 is 4.6mm.

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Clause	Requirement - Test	Result - Remark	Verdict

30.1	TABLE: Ball Pressure Test of Thermoplastics		P
Allowed impression diameter (mm) .....:			—
Object/ Part No./ Material	**Manufacturer/ trademark**	**Test temperature (°C)**	**Impression diameter (mm)**
Plastic enclosure /Type: 945 (GG)	Sabic Innovative Plastics B V	125	1.2
Plastic enclosure /Type: FR60 (GG)	Sabic Innovative Plastics US L L C	125	1.1
T1 bobbin/ Type: T375J	CHANG CHUN PLASTICS CO LTD	125	1.1
Supplementary information: Limit: 2.0mm.			

30.2	TABLE: Resistance to heat and fire - Glow wire tests							P
Object/ Part No./ Material	**Manufacturer/ trademark**	**Glow wire test (GWT); (°C)**						**Verdict**
		550	**650**		**750**		**850**	
			te	**ti**	**te**	**ti**		
Plastic enclosure /Type: 945 (GG)	Sabic Innovative Plastics B V	Pass	--	--	0	0	Pass	Pass
Plastic enclosure /Type: FR60 (GG)	Sabic Innovative Plastics US L L C	Pass	--	--	0	0	Pass	Pass
T1 bobbin/ Type: T375J	CHANG CHUN PLASTICS CO LTD	--	--	--	0	0	Pass	Pass
PCB/ Type: KB-3151S	Kingboard Laminates Holdings Ltd	--	--	--	0	0	Pass	Pass
PCB/ Type: KB-5150	Kingboard Laminates Holdings Ltd	--	--	--	0	0	Pass	Pass
PCB/ Type: ZD-90F	Kingboard Laminates Holdings Ltd	--	--	--	0	0	Pass	Pass
Plastic material in the DC connector	-	--	--	--	0	0	Pass	Pass

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Clause	Requirement - Test	Result - Remark	Verdict

Object/ Part No./ Material	Manufacturer/ trademark	Glow-wire flammability index (GWFI), °C				GW ignition temp. (GWIT), °C		Verdict
		550	650	750	850	675	775	
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
The test specimen passed the glow wire test (GWT) with no ignition [($t_e - t_i$) ≤ 2s] (Yes/No):								Yes
If no, then surrounding parts passed the needle-flame test of annex E (Yes/No).....:								N/A
The test specimen passed the test by virtue of most of the flaming material being withdrawn with the glow-wire (Yes/No)?.....:								Yes
Ignition of the specified layer placed underneath the test specimen (Yes/No).....:								N/A
Supplementary information: - 550 °C GWT not relevant (or applicable) to parts of material classified at least HB40 or if relevant HBF - The GWIT pre-selection option, the 850 °C GWFI pre-selection option, and the 850 °C GWT are not relevant (or applicable) for attended appliances								

30.2/30.4	TABLE: Needle- flame test (NFT)				P
Object/ Part No./ Material	**Manufacturer/ trademark**	**Duration of application of test flame (ta); (s)**	**Ignition of specified layer Yes/No**	**Duration of burning (tb) (s)**	**Verdict**
PCB/ Type: KB-3151S	Kingboard Laminates Holdings Ltd	30	No	0	Pass
PCB/ Type: KB-5150	Kingboard Laminates Holdings Ltd	30	No	0	Pass
PCB/ Type: ZD-90F	Kingboard Laminates Holdings Ltd	30	No	0	Pass
Supplementary information: - NFT not relevant (or applicable) for Parts of material classified as V-0 or V-1 - NFT not relevant (or applicable) for Base material of PCBs classified as V-0 or if relevant VTM-0					

Figure 1 Overall view of unit for model V-1202000-ED

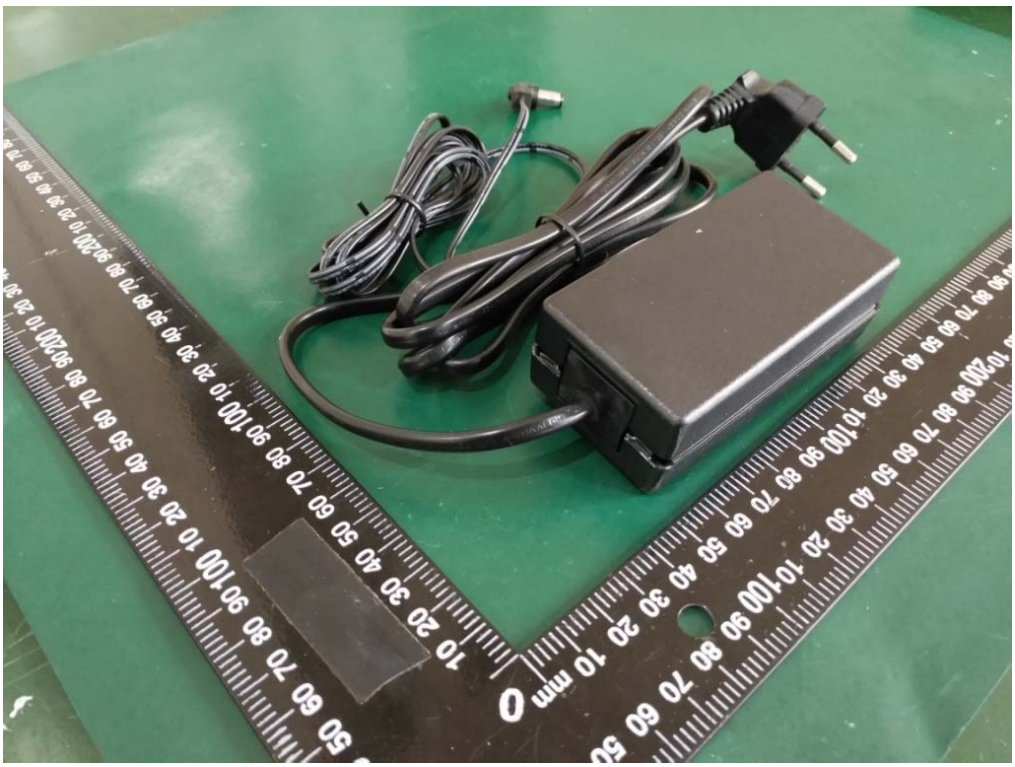

Figure 2 Overall view of unit for model V-1202000-ED

Figure 3 Internal view of unit for model V-1202000-ED

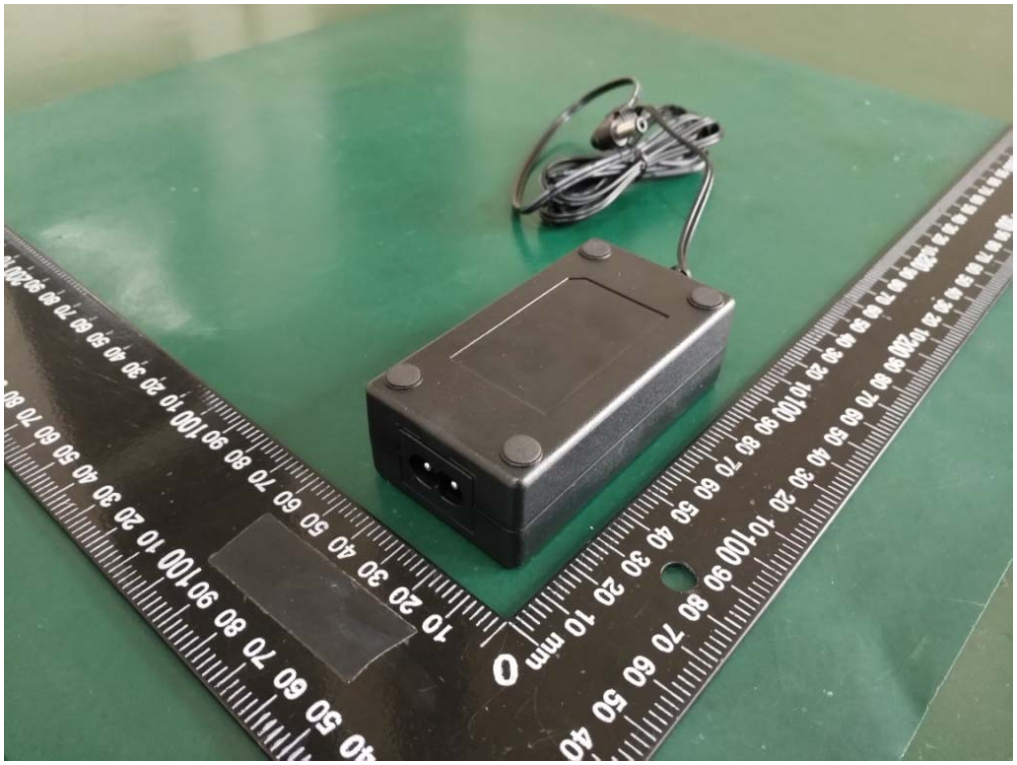

Figure 4 Overall view of unit for model V-1202000-UD

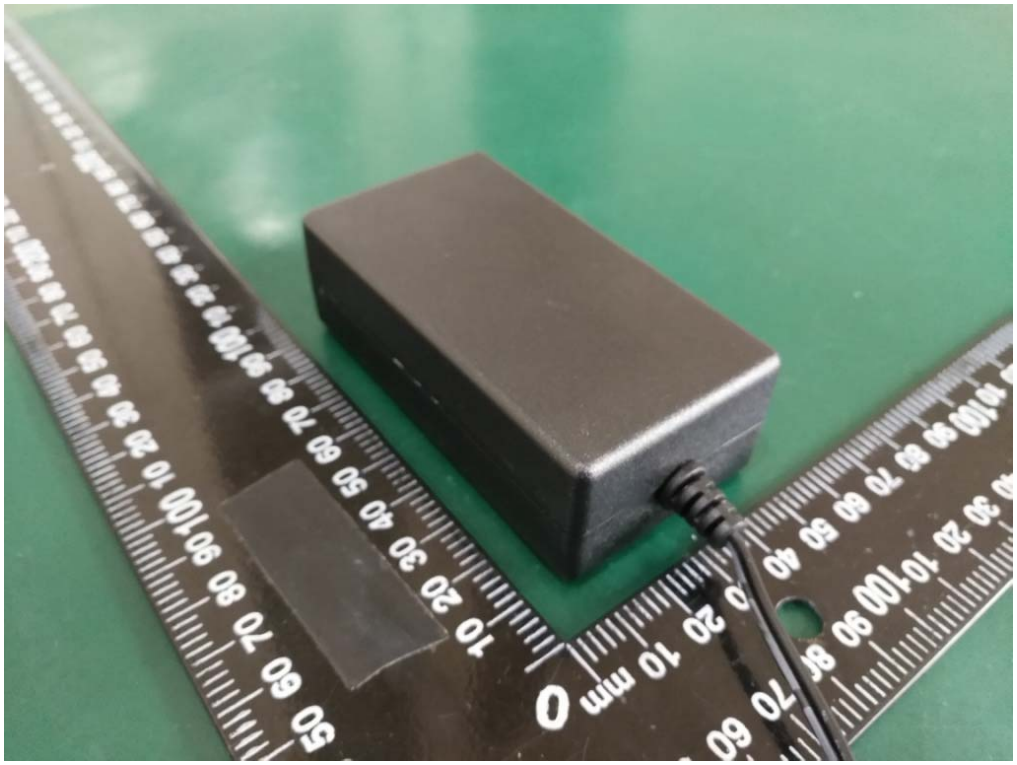

Figure 5 Overall view of unit for model V-1202000-UD

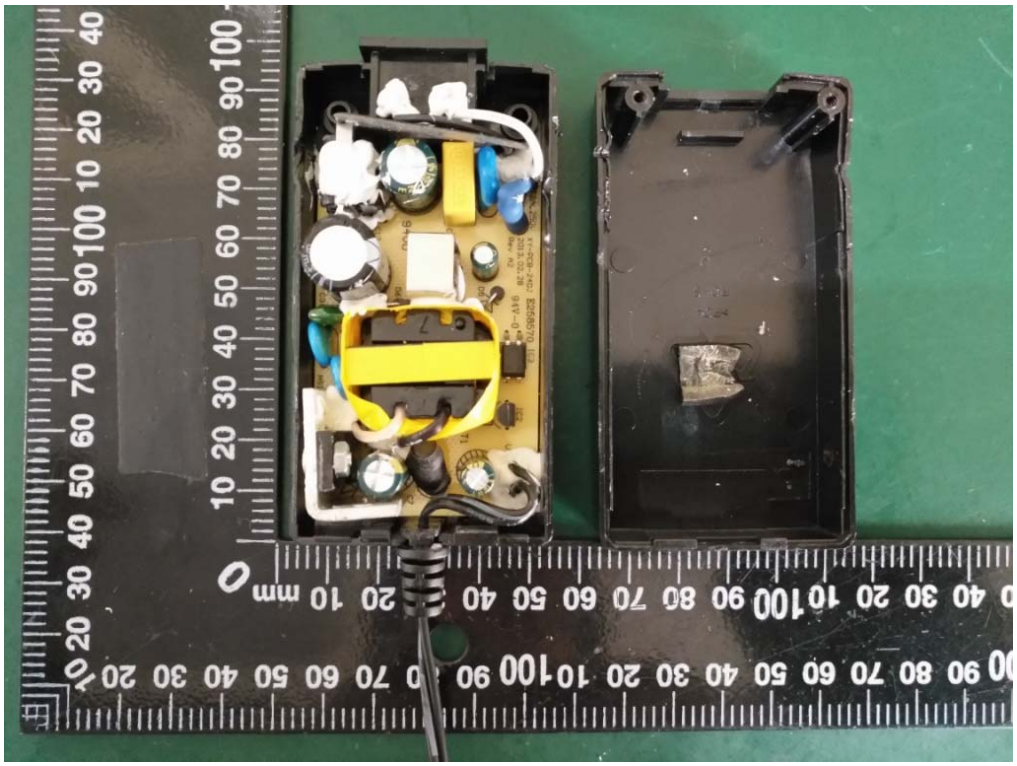

Figure 6 Internal view of unit for model V-1202000-UD

Figure 7 Internal view of unit for model V-1202000-UD

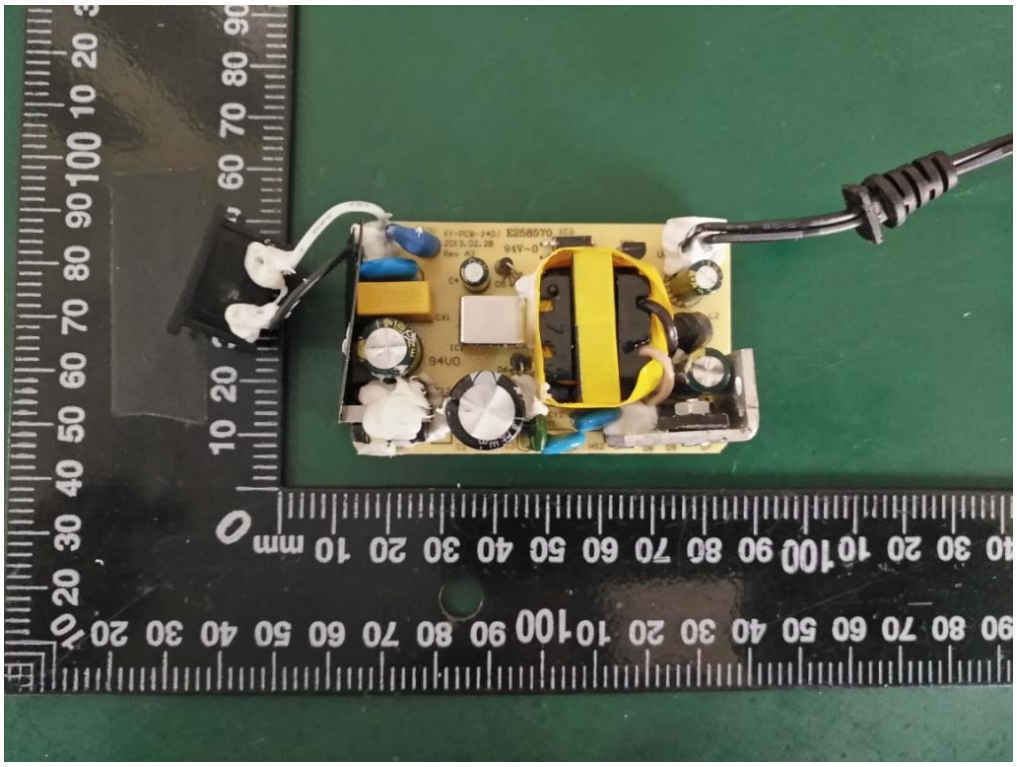

Figure 7 Top view of PCB

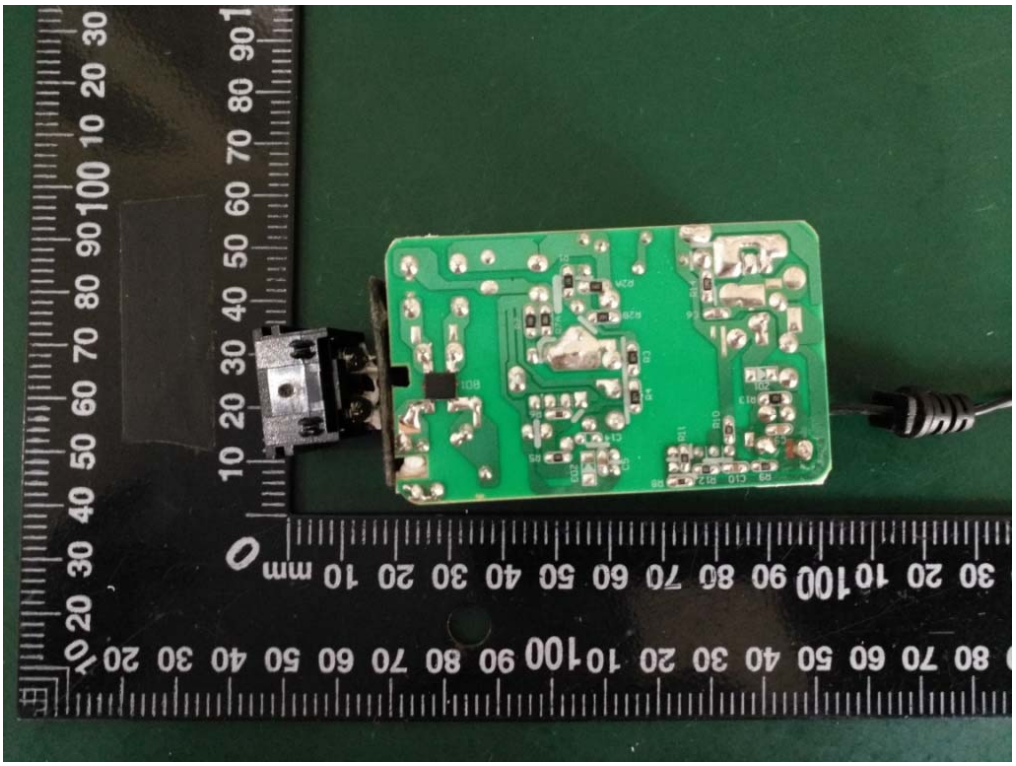

Figure 8 Bottom view of PCB

Dong Guan Anci Electronic Technology Co., Ltd.
1-2 Floor, Building A, No.11, Headquarters 2 Road, Songshan Lake Hi-tech Industrial Development Zone, Dongguan City, Guangdong , China.
Phone: 86-769-8507 5888; Fax: 86-769-8507 5898 E-mail:anci@anci.com