Test Report issued under the responsibility of:

TÜVRheinland®

TEST REPORT
IEC 60335-2-29
Safety of household and similar electrical appliances
Part 2: Particular requirements for battery chargers

Report Number. .....:	16080261 001
Date of issue .....:	2017.02.22
Total number of pages.....:	98
Name of Testing Laboratory preparing the Report.....:	TÜV Rheinland (Guangdong) Ltd. No.199 Kezhu Road, Guangzhou Science City 510663 Guangzhou CHINA
Applicant's name .....:	**Future Cleaning Technologies (FCT) B.V**
Address .....:	**Hoppenkuil 27A 5626 DD Eindhoven NL Holland**
Test specification:	
Standard.....:	IEC 60335-2-29:2002 (Fourth Edition) +A1:2004 +A2:2009 for use in conjunction with IEC 60335-1:2010 (Fifth Edition) +A1:2013
Test procedure .....:	CB Scheme
Non-standard test method .....:	N/A
Test Report Form No. .....:	IEC60335_2_29J
Test Report Form(s) Originator ....:	SIQ
Master TRF.....:	Dated 2015-07

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Test item description ..... :	Battery Charger
Trade Mark ..... :	N/A
Manufacturer ..... :	Dongguan Victory Battery Technology Co., LTD. Hudie 2 Rd, Tianxin Village, HuangJiang Town, Dongguan City, Guangdong Province 523763, P.R. China.
Model/Type reference ..... :	S.72.0299.0/A, S.72.0299x (x=1 to 9, represent different countries)
Ratings ..... :	INPUT: 100-240V~, 2.3A MAX, 50-60Hz OUTPUT: 29V d.c. 2A x 2 (each output 2A) Class I

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):

☒	**CB Testing Laboratory:**	**TÜV Rheinland (Guangdong) Ltd.**	
Testing location/ address.....:		No.199 Kezhu Road, Guangzhou Science City 510663 Guangzhou CHINA	
☐	**Associated CB Testing Laboratory:**		
Testing location/ address.....:			
Tested by (name, function, signature).....:		Candy Wu	
Approved by (name, function, signature)...:		Sandy Huang	
☐	**Testing procedure: CTF Stage 1:**		
Testing location/ address.....:			
Tested by (name, function, signature).....:			
Approved by (name, function, signature)...:			
☐	**Testing procedure: CTF Stage 2:**		
Testing location/ address.....:			
Tested by (name + signature) .....:			
Witnessed by (name, function, signature) .:			
Approved by (name, function, signature)...:			
☐	**Testing procedure: CTF Stage 3:**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address.....:			
Tested by (name, function, signature).....:			
Witnessed by (name, function, signature) .:			
Approved by (name, function, signature)...:			
Supervised by (name, function, signature) :			

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

- Attachment 1: Photo document (18 pages);
- Attachment 2: Annex BB of IEC 61558-2-16 (7 pages);
- Attachment 3: National difference of Mexico (19 pages).

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
1. Model S.72.0299x (x=1 to 9, represent different countries) was carried out full test. The submitted samples were tested and found to comply with the requirements of standards. 2. Construction of all the alternative components (in table 24) were considered and re-evaluated in this report.	TUV Rheinland (Guangdong) Co., Ltd. No.199 Kezhu Road, Guangzhou Science City 510663 Guangzhou, China

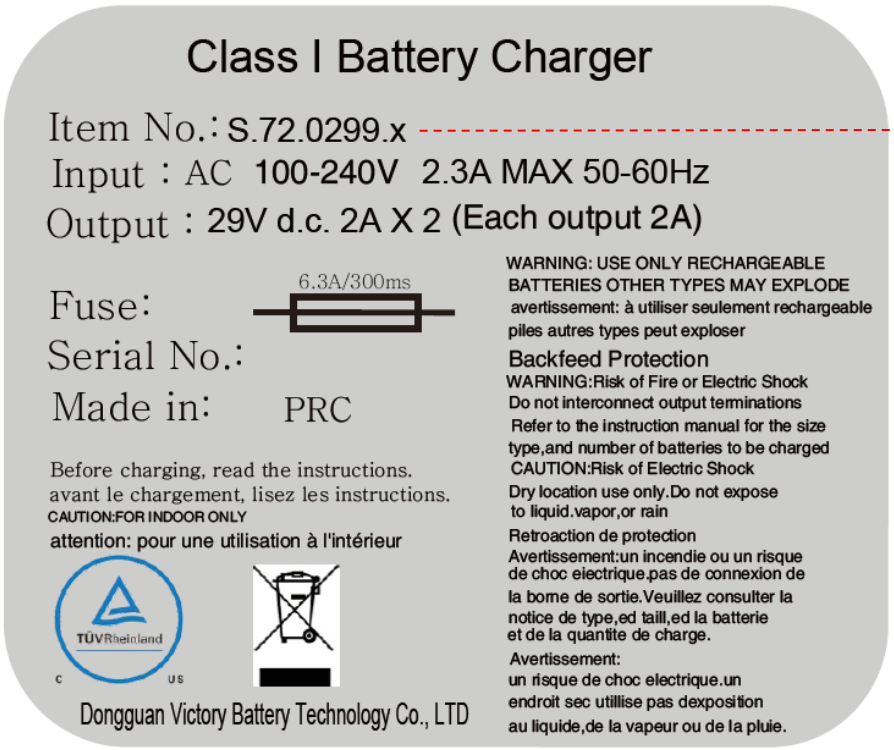
Summary of compliance with National Differences (List of countries addressed):

List of countries addressed:

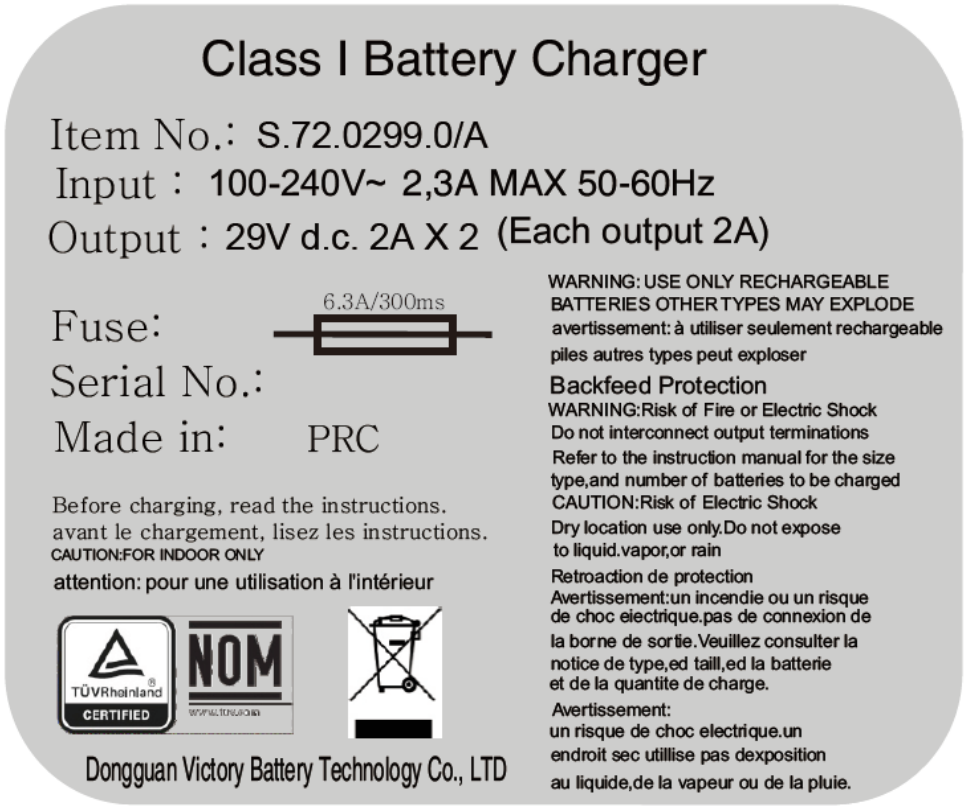
MX=Mexico, national difference for Mexico compared with IEC 60335-2-29:2002 +A1:2004 +A2:2009, IEC 60335-1:2010 +A1:2013 have been considered. Please see Attachment 3.

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.



Marking plate for Mexico:



Serial No.: YYMMDDXXX

YEAR | JULIAN DATE | CONSECUTIVE NUMBER

Test item particulars .....:	Battery Charger
Classification of installation and use .....:	Portable appliances
Supply Connection.....:	Appliance inlet
.....:	
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 ..... :	2016.11.14
Date (s) of performance of tests..... :	2016.11.14 to 2017.01.18

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.
Remark:

1. The complete report consists of 98 pages of test report, 18 pages of photos, 7 pages of annex BB of IEC 61558-2-16 and 19 pages of National difference of Mexico.

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided .....:	☐ **Yes** ☒ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies)..... :	Dongguan Victory Battery Technology Co., LTD. Hudie 2 Rd, Tianxin Village, HuangJiang Town, Dongguan City, Guangdong Province 523763, P.R. China.

General product information:

1. This battery charger is class I for indoor and household use only.
2. This battery charger is intended to charge maximum capacity of 14 AH Li-ion battery.
3. Models S.72.0299.0/A and S.72.0299x (x=1 to 9, represent different countries) are identical except different type designation.

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict

5	**GENERAL CONDITIONS FOR THE TESTS**		**P**
	Tests performed according to clause 5, e.g. nature of supply, sequence of testing, etc.		P
5.17	Appliances powered by rechargeable batteries that are recharged in the appliance tested in accordance with Annex B		N/A
	Battery-operated appliances powered by batteries that are non-rechargeable or not recharged in the appliance tested in accordance with Annex S		N/A
5.2	If the test of 21.101 is carried out two additional battery chargers required (IEC 60335-2-29)		P
5.101	Battery chargers tested as motor-operated appliances (IEC 60335-2-29)		P
6	**CLASSIFICATION**		**P**
6.1	Protection against electric shock: Class 0, 0I, I, II, III ..... :	Class I	P
6.2	Protection against harmful ingress of water	IPX0	N/A
7	**MARKING AND INSTRUCTIONS**		**P**
7.1	Rated voltage or voltage range (V) ..... :	100-240V	P
	Symbol for nature of supply, or ..... :	~	P
	Rated frequency (Hz) ..... :	50-60 Hz	P
	Rated power input (W), or ..... :		N/A
	Rated current (A) ..... :	See rating label	P
	Manufacturer's or responsible vendor's name, trademark or identification mark ..... :	See rating label	P
	Model or type reference ..... :	See rating label	P
	Symbol IEC 60417-5172, for class II appliances		N/A
	IP number, other than IPX0 ..... :		N/A
	Symbol IEC 60417-5180, for class III appliances, unless		N/A
	the appliance is operated by batteries only		N/A
	Symbol IEC 60417-5018, for class II and class III appliances incorporating a functional earth		N/A
	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, if the working voltage exceeds extra-low voltage		N/A
	Battery chargers marked with (IEC 60335-2-29):		—
	- rated d.c. output voltage (V)		P

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
	- rated d.c. output current (A)		P
	- rated current (A) of protective devices incorporated in a d.c. distribution board		N/A
	- polarity of the output terminals indicated by symbol IEC 60417-5005 for the positive terminal and IEC 60417-5006 for the negative terminal (IEC 60335-2-29/A2)	The polarity will not confuse to end-user as the connector is designed for connection to specific end product.	N/A
	- time-current characteristic of fuse-links of the time-lag type		P
	If the output exceeds 20 VA, battery chargers marked with (IEC 60335-2-29):		—
	- before charging, read the instructions		P
	- for indoor use or do not expose to rain, unless appliance is at least IPX4		P
	If the output exceeds 20 VA and the battery charger is for lead-acid batteries, battery chargers marked with (IEC 60335-2-29):		—
	- 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 (IEC 60335-2-29):		—
	- 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		P
	Different rated values marked with the values separated by an oblique stroke		N/A
7.4	Appliances adjustable for different rated voltages or rated frequencies, the voltage or the frequency setting is clearly discernible		N/A
	Requirement met if frequent changes are not required and the rated voltage or rated frequency to which the appliance is to be adjusted is determined from a wiring diagram		N/A
	Output voltage clearly discernible if the battery charger can be adjusted to different rated d.c. output voltages (IEC 60335-2-29)		N/A

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
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 arithmetic mean value of the rated voltage range		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		P
	Symbol for nature of supply placed next to rated voltage		P
	Symbol for class II appliances placed unlikely to be confused with other marking		N/A
	Units of physical quantities and their symbols according to international standardized system		P
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply, unless		N/A
	correct mode of connection is obvious		P
7.8	Except for type Z attachment, terminals for connection to the supply mains indicated as follows:		N/A
	- marking of terminals exclusively for the neutral conductor (letter N)		N/A
	- marking of protective earthing terminals (symbol IEC 60417-5019)		N/A
	- marking of functional earthing terminals (symbol IEC 60417-5018)		N/A
	- marking not placed on removable parts		N/A
7.9	Marking or placing of switches which may cause a hazard		P
7.10	Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means..... .....:	By O and I	P
	This applies also to switches which are part of a control		N/A
	If figures are used, the off position indicated by the figure 0		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		N/A
7.12	Instructions for safe use provided		P

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
	Details concerning precautions during user maintenance		P
	The instructions state that:		—
	- the appliance is not to be used 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		P
	- children being supervised not to play with the appliance		P
	Instructions for safe use contains (IEC 60335-2-29):		—
	- specification of types, number of cells and rated capacity of batteries that can be charged		P
	- warning against recharging non-rechargeable batteries		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		N/A
	- explanation of automatic function stating any limitation, only for automatic battery chargers		N/A
	Battery chargers for charging automobile batteries include substance concerning (IEC 60335-2-29):		—
	- The battery terminal not connected to the chassis has to be connected first. The other connection is to be made to the chassis, remote from the battery and fuel line. The battery charger is then to be connected to the supply mains;		N/A
	- After charging, disconnect the battery charger from the supply mains. Then remove the chassis connection and then the battery connection.		N/A
	For a part of class III construction supplied from a detachable power supply unit, the instructions state that the appliance is only to be used with the unit provided		N/A
	Instructions for class III appliances state that it must only be supplied at SELV, unless		N/A
	it is a battery-operated appliance, the battery being charged outside the appliance		N/A
	For appliances for altitudes exceeding 2000 m, the maximum altitude is stated ....:		N/A

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
	The instructions for appliances incorporating a functional earth states that the appliance incorporates an earth connection for functional purposes only		N/A
7.12.1	Sufficient details for installation supplied		P
	For an appliance intended to be permanently connected to the water mains and not connected by a hose-set, this is stated		N/A
	If different rated voltages or different rated frequencies are marked, the instructions state what action to be taken to adjust the appliance		N/A
	The instructions for battery chargers for installation in caravans and similar vehicles shall state that the connection to the supply mains is to be in accordance with the national wiring rules (IEC 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		N/A
7.12.3	Insulation of the fixed wiring in contact with parts exceeding 50 K during clause 11; instructions state that the fixed wiring must be protected		N/A
7.12.4	Instructions for built-in appliances:		—
	- dimensions of space		N/A
	- dimensions and position of supporting and fixing		N/A
	- minimum distances between parts and surrounding structure		N/A
	- minimum dimensions of ventilating 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		N/A
	Replacement cord instructions, type Y attachment		N/A
	Replacement cord instructions, type Z attachment		N/A

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
7.12.6	Caution in the instructions for appliances incorporating a non-self-resetting thermal cut-out that is reset by disconnection of the supply mains, if this cut-out is required to comply with the standard		N/A
7.12.7	Instructions for fixed appliances stating how the appliance is to be fixed		N/A
7.12.8	Instructions for appliances connected to the water mains:		—
	- 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
7.14	Marking clearly legible and durable, rubbing test as specified		P
7.15	Markings on a main part		P
	Marking clearly discernible from the outside, if necessary after removal of a cover		P
	For portable appliances, cover can be removed or opened without a tool		N/A
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation		N/A
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions		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		P
	The symbol IEC 60417-5018 placed next to the symbol IEC 60417-5172 or IEC 60417-5180		N/A
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		P
7.101	D.C. distribution boards marked with (IEC 60335-2-29):		—
	- maximum output current (A) for each output circuit.....:		N/A
	- types of any additional power supply which can be connected		N/A
8	**PROTECTION AGAINST ACCESS TO LIVE PARTS**		**P**

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
8.1	Adequate protection against accidental contact with live parts		P
8.1.1	Requirement applies for all positions, detachable parts removed		P
	Lamps behind a detachable cover not removed, if conditions met		N/A
	Insertion or removal of lamps, protection against contact with live parts of the lamp cap		N/A
	Use of test probe B of IEC 61032, with a force not exceeding 1 N: no contact with live parts		P
	Use of test probe B of IEC 61032 through openings, with a force of 20N: no contact with live parts		P
8.1.2	Use of test probe 13 of IEC 61032, with a force not exceeding 1 N, through openings in class 0 appliances and class II appliances/constructions: no contact with live parts		P
	Test probe 13 also applied through openings in earthed metal enclosures having a non-conductive coating: no contact with live parts		N/A
8.1.3	For appliances other than class II, use of test probe 41 of IEC 61032, with a force not exceeding 1 N: no contact with live parts of visible glowing heating elements		N/A
8.1.4	Accessible part not considered live if:		—
	- 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		P
	- or separated from live parts by protective impedance		P
	If protective impedance: d.c. current not exceeding 2 mA, and		N/A
	a.c. peak value not exceeding 0,7 mA	Measured 0.13mA max.	P
	- 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
	- for peak values over 15kV, the energy in the discharge not exceeding 350 mJ		N/A
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		—
	- built-in appliances		N/A

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
	- 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		P
	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
	If the power input varies throughout the operating cycle and the maximum value of the power input exceeds, by a factor greater than two, the arithmetic mean value of the power input occurring during a representative period, the power input is the maximum value that is exceeded for more than 10 % of the representative period		N/A
	Otherwise the power input is the arithmetic mean value		N/A
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		N/A
	the rated power input is related to the arithmetic mean value		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)	P
	If the current varies throughout the operating cycle and the maximum value of the current exceeds, by a factor greater than two, the arithmetic mean value of the current occurring during a representative period, the current is the maximum value that is exceeded for more than 10 % of the representative period		N/A
	Otherwise the current is the arithmetic mean value		N/A
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		P

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
	the rated current is related to the arithmetic mean value of the range		N/A
10.101	No-load d.c. output voltage does not exceed 42,2 V (IEC 60335-2-29) ..... :	3.0V	P
10.102	Arithmetic mean value of output current does not deviate from rated d.c. output current by more than 10 % (IEC 60335-2-29)	(see appended table)	P
11	**HEATING**		**P**
11.1	No excessive temperatures in normal use		P
11.2	The appliance is held, placed or fixed in position as described ..... :	Closed to walls of test corner	P
	Battery chargers are placed in the test corner as specified for heating appliances (IEC 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 are non-uniform or it is difficult to make the necessary connections		P
11.4	Heating appliances operated under normal operation at 1,15 times rated power input (W) ..... :		N/A
11.5	Battery chargers are only supplied at 1,06 times rated voltage (IEC 60335-2-29)		P
11.6	Combined appliances operated under normal operation at most unfavourable voltage between 0,94 and 1,06 times rated voltage (V)..... :		N/A
11.7	Battery chargers are operated until steady conditions are established (IEC 60335-2-29)		P
11.8	Temperature rises monitored continuously and not exceeding the values in table 3 ..... :	(see appended table)	P
	If the temperature rise of a motor winding exceeds the value of table 3, or		N/A
	if there is doubt with regard to classification of insulation,		N/A
	tests of Annex C are carried out		N/A
	Sealing compound does not flow out		P
	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**

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
13.1	Leakage current not excessive and electric strength adequate		P
	Heating appliances operated at 1,15 times the rated power input (W) ..... :		N/A
	Motor-operated appliances and combined appliances supplied at 1,06 times the rated voltage (V) ..... :	(see appended table)	P
	Protective impedance and radio interference filters disconnected before carrying out the tests		P
13.2	For class 0, class II and class III appliances, and class II constructions, leakage current measured by means of the circuit described in figure 4 of IEC 60990		N/A
	For class 0I and class I appliances, a low impedance ammeter may be used		P
	Leakage current measurements ..... :	(see appended table)	P
13.3	The appliance is disconnected from the supply		P
	Electric strength tests according to table 4 ..... :	(see appended table)	P
	No breakdown during the tests		P
14	**TRANSIENT OVERVOLTAGES**		N/A
	Appliances withstand the transient over-voltages 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		N/A
	of functional insulation if 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	IPX0	N/A
	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 or 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

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
	Water valves containing live parts 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
	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, and		N/A
	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
	Wall-mounted appliances, take into account the distance to the floor stated in the instructions		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, and		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
	Appliances with type X attachment fitted with a flexible cord as described		N/A
	Detachable parts subjected to the relevant treatment with the main part		N/A
	However, if a part has to be removed for user maintenance and a tool is needed, this part is not removed		N/A
15.2	Spillage of liquid does not affect the electrical insulation		N/A
	Spillage solution comprising water containing approximately 1 % NaCl and 0,6 % rinsing agent		N/A
	Appliances with type X attachment fitted with a flexible cord as described		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Appliances incorporating an appliance inlet tested with or without an connector, whichever is most unfavourable		N/A
	Detachable parts are 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 or creepage distances below values specified in clause 29		N/A
15.3	Appliances proof against humid conditions		P
	Checked by test Cab: Damp heat steady state in IEC 60068-2-78		P
	Detachable parts removed and subjected, if necessary, to the humidity test with the main part		P
	Humidity test for 48 h in a humidity cabinet		P
	Reassembly of those parts that may have been removed		P
	The appliance withstands the tests of clause 16		P
16	**LEAKAGE CURRENT AND ELECTRIC STRENGTH**		**P**
16.1	Leakage current not excessive and electric strength adequate		P
	Protective impedance disconnected from live parts before carrying out the tests		P
	Tests carried out at room temperature and not connected to the supply		P
16.2	Single-phase appliances: test voltage 1,06 times rated voltage (V) ..... :	(see appended table)	P
	Three-phase appliances: test voltage 1,06 times rated voltage divided by √3 (V) ..... :		N/A
	Leakage current measurements ..... :	(see appended table)	P
	Limit values doubled if:		—
	- all controls have an off position in all poles, or		N/A
	- the appliance has no control other than a thermal cut-out, or		N/A
	- all thermostats, temperature limiters and energy regulators do not have an off position, or		N/A
	- the appliance has radio interference filters		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	With the radio interference filters disconnected, the leakage current do not exceed limits specified ..... :	(see appended table)	N/A
16.3	Electric strength tests according to table 7 ..... :	(see appended table)	P
	Test voltage applied between the supply cord and inlet bushing and cord guard and cord anchorage as specified ..... :	(see appended table)	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..... :	(see appended table)	P
	Appliance supplied with 1,06 or 0,94 times rated voltage under the most unfavourable short-circuit or overload likely to occur in normal use (V) ..... :	(see appended table)	P
	Output terminals of battery chargers are short-circuited (IEC 60335-2-29)		P
	Basic insulation is not short-circuited		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		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, mechanical damage or electric shock under abnormal or careless operation obviated		P
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe ..... :	(see appended table)	P
	if the appliance also has a control that limit the temperature during clause 11 it is subjected to the test of 19.4, and		N/A
	Appliances incorporating motors subjected to the tests of 19.7 to 19.10, as applicable		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Appliances incorporating electronic circuits subjected to the tests of 19.11 and 19.12, as applicable		P
	Appliances incorporating contactors or relays subjected to the test of 19.14, being carried out before the tests of 19.11		N/A
19.2	Test of appliances with heating elements with restricted heat dissipation; test voltage (V), power input of 0.85 times rated power input (W)..... :		N/A
19.3	Test of 19.2 repeated; test voltage (V), power input of 1,24 times rated power input (W)..... :		N/A
19.4	Test conditions as in clause 11, any control limiting the temperature during tests of clause 11 short-circuited		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 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		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 (V) ..... :		N/A
19.7	Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque, or		N/A
	locking moving parts of other appliances		N/A
	Locked rotor, capacitors open-circuited one at a time		N/A
	Test repeated with capacitors short-circuited one at a time, unless		N/A
	capacitor is of class P2 of IEC 60252-1		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

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Clause	Requirement + Test	Result - Remark	Verdict
	An electronic timer or programmer that operates to ensure compliance with the test before the maximum period under the conditions of Clause 11 is reached, is a protective electronic circuit		
	Other appliances supplied with rated voltage for a period as specified ..... :		N/A
	Winding temperatures not exceeding values specified in table 8 ..... :		N/A
19.8	Multi-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
	Motor-operated and combined appliances for which 30.2.3 is applicable and that use overload protective devices relying on electronic circuits to protect the motor windings, are also subjected to the test		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 (V) ..... :		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		P
	they comply with the conditions specified in 19.11.1		N/A
	Appliances incorporating an electronic circuit that relies upon a programmable component to function correctly, subjected to the test of 19.11.4.8, unless		N/A
	restarting does not result in a hazard		N/A
	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
	If the safety of the appliance under any of the fault conditions depends on the operation of a miniature fuse-link complying with IEC 60127, the test of 19.12 is carried out		P
	During and after each test the following is checked:		P
	- the temperature of the windings do not exceed the values specified in table 8		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- the appliance complies with the conditions specified in 19.13		P
	- any current flowing through protective impedance not exceeding the limits specified in 8.1.4		P
	If a conductor of a printed board becomes open-circuited, the appliance is considered to have withstood the particular test, provided both of the following conditions are met:		—
	- the base material of the printed circuit board withstands the test of Annex E		N/A
	- any loosened conductor does not reduce clearance or creepage distances between live parts and accessible metal parts below the values specified in clause 29		N/A
19.11.1	Fault conditions a) to g) in 19.11.2 are not applied to circuits or parts of circuits meeting both of the following conditions:		—
	- the electronic circuit is a low-power circuit, that is, the maximum power at low-power points does not exceed 15 W according to the tests specified		N/A
	- the protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction of 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 operating under conditions specified in clause 11, but supplied at rated voltage, duration of the tests as specified:		—
	a) short circuit of functional insulation if clearances or creepage distances are less than the values specified in clause 29		P
	b) open circuit at the terminals of any component	R1	P
	c) short circuit of capacitors, unless	C1, C2, C3, C9, C18	P
	they comply with IEC 60384-14		P
	d) short circuit of any two terminals of an electronic component, other than integrated circuits	D1, D4, U5A	P
	This fault condition is not applied between the two circuits of an optocoupler		P
	e) failure of triacs in the diode mode	Q1	P
	f) failure of microprocessors and integrated circuits		P
	g) failure of an electronic power switching device		P
	Each low power circuit is short-circuited by connecting the low-power point to the pole of the supply source from which the measurements were made		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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 g) of 19.11.2		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
	subjected to the tests of 19.11.4.1 to 19.11.4.7, the device being set in the off position or in the stand-by mode		N/A
	Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.4.1 to 19.11.4.7, the tests being carried out after the protective electronic circuit has operated, 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
	Surge protective devices disconnected, unless		N/A
	They incorporate spark gaps		N/A
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
	An open circuit test voltage of 2 kV is applicable for the line-to-line coupling mode		N/A
	An open circuit test voltage of 4 kV is applicable for the line-to-earth coupling		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	Appliances having a rated current not exceeding 16 A are subjected to the Class 3 voltage dips and interruptions in accordance with IEC 61000-4-11		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Appliances having a rated current exceeding 16 A are subjected to the Class 3 voltage dips and interruptions in accordance with IEC 61000-4-34		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 reduced to a level such that the appliance ceases to respond or parts controlled by the programmable component cease to operate		N/A
	The appliance continues to operate normally, or		N/A
	requires a manual operation to restart		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) ..... :	Current fuse for PCB: Rated:3.15A Measured: 20.2A	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 ..... :	(see appended table)	P
	During the tests, the values of Table 8 apply (IEC 60335-2-29)		P
	Compliance with clause 8 not impaired		P
	No rupture of the battery (IEC 60335-2-29/A2)		P
	If the appliance can still be operated it complies with 20.2		N/A
	Insulation, other than of class III appliances or class III constructions that do not contain live parts, withstands the electric strength test of 16.3, the test voltage as specified in table 4:		—
	- basic insulation (V) ..... :	1000V	P
	- supplementary insulation (V) ..... :		N/A
	- reinforced insulation (V) ..... :	3000V	P
	After operation or interruption of a control, clearances and creepage distances across the functional insulation withstand the electric strength test of 16.3, the test voltage being twice the working voltage		N/A
	The appliance does not undergo a dangerous malfunction, and		P

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Clause	Requirement + Test	Result - Remark	Verdict
	no failure of protective electronic circuits, if the appliance is still operable		N/A
	Appliances tested with an electronic switch in the off position, or in the stand-by mode:		—
	- 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
	If the appliance contains lids or doors that are controlled by one or more interlocks, one of the interlocks may be released provided that:		—
	- the lid or door does not move automatically to an open position when the interlock is released, and		N/A
	- the appliance does not start after the cycle in which the interlock was released		N/A
19.14	Appliances operated under the conditions of clause 11, any contactor or relay contact operating under the conditions of clause 11 being short-circuited		N/A
	For a relay or contactor with more than one contact, all contacts are short-circuited at the same time		N/A
	A relay or contactor operating only to ensure the appliance is energized for normal use is not short-circuited		N/A
	If more than one relay or contactor operates in clause 11, they are short-circuited in turn		N/A
19.15	For appliances with a mains voltage selector switch, the switch is set to the lowest rated voltage position and the highest value of rated voltage is applied		N/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 (IEC 60335-2-29)		P
19.102	Reverse connection of battery chargers to a fully charged battery at rated voltage (IEC 60335-2-29)	According appliance construction, the battery can not reverse charging.	N/A
	The capacity of the battery (IEC 60335-2-29) .....:		N/A
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 (IEC 60335-2-29)		N/A
20	**STABILITY AND MECHANICAL HAZARDS**		**P**

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Clause	Requirement + Test	Result - Remark	Verdict
20.1	Appliances having adequate stability		P
	Tilting test through an angle of 10°, appliance placed on an inclined plane/horizontal support, not connected to the supply mains; appliance does not overturn		P
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°		N/A
	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		N/A
	Protective enclosures, guards and similar parts are non-detachable, and		N/A
	have adequate mechanical strength		N/A
	Enclosures that can be opened by overriding an interlock are considered to be detachable parts		N/A
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard by unexpected closure		N/A
	Not possible to touch dangerous moving parts with the test probe described		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 3 blows to every point of the enclosure like to be weak, in accordance with test Ehb of IEC 60068-2-75, spring hammer test, with an impact energy of 1,0 J ± 0,05 J (IEC 60335-2-29)		P
	The appliance shows no damage impairing compliance with this standard, and		P
	compliance with 8.1, 15.1 and clause 29 not impaired		P
	If doubt, 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
	Test not applicable if the thickness of supplementary insulation is at least 1 mm and reinforced insulation at least 2 mm		P

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Clause	Requirement + Test	Result - Remark	Verdict
	The insulation is tested as specified, and does withstand the electric strength test of 16.3		N/A
21.101	Battery chargers, other than built-in battery chargers, having a mass not exceeding 5 kg, subjected to a drop test (IEC 60335-2-29)	1370g	P
	Battery chargers show no damage that could impair compliance with 8.1, 15.1.1, 16.3 and cl. 29 (IEC 60335-2-29)		P
21.102	Battery chargers for installing in caravans and similar vehicles withstand vibrations to which they may be subjected (IEC 60335-2-29)		N/A
	Vibration test as specified in IEC 60068-2-6 (IEC 60335-2-29)		N/A
	Battery chargers show no damage that could impair compliance with 8.1, 15.1.1, 16.3 and cl. 29 (IEC 60335-2-29)		N/A
	Connections have not worked loose (IEC 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		N/A
22.2	Stationary appliance: means to ensure all-pole disconnection from the supply being provided:		N/A
	- a supply cord fitted with a plug, or		N/A
	- a switch complying with 24.3, or		N/A
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided, or		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 01 and class I appliances, connected to the phase conductor		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 50 N 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 1 mm		N/A
	Each pin subjected to a torque of 0,4 Nm; the pins are not rotating, unless		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	rotating does not impair compliance with this standard		N/A
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets		N/A
22.5	No risk of electric shock when touching the pins of the plug, for appliances having a capacitor with rated capacitance equal to or greater than 0,1μF, the appliance being disconnected from the supply at the instant of voltage peak		P
	Voltage not exceeding 34 V (V) ..... :	32.0V	P
	If compliance relies on the operation of an electronic circuit, the electromagnetic phenomena tests of 19.11.4.3 and 19.11.4.4 are applied		N/A
	The discharge test is then repeated three times, voltage not exceeding 34 V (V)..... :		N/A
22.6	Electrical insulation not affected by condensing water or leaking liquid		N/A
	Electrical insulation of Class II appliances not affected if a hose ruptures or seal leaks		N/A
	In case of doubt, test as described		N/A
22.7	Adequate safeguards against the risk of excessive pressure in appliances containing liquid or gases or having steam-producing devices		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		N/A
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances, unless		P
	the substance has adequate insulating properties		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, if:		N/A
	- a non-self-resetting thermal cut-out is required by the standard, and		N/A
	- a voltage maintained non-self-resetting thermal cut-out is used to meet it		N/A
	Non-self-resetting thermal motor protectors have a trip-free action, unless		N/A
	they are voltage maintained		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Reset buttons of non-self-resetting controls so located or protected 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		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		N/A
	Tests as described		P
22.12	Handles, knobs etc. fixed in a reliable manner		P
	Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible		P
	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		P
22.13	Unlikely that handles, when gripped as in normal use, make the operator's hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only		N/A
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance		P
	No exposed pointed ends of self-tapping screws or other fasteners, likely to be touched by the user in normal use or during user maintenance		P
22.15	Storage hooks and the like for flexible cords smooth and well rounded		N/A
22.16	Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands and no undue wear of contacts		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		N/A
22.18	Current-carrying parts and other metal parts resistant to corrosion		P

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Clause	Requirement + Test	Result - Remark	Verdict
22.19	Driving belts not relied upon to provide the required level of insulation, unless		N/A
	constructed to prevent inappropriate replacement		N/A
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless		P
	material used is non-corrosive, non-hygroscopic and non-combustible		P
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless		P
	impregnated		N/A
	This requirement does not apply to magnesium oxide and mineral ceramic fibres used for the electrical insulation of heating elements		N/A
22.22	Appliances not containing asbestos		P
22.23	Oils containing polychlorinated biphenyl (PCB) not used		P
22.24	Bare heating elements, except in class III appliances or class III constructions that do not contain live parts, adequately supported		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, except in class III appliances or class III constructions that do not contain live parts, cannot come into contact with accessible metal parts		N/A
22.26	Output circuit supplied through a safety isolating transformer (IEC 60335-2-29)		P
	No connection between the output circuit and accessible metal parts or an earthing terminal (IEC 60335-2-29)		P
	Insulation between parts operating at safety extra-low voltage and live parts complies with the requirements for double or reinforced insulation (IEC 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		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

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Clause	Requirement + Test	Result - Remark	Verdict
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		P
	so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete		P
22.31	Neither clearances nor creepage distances over supplementary and reinforced insulation reduced below values specified in clause 29 as a result of wear		P
	Neither clearances nor creepage distances between live parts and accessible parts reduced below values for supplementary insulation if wires, screws etc. become loose		P
22.32	Supplementary and reinforced insulation constructed or protected against pollution so that clearances or creepage distances are not reduced below the values in clause 29		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 materials or beads alone not used as supplementary or reinforced insulation		N/A
	Ceramic and similar porous material in which heating conductors are embedded is considered to be basic insulation, not reinforced insulation		N/A
	Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature		N/A
22.33	Conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed accessible metal parts are not in direct contact with live parts, or		N/A
	unearthed metal parts separated from live parts by basic insulation only		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 and conductive liquids that are in contact with unearthed accessible metal parts, not in direct contact with basic or reinforced insulation, unless		N/A
	the reinforced insulation consists of at least 3 layers		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	For class II constructions, conductive liquids which are in contact with live parts, not in direct contact with reinforced insulation, unless		N/A
	the reinforced insulation consists of at least 3 layers		N/A
	An air layer not used as basic or supplementary insulation in a double insulation system if likely to be bridged by leaking liquid		N/A
22.34	Shafts of operating knobs, handles, levers etc. not live, unless		N/A
	the shaft is not accessible when the part is removed		N/A
22.35	For other than class III constructions, handles, levers and knobs, held or actuated in normal use, not becoming live in the event of a 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 a failure of basic insulation, 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 and cordless appliances, other than those of electrical components, provided they are reliably connected to an earthing terminal or earthing contact, or separated from live parts by earthed metal		N/A
	Insulating material covering metal handles, levers and knobs withstand the electric strength test of 16.3 for supplementary insulation		N/A
22.36	For appliances other than class III, handles continuously held in the hand in normal use so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts, unless		N/A
	they are separated from live parts by double or reinforced insulation		N/A
22.37	Capacitors in Class II appliances not connected to accessible metal parts and their casings, if of metal, separated from accessible metal parts by supplementary insulation, unless		N/A
	the capacitors comply 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

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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		N/A
	If the appliance cannot operate continuously, automatically or remotely without giving rise to a hazard, appliances for remote operation being fitted with a switch for stopping the operation. The actuating member of the switch being easily visible and accessible		N/A
22.41	No components, other than lamps, containing mercury		P
22.42	Protective impedance consisting of at least two separate components		P
	Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited		P
	Resistors checked by the test of 14.1 a) in IEC 60065		N/A
	Capacitors checked by the tests for class Y capacitors in IEC 60384-14		P
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		N/A
22.44	Appliances not having an enclosure that is shaped or decorated like a toy		P
22.45	When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.3 due to deformation as a result of an external force applied to the enclosure		P
22.46	For programmable protective electronic circuits used to ensure compliance with the standard, the software contains measures to control the fault/error conditions in table R.1		N/A
	Software that contains measures to control the fault/error conditions specified in table R.2 is to be specified in parts 2 for particular constructions or to address specific hazards		N/A
	These requirements are not applicable to software used for functional purpose or compliance with clause 11		N/A
22.47	Appliances connected to the water mains withstand the water pressure expected in normal use		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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 is to be set before the appliance can be started, unless		N/A
	the appliance switches off automatically or can operate continuously without hazard		N/A
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation		N/A
22.51	There is a control on the appliance manually adjusted to the setting for remote operation before the appliance can be operated in this mode		N/A
	There is a visual indication showing that the appliance is adjusted for remote operation		N/A
	These requirements not necessary on appliances that can operate as follows, without giving rise to a hazard:		—
	- continuously, or		N/A
	- automatically, or		N/A
	- 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		N/A
22.53	Class II appliances and class III appliances that incorporate functionally earthed parts have at least double insulation or reinforced insulation between live parts and the functionally earthed parts		N/A
22.54	Button cells and batteries designated R1 not accessible without the aid of a tool, unless		N/A
	the cover of their compartment can only be opened after at least two independent movements have been applied simultaneously		N/A
22.102	Each circuit supplied from a d.c. distribution board incorporates an overload protective device (IEC 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 (IEC 60335-2-29)		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

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Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
	Beads inside flexible metal conduits contained within an insulating sleeve		N/A
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress		N/A
	Flexible metallic tubes not causing damage to insulation of conductors		N/A
	Open-coil springs not used		N/A
	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		N/A
	100 flexings for conductors flexed during user maintenance		N/A
	Electric strength test of 16.3, 1000 V between live parts and accessible metal parts		N/A
	Not more than 10% of the strands of any conductor broken, and		N/A
	not more than 30% for wiring supplying circuits that consume no more than 15W		N/A
23.4	Bare internal wiring sufficiently rigid and fixed		N/A
23.5	The insulation of internal wiring subjected to the supply mains voltage withstanding the electrical stress likely to occur in normal use		P
	Basic insulation electrically equivalent to the basic insulation of cords complying with IEC 60227 or IEC 60245, or		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		P
	For class II construction, the requirements for supplementary insulation and reinforced insulation apply,		P
	except that the sheath of a cord complying with IEC 60227 or IEC 60245 may provide supplementary insulation.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	A single layer of internal wiring insulation does not provide reinforced insulation		P
23.6	Sleeving used as supplementary insulation on internal wiring retained in position by clamping at both ends, or		P
	be such that it can only be removed by breaking or cutting		P
23.7	The colour combination green/yellow only used for earthing conductors		P
23.8	Aluminium wires not used for internal wiring		P
23.9	Stranded conductors not consolidated by soldering where they are subjected to contact pressure, unless		N/A
	the contact pressure is provided by spring terminals		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)	P
	Motors not required to comply with IEC 60034-1, they are tested as part of the appliance		N/A
	Relays tested as part of the appliance, or		N/A
	alternatively acc. to IEC 60730-1, and meeting the additional requirements in IEC 60335-1		N/A
	The requirements of Clause 29 apply between live parts of components and accessible parts of the appliance		P
	Components can comply with the requirements for clearances and creepage distances for functional insulation in the relevant component standard		P
	30.2 of this standard apply to parts of non-metallic material in components including parts of non-metallic material supporting current-carrying connections		P
	Components that have not been previously tested to comply with the IEC standard for the relevant component are tested according to the requirements of 30.2		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Components that have been previously tested to comply with the resistance to fire requirements in the IEC standard for the relevant component need not be retested provided the specified conditions are met		P
	If these conditions are not satisfied, the component is tested as part of the appliance.		P
	Power electronic converter circuits not required to comply with IEC 62477-1, they are tested as part of the appliance		N/A
	If components have not been tested and found to comply with relevant IEC standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9		P
	For components mentioned in 24.1.1 to 24.1.9 no additional tests specified in the relevant component standard are necessary other than those specified in 24.1.1 to 24.1.9		P
	Components not tested and found to comply with relevant IEC standard and components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance		P
	Lampholders and starterholders that have not 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		N/A
	No additional tests specified for nationally standardized plugs such as those detailed in IEC/TR 60083 or connectors complying with the standard sheets of IEC 60320-1 and IEC 60309		P
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	Approved	P
	If the capacitors have to be tested, they are tested according to Annex F		N/A
24.1.2	Transformers in associated switch mode power supplies comply with Annex BB of IEC 61558-2-16		P
	Safety isolating transformers complying with IEC 61558-2-6		N/A
	If they have to be tested, they are 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	Approved	P

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Clause	Requirement + Test	Result - Remark	Verdict
	If they have to be tested, they are 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
	If the switch only operates a motor staring relay complying with IEC 60730-2-10 with the number of cycles of a least 10 000 as specified, the complete switching system need not be tested		N/A
24.1.4	Automatic controls complying with IEC 60730-1 with the relevant part 2. The number of cycles of operation being at least:		—
	- thermostats: 10 000		N/A
	- temperature limiters: 1 000		N/A
	- self-resetting thermal cut-outs: 300		N/A
	- voltage maintained non-self-resetting thermal cut-outs: 1 000		N/A
	- other non-self-resetting thermal cut-outs: 30		N/A
	- timers: 3 000		N/A
	- energy regulators: 10 000		N/A
	The number of cycles for controls operating during clause 11 need not be declared, if the appliance meets the requirements of this standard when they are short-circuited		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
	Thermal cut-outs of the capillary type comply with the requirements for type 2.K controls in IEC 60730-2-9		N/A
24.1.5	Appliance couplers complying with IEC 60320-1		N/A
	However, for class II appliances classified higher than IPX0, the appliance couplers comply with IEC 60320-2-3		N/A
	Interconnection couplers complying with IEC 60320-2-2		N/A
24.1.6	Small lamp holders similar to E10 lampholders complying with IEC 60238, the requirements for E10 lampholders being applicable		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
24.1.7	For remote operation of the appliance 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 not complying with IEC 60691 are considered to be an intentionally weak part for the purposes of Clause 19		N/A
24.1.9	Contactors and relays, other than motor starting relays, tested as part of the appliance		N/A
	They are also tested in accordance with Clause 17 of IEC 60730-1, the number of cycles of operations in 24.1.4 selected according to the contactor or relay function in the appliance .....:		N/A
24.2	Appliances not fitted with:		—
	- switches or automatic controls in flexible cords		P
	- devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance		P
	- thermal cut-outs that can be reset by soldering, unless		P
	the solder has a melding point of at least 230 °C		N/A
24.3	Switches intended for all-pole disconnection of stationary appliances are directly connected to the supply terminals and have 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/TR 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1		P
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 42 V		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	In addition, the motors comply with the requirements of Annex I		N/A
24.7	Detachable hose-sets for connection of appliances to the water mains comply with IEC 61770		N/A
	They are supplied with the appliance		N/A
	Appliances intended to be permanently connected to the water mains not connected by a detachable hose-set		N/A
24.8	Motor running capacitors in appliances for which 30.2.3 is applicable and that are permanently connected in series with a motor winding, not causing a hazard in event of a failure		N/A
	One or more of the following conditions are to be met:		—
	- the capacitors are of class P2 according to IEC 60252-1		N/A
	- the capacitors are housed within a metallic or ceramic enclosure		N/A
	- the distance of separation of the outer surface to adjacent non-metallic parts exceeds 50 mm		N/A
	- adjacent non-metallic parts within 50 mm withstand the needle-flame test of Annex E		N/A
	- adjacent non-metallic parts within 50 mm classified as at least V-1 according to IEC 60695-11-10		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:		—
	- supply cord fitted with a plug, the current rating and voltage rating of the plug being not less than the corresponding ratings of its associated appliance		N/A
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance, or		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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
25.3	Appliance intended to be permanently connected to fixed wiring provided with one of the following means for connection to the supply mains:		—
	- a set of terminals allowing the connection of a flexible cord		N/A
	- a fitted supply cord		N/A
	- a set of supply leads accommodated in a suitable compartment		N/A
	- a set of terminals for the connection of cables of fixed wiring, cross-sectional areas specified in 26.6, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support		N/A
	- a set of terminals and cable entries, conduit entries, knock-outs or glands, allowing connection of appropriate types of cable or conduit, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support		N/A
	For a fixed appliance constructed so that parts can be removed to facilitate easy installation, this requirement is met if it is possible to connect the fixed wiring without difficulty after a part of the appliance has been fixed to its support		N/A
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimension according to table 10 (mm).....:		N/A
	Introduction of conduit or cable does not reduce clearances or creepage distances below values specified in clause 29		N/A
25.5	Method for assembling the supply cord to the appliance:		—
	- type X attachment		N/A
	- type Y attachment		N/A
	- type Z attachment, if allowed in relevant part 2		N/A
	Type X attachment, other than those with a specially prepared cord, not used for flat twin tinsel cords		N/A
	For multi-phase appliances supplied with a supply cord and that are intended to be permanently connected to fixed wiring, the supply cord is assembled to the appliance by type Y attachment		N/A
25.6	Plugs fitted with only one flexible cord	Detachable supply cord.	P
25.7	Supply cords, other than for class III appliances, being one of the following types:		—
	- rubber sheathed (at least 60245 IEC 53)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- polychloroprene sheathed (at least 60245 IEC 57)		N/A
	- polyvinyl chloride sheathed. Not used if they are likely to touch metal parts having a temperature rise exceeding 75 K during the test of clause 11		—
	• light polyvinyl chloride sheathed cord (60227 IEC 52), for appliances not exceeding 3 kg	For Detachable Cord (H05VV-F)	P
	• ordinary polyvinyl chloride sheathed cord (60227 IEC 53), for other appliances		N/A
	- heat resistant polyvinyl chloride sheathed. Not used for type X attachment other than specially prepared cords		—
	• heat-resistant light polyvinyl chloride sheathed cord (60227 IEC 56), for appliances not exceeding 3 kg		N/A
	• heat-resistant polyvinyl chloride sheathed cord (60227 IEC 57), for other appliances		N/A
	Supply cords for class III appliances adequately insulated		N/A
	Test with 500 V for 2 min for supply cords of class III appliances that contain live parts		N/A
	Battery chargers for charging automobile batteries shall not be fitted with natural rubber sheathed supply cords (IEC 60335-2-29).		N/A
25.8	Nominal cross-sectional area of supply cords not less than table 11; rated current (A); cross-sectional area (mm^2) .....:	For Detachable Cord MAX. 2.3 A, 3G0.75mm^2	P
25.9	Supply cords not in contact with sharp points or edges		N/A
25.10	Supply cord of class I appliances have a green/yellow core for earthing		N/A
	In multi-phase appliances, the colour of the neutral conductor of the supply cord is blue.		N/A
25.11	Conductors of supply cords not consolidated by soldering where they are subject to contact pressure, unless		N/A
	the contact pressure is provided by spring terminals		N/A
25.12	Insulation of the supply cord not damaged when moulding the cord to part of the enclosure		N/A
25.13	Inlet openings so constructed as to prevent damage to the supply cord		N/A
	If it is not evident that the supply cord can be introduced without risk of damage, a non-detachable lining or bushing complying with 29.3 for supplementary insulation provided		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	If unsheathed supply cord, a similar additional bushing or lining is required, unless the appliance is		N/A
	class 0, or		N/A
	a class III appliance not containing live parts		N/A
25.14	Supply cords moved while in operation adequately protected against excessive flexing		N/A
	Flexing test, as described:		—
	- applied force (N) ..... :		N/A
	- number of flexings ..... :		N/A
	The test does not result in:		—
	- short-circuit between the conductors, such that the current exceeds a value of twice the rated current		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 to the cord or the cord guard		N/A
	- broken strands piercing the insulation and becoming accessible		N/A
25.15	For appliances with supply cord and appliances to be permanently connected to fixed wiring by a flexible cord, 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:		N/A
	- fixed appliances: pull 100 N; torque (not on automatic cord reel) (Nm) ..... :		N/A
	- other appliances: values shown in table 12: mass (kg); pull (N); torque (not on automatic cord reel) (Nm) ..... :		N/A
	Pull and torque test of supply cord, values shown in table 12: mass (kg); pull (N); torque (not on automatic cord reel) (Nm) ..... :		N/A
	Cord not damaged and max. 2 mm displacement of the cord		N/A
25.16	Cord anchorages for type X attachments constructed and located so that:		—
	- 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 supply cord		N/A
	- cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless		N/A
	they are 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		N/A
	it is part of a specially prepared cord		N/A
	- screws which have to be operated when replacing the cord do not fix any other component, unless		N/A
	the appliance becomes inoperative or incomplete or the parts cannot be removed without a tool		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		N/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		N/A
	if of metal, they are insulated from accessible metal parts by supplementary insulation		N/A
	After the test of 25.15, under the conditions specified, the conductors have not moved by more than 1 mm in the terminals		N/A
25.17	Adequate cord anchorages for type Y and Z attachment, test with the cord supplied with the appliance		N/A
25.18	Cord anchorages only accessible with the aid of a tool, or		N/A
	Constructed so 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		
	Tying the cord into a knot or tying the cord with string not used		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
25.20	The conductors of the supply cord for type Y and Z attachment insulated from accessible metal parts		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		N/A
	- so there is no risk of damage to the conductors or their insulation when fitting the cover		N/A
	- for portable appliances, so that the uninsulated end of a conductor, if it becomes free from the terminal, prevented from contact with accessible metal parts		N/A
	2 N test to the conductor for portable appliances; no contact with accessible metal parts		N/A
25.22	Appliance inlets:		—
	- live parts not accessible during insertion or removal		P
	Requirement not applicable to appliance inlets complying with IEC 60320-1		P
	- connector can be inserted without difficulty		P
	- the appliance is not supported by the connector		P
	- not for cold conditions if temp. rise of external metal parts exceeds 75 K during clause 11, unless		N/A
	the supply cord is unlikely to touch such metal parts		N/A
25.23	Interconnection cords comply with the requirements for the supply cord, except that:		N/A
	- the cross-sectional area of the conductors is determined on the basis of the maximum current during clause 11		N/A
	- the thickness of the insulation may be reduced		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 this standard is impaired when they are disconnected		N/A
25.25	Dimensions of pins that are inserted into socket-outlets compatible with the dimensions of the relevant socket-outlet.		N/A
	Dimensions of pins and engagement face in accordance with the dimensions of the relevant plug in IEC/TR 60083		N/A
26	**TERMINALS FOR EXTERNAL CONDUCTORS**		**P**

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Clause	Requirement + Test	Result - Remark	Verdict
26.1	Appliances provided with terminals or equally effective devices for connection of external conductors		P
	Terminals only accessible after removal of a non-detachable cover, except		P
	for class III appliances that do not contain live parts		N/A
	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 the connection of cables to fixed wiring provided with terminals in which connections are made by means of screws, nuts or similar devices, unless		N/A
	the connections are soldered		N/A
	Screws and nuts not used to fix any other component, except		N/A
	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, unless		N/A
	barriers provided so that neither clearances nor creepage distances between live parts and other metal parts reduced below the values for supplementary insulation if the conductor becomes free at the soldered joint		N/A
26.3	Terminals for type X attachment and for connection of cables of fixed wiring so constructed that the conductor is clamped between metal surfaces with sufficient contact pressure but without damaging the conductor		N/A
	Terminals fixed so that when the clamping means is tightened or loosened:		—
	- the terminal does not become loose		N/A
	- internal wiring is not subjected to stress		N/A
	- neither clearances nor creepage distances are reduced below the values in clause 29		N/A
	Compliance checked by inspection and by the test of subclause 9.6 of IEC 60999-1, the torque applied being equal to two-thirds of the torque specified (Nm) .....:		N/A
	No deep or sharp indentations of the conductors		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
26.4	Terminals for type X attachment, except those having a specially prepared cord and those for the connection of cables of fixed wiring, no special preparation of conductors such as by soldering, use of cable lugs, eyelets or similar, and		N/A
	so constructed or placed that conductors prevented from slipping out when clamping screws or nuts are tightened		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,		N/A
	for class II constructions, between live parts and metal parts separated from accessible metal parts by supplementary insulation only		N/A
	This requirement does not apply to the terminals of the output circuit (IEC 60335-2-29).		N/A
26.6	Terminals for type X attachment and for connection of cables of fixed wiring suitable for connection of conductors with cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm^2) .....:		N/A
	If a specially prepared cord is used, terminals need only be suitable for that cord		N/A
26.7	Terminals for type X attachment, except in class III appliances not containing live parts, accessible after removal of a cover or part of the enclosure		N/A
26.8	Terminals for the connection of fixed wiring, including the earthing terminal, located close to each other		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		N/A
	conductors ends fitted with means suitable for screw terminals		N/A
	Pull test of 5 N to the connection		P
26.11	For type Y and Z attachment, soldered, welded, crimped or similar connections may be used		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	For Class II appliances, the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone		N/A
	If soldering, welding or crimping alone used, barriers provided so that clearances and creepage distances between live parts and other metal parts are not reduced below the values for supplementary insulation 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 earthing contact of the appliance inlet		P
	Earthing terminals and earthing contacts not connected to the neutral terminal		P
	Class 0, II and III appliances have no provision for earthing		N/A
	Class II appliances and class III appliances can incorporate an earth for functional purposes		N/A
	Safety extra-low voltage circuits not earthed, unless		P
	protective extra-low voltage circuits		N/A
27.2	Clamping means of earthing terminals adequately secured against accidental loosening		P
	Terminals for the connection of external equipotential bonding conductors allow connection of conductors of 2,5 to 6 mm², and		P
	do not provide earthing continuity between different parts of the appliance, and		P
	conductors cannot be loosened without the aid of a tool		P
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
27.3	For a detachable part having an earth connection and being plugged into another part of the appliance, the earth connection is made before and separated after current-carrying connections when removing the part		P
	For appliances with supply cords, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		P
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
27.4	No risk of corrosion resulting from contact between parts of the earthing terminal and the copper of the earthing conductor or other metal		P
	Parts providing earthing continuity, other than parts of a metal frame or enclosure, have adequate resistance to corrosion		P
	If of steel, these parts provided with an electroplated coating with a 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		P
	In the body of the earthing terminal is a part of a frame or enclosure of aluminium or aluminium alloys, precautions taken to avoid risk of corrosion		N/A
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
27.5	Low resistance of connection between earthing terminal and earthed metal parts		P
	This requirement does not apply to connections providing earthing continuity in the protective extra-low voltage circuit, provided the clearances of basic insulation are based on the rated voltage of the appliance		P
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
	Resistance not exceeding 0,1 Ω at the specified low-resistance test (Ω) ..... :	0.009	P
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 to provide earthing continuity in other appliances if at least two tracks are used with independent soldering points and the appliance complies with 27.5 for each circuit		N/A
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
28	**SCREWS AND CONNECTIONS**		P
28.1	Fixings, electrical connections and connections providing earthing continuity withstand mechanical stresses		P
	Screws not of soft metal liable to creep, such as zinc or aluminium		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Diameter of screws of insulating material min. 3 mm		N/A
	Screws of insulating material not used for any electrical connections or connections providing earthing continuity		N/A
	Screws used for electrical connections or connections providing earthing continuity screwed into metal		N/A
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		N/A
	For 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 impairs basic insulation		N/A
	For screws and nuts; torque-test as specified in table 14 .....:	(see appended table)	P
28.2	Electrical connections and connections providing earthing continuity constructed so that contact pressure is not transmitted through non-ceramic insulating material liable to shrink or distort, unless		P
	there is resiliency in the metallic parts to compensate for shrinkage or distortion of the insulating material		N/A
	This requirement does not apply to electrical connections in circuits of appliances for which:		—
	• 30.2.2 is applicable and that carry a current not exceeding 0,5 A		N/A
	• 30.2.3 is applicable and that carry a current not exceeding 0,2 A		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 and thread rolling screws only used for electrical connections if they generate a full form standard machine screw thread		P
	Thread-cutting (self-tapping) screws not 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:		—
	- in normal use,		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- during user maintenance,		N/A
	- when replacing a supply cord having a type X attachment, or		N/A
	- during installation		N/A
	At least two screws being used for each connection providing earthing continuity, unless		N/A
	the screw forms a thread having a length of at least half the diameter of the screw		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
	This requirement does not apply to screws in the earthing circuit if at least two screws are used, or		N/A
	if an alternative earthing circuit is provided		N/A
	Rivets for electrical connections or connections providing earthing continuity secured against loosening if the connections are 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 1) or to provide basic insulation (Type 2), Annex J applies .....:		N/A
	The microenvironment is pollution degree 1 under type 1 protection		N/A
	For type 2 protection, the spacing between the conductors before the protection is applied is not less than the values specified in Table 1 of IEC 60664-3		N/A
	These values apply to functional, basic, supplementary and reinforced insulation.....:		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.....:	(see appended table)	P
	for basic insulation and functional insulation they comply with the impulse voltage test of clause 14		P
	However, if the distances are 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

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Clause	Requirement + Test	Result - Remark	Verdict
	For appliances intended for use at altitudes exceeding 2 000 m, the clearances in Table 16 is increased according to the relevant multiplier values in Table A.2 of IEC 60664-1		N/A
	Impulse voltage test is not applicable:		—
	- when the microenvironment is pollution degree 3, or		P
	- for basic insulation of class 0 and class 01 appliances		N/A
	Appliances are in overvoltage category II		P
	A force of 2 N is applied to bare conductors, other than heating elements		P
	A force of 30 N is applied to accessible surfaces		P
29.1.1	Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage		P
	The values of table 16 or the impulse voltage test of clause 14 are applicable .....:	(see appended table)	P
	Clearance at the terminals of tubular sheathed heating elements may be reduced to 1,0 mm if the microenvironment is pollution degree 1		N/A
	Lacquered conductors of windings considered to be bare conductors		P
29.1.2	Clearances of supplementary insulation not less than those specified for basic insulation in table 16 .....:	(see appended table)	P
29.1.3	Clearances of reinforced insulation not less than those specified for basic insulation in table 16, using the next higher step for rated impulse voltage .....:	(see appended table)	P
	For double insulation, with no intermediate conductive part between basic and supplementary insulation, clearances are measured between live parts and the accessible surface, and the insulation system is treated as reinforced insulation		P
29.1.4	Clearances for functional insulation are the largest values determined from:		—
	- table 16 based on the rated impulse voltage.....:	(see appended table)	P
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N/A
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N/A
	If values of table 16 are largest, the impulse voltage test of clause 14 may be applied instead, unless		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	the microenvironment is pollution degree 3, or		N/A
	the distances can be affected by wear, distortion, movement of the parts or during assembly		N/A
	However, clearances are not specified if the appliance complies with clause 19 with the functional insulation short-circuited		N/A
	Lacquered conductors of windings considered to be bare conductors		P
	However, clearances at crossover points are not measured		P
	Clearance between surfaces of PTC heating elements may be reduced to 1mm		N/A
29.1.5	Appliances having higher working voltages than rated voltage, clearances for basic insulation are the largest values determined from:		—
	- table 16 based on the rated impulse voltage..... :	(see appended table)	P
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N/A
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N/A
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1 or Clause 4 of IEC 60664-4, the clearances of supplementary insulation are not less than those specified for basic insulation		N/A
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1, the clearances of reinforced insulation dimensioned as specified in Table F.7a are to withstand 160% of the withstand voltage required for basic insulation		N/A
	If clearances for basic insulation are selected from Clause 4 of IEC 60664-4, the clearances of reinforced insulation are twice the value required for basic insulation		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
	Circuits supplied with a voltage lower than rated voltage, clearances of functional insulation are based on the working voltage used as the rated voltage in table 15		P

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Clause	Requirement + Test	Result - Remark	Verdict
29.2	Creepage distances not less than those appropriate for the working voltage, taking into account the material group and the pollution degree ..... :	(see appended table)	P
	Pollution degree 2 applies, unless		N/A
	- precautions taken to protect the insulation; pollution degree 1		N/A
	- insulation subjected to conductive pollution; pollution degree 3		P
	A force of 2 N is applied to bare conductors, other than heating elements		P
	A force of 30 N is applied to accessible surfaces		P
	In a double insulation system, the working voltage for both the basic and supplementary insulation is taken as the working voltage across the complete double insulation system		P
29.2.1	Creepage distances of basic insulation not less than specified in table 17 ..... :	(see appended table)	P
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 17 ..... :		N/A
	Except for pollution degree 1, corresponding 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 those specified for basic insulation in table 17, or ..... :	(see appended table)	P
	Table 2 of IEC 60664-4, as applicable..... :		N/A
29.2.3	Creepage distances of reinforced insulation at least double those specified for basic insulation in table 17, or ..... :	(see appended table)	P
	Table 2 of IEC 60664-4, as applicable..... :		N/A
29.2.4	Creepage distances of functional insulation not less than specified in table 18 ..... :	(see appended table)	P
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 18 ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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 have adequate thickness, or a sufficient number of layers, to withstand the electrical stresses		P
	Compliance checked:		—
	- by measurement, in accordance with 29.3.1, or		P
	- by an electric strength test in accordance with 29.3.2, or		P
	- for insulation, other than single layer internal wiring insulation, by an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3, and		N/A
	for accessible parts of reinforced insulation consisting of a single layer, by measurement in accordance with 29.3.4, or		N/A
	- by an assessment of the thermal quality of the material according to 29.3.3 combined with an electric strength test in accordance with 23.5, for each single layer internal wiring insulation touching each other, or		N/A
	- as specified in subclause 6.3 of IEC 60664-4 for insulation that is subjected to any periodic voltage having a frequency exceeding 30 kHz		N/A
29.3.1	Supplementary insulation have a thickness of at least 1 mm		P
	Reinforced insulation have 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 consist of at least 2 layers		P
	Reinforced insulation consist 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
29.3.4	Thickness of accessible parts of reinforced insulation consisting of a single layer not less than specified in table 19 ..... :		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

30	**RESISTANCE TO HEAT AND FIRE**		**P**
30.1	External parts of non-metallic material,		P
	parts supporting live parts, and		P
	parts of 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 tested at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 75 °C, whichever is the higher; temperature (°C) ..... :	(see appended table)	P
	Parts supporting live parts tested at 40°C plus the maximum temperature rise determined during the test of clause 11, or at 125 °C, whichever is the higher; temperature (°C) ..... :	(see appended table)	P
	Parts of thermoplastic material providing supplementary or reinforced insulation tested at 25 °C plus the maximum temperature rise determined during clause 19, if higher; temperature (°C)..... :	(see appended table)	P
30.2	Parts of non-metallic material resistant to ignition and spread of fire		P
	This requirement does not apply to:		—
	parts having a mass not exceeding 0,5 g, provided the cumulative effect is unlikely to propagate flames that originate inside the appliance by propagating flames from one part to another, or		P
	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, and in addition:		P
	- for attended appliances, 30.2.2 applies		N/A
	- for unattended appliances, 30.2.3 applies		P
	For appliances for remote operation, 30.2.3 applies		N/A
	For base material of printed circuit boards, 30.2.4 applies		P
30.2.1	Parts of non-metallic material subjected to the glow-wire test of IEC 60695-2-11 at 550 °C		P
	However, test not carried out if the material is classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 550 °C, or		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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 need to meet the requirements in ISO 9772 for material classified HBF		N/A
30.2.2	Appliances operated while attended, parts of non-metallic material supporting current-carrying connections, and		N/A
	parts of non-metallic material within a distance of 3mm of such connections,		N/A
	subjected to the glow-wire test of IEC 60695-2-11		N/A
	The test severity is:		—
	- 750 °C, for connections carrying a current exceeding 0,5 A during normal operation		N/A
	- 650 °C, for other connections		N/A
	Glow-wire applied to an interposed shielding material, if relevant		N/A
	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:		—
	- 750 °C, for connections carrying a current exceeding 0,5 A during normal operation		N/A
	- 650 °C, for other connections		N/A
	The glow-wire test is also not carried out on small parts. These parts are to:		—
	- comprise material having a glow-wire flammability index of at least 750 °C, or 650 °C as appropriate, or		N/A
	- comply with the needle-flame test of Annex E, or		N/A
	- comprise material classified as V-0 or V-1 according to IEC 60695-11-10.....:		N/A
	Glow-wire 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
	The tests are not applicable to conditions as specified.....:		N/A
30.2.3.1	Parts of non-metallic material supporting connections carrying a current exceeding 0,2 A during normal operation, and		P
	parts of non-metallic material, other than small parts, within a distance of 3 mm,		P

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Clause	Requirement + Test	Result - Remark	Verdict
	subjected to the glow-wire test of IEC 60695-2-11 with a test severity of 850 °C	(see appended table)	P
	Glow-wire applied to an interposed shielding material, if relevant		N/A
	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 850 °C		N/A
30.2.3.2	Parts of non-metallic material supporting connections, and		P
	parts of non-metallic material within a distance of 3mm,		P
	subjected to the glow-wire test of IEC 60695-2-11 with appropriate severity level:	(see appended table)	P
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		P
	- 650 °C, for other connections		N/A
	Glow-wire applied to an interposed shielding material, if relevant		N/A
	However, the glow-wire test of 750 °C or 650 °C as appropriate, is not carried out on parts of material fulfilling both or either of the following classifications:		—
	- a glow-wire ignition temperature according to IEC 60695-2-13 of at least:		N/A
	• 775 °C, for connections carrying a current exceeding 0,2 A during normal operation		N/A
	• 675 °C, for other connections		N/A
	- a glow-wire flammability index according to IEC 60695-2-12 of at least:		N/A
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		N/A
	- 650 °C, for other connections		N/A
	The glow-wire test is also not carried out on small parts. These parts are to:		—
	- comprise material having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N/A
	- comprise material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- comply with the needle-flame test of Annex E, or		N/A
	- comprise material classified as V-0 or V-1 according to IEC 60695-11-10		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The consequential needle-flame test of Annex E applied to non-metallic parts that encroach within the vertical cylinder placed above the centre of the connection zone and on top of the non-metallic parts supporting current-carrying connections, and parts of non-metallic material within a distance of 3 mm of such connections if these parts are those:		—
	- parts that withstood the glow-wire test of IEC 60695-2-11 of 750 °C or 650 °C as appropriate, but produce a flame that persist longer than 2 s, or		P
	- parts that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- small parts, that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- small parts for which the needle-flame test of Annex E was applied, or		N/A
	- small parts for which a material classification of V-0 or V-1 was applied		N/A
	However, the consequential needle-flame test is not carried out on non-metallic parts, including small parts, within the cylinder that are:		—
	- parts having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N/A
	- parts comprising material classified as V-0 or V-1 according to IEC 60695-11-10, or		N/A
	- parts shielded by a flame barrier that meets the needle-flame test of Annex E or that comprises material classified as V-0 or V-1 according to IEC 60695-11-10		P
30.2.4	Base material of printed circuit boards subjected to the needle-flame test of Annex E	(see appended table)	P
	Test not applicable to conditions as specified .....:		N/A
31	**RESISTANCE TO RUSTING**		**P**
	Relevant ferrous parts adequately protected against rusting		P
	Tests specified in part 2 when necessary		N/A
32	**RADIATION, TOXICITY AND SIMILAR HAZARDS**		**P**
	Appliance does not emit harmful radiation or present a toxic or similar hazard due to their operation in normal use		P
	Compliance is checked by the limits or tests specified in part 2, if relevant		N/A
A	**ANNEX A (INFORMATIVE)** **ROUTINE TESTS**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Description of routine tests to be carried out by the manufacturer		N/A
A.2	Electric strength test		N/A
	An electric strength test is carried out between the input and output circuits, the test voltage being:		—
	- 2 000 V, for battery chargers having a rated voltage not exceeding 150 V;		N/A
	- 2 500 V, for other battery chargers.		N/A
B	**ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES THAT ARE RECHARGED IN THE APPLIANCE**		**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
	Three forms of construction covered:		N/A
	a) Appliance supplied directly from the supply mains or a renewable energy source, the battery charging circuitry and other supply unit circuitry incorporated within the appliance		N/A
	b) The part of the appliance incorporating the battery is supplied from the supply mains or a renewable energy source, via a detachable supply unit. The battery charging circuitry is incorporated within the part of the appliance containing the battery		N/A
	c) The part of the appliance incorporating the battery is supplied from the supply mains or a renewable energy source, via a detachable supply unit. The battery charging circuitry is incorporated within the detachable supply unit		N/A
3.1.9	Appliance operated under the following conditions:		—
	- 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

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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.B.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
	The positive terminal indicated by symbol IEC 60417-5005 and the negative terminal by symbol IEC 60417-5006		N/A
	Appliances intending to be supplied from a detachable supply unit marked with symbol IEC 60417-6181 and its type reference along with symbol ISO 7000-0790 (2004-01), or		N/A
	use only with <model designation> supply unit ... :		N/A
7.6	Additional symbols		N/A
7.12	The instructions give information regarding charging		N/A
	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
	For appliances intending to be supplied from a detachable supply unit for the purposes of recharging the battery, the type reference of the detachable supply unit is stated along with the following:		N/A
	WARNING: For the purposes of recharging the battery, only use the detachable supply unit provided with this appliance		N/A
	If the symbol for detachable supply unit is used, its meaning is explained		N/A
7.15	Markings placed on the part of the appliance connected to the supply mains		N/A
	The type reference of the detachable supply unit is placed in close proximity to the symbol		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

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Clause	Requirement + Test	Result - Remark	Verdict
	If the appliance can be operated without batteries, double or reinforced insulation required		N/A
11.7	The battery is charged for the period stated in the instructions or 24 h.....:		N/A
11.8	Temperature rise of the battery surface does not exceed the limit in the battery manufacturer's specification; measured (K); limit (K) .....:		N/A
	If no limit specified, the temperature rise does not exceed 20 K; measured (K) .....:		N/A
19.1	Appliances subjected to tests of 19.B.101, 19.B.102 and 19.B.103		N/A
19.10	Not applicable		N/A
19.B.101	Appliances supplied at rated voltage for 168 h, the battery being continually charged		N/A
19.B.102	For appliances having batteries that can be removed without the aid of a tool, short-circuit of the terminals of the battery, the battery being fully charged,		N/A
19.B.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.B.101	Appliances having pins for insertion into socket-outlets have adequate mechanical strength		N/A
19.13	The battery does not rupture or ignite		N/A
	Part of the appliance incorporating the pins subjected to the free fall test, procedure 2, of IEC 60068-2-31, the number of falls being:		—
	- 100, if the mass of the part does not exceed 250 g (g).....:		N/A
	- 50, if the mass of the 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 in class III appliances or class III constructions operating at safety extra-low voltage not containing live parts		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

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Clause	Requirement + Test	Result - Remark	Verdict
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
	Test conditions as specified		N/A
D	**ANNEX D (NORMATIVE) THERMAL MOTOR PROTECTORS**		N/A
	Applicable to appliances having motors that incorporate thermal motor protectors necessary for compliance with the standard		N/A
	Test conditions as specified		N/A
E	**ANNEX E (NORMATIVE) NEEDLE-FLAME TEST**		**P**
	Needle-flame test carried out in accordance with IEC 60695-11-5, with the following modifications:		—
7	Severities		P
	The duration of application of the test flame is 30 s ± 1 s		P
9	Test procedure		—
9.1	The specimen so arranged that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1		P
9.2	The first paragraph does not apply		P
	If possible, the flame is applied at least 10 mm from a corner		P
9.3	The test is carried out on one specimen		P
	If the specimen does not withstand the test, the test may be repeated on two additional specimens, both withstanding the test		N/A
11	Evaluation of test results		—
	The duration of burning not exceeding 30 s		P
	However, for printed circuit boards, the duration of burning not exceeding 15 s		P
F	**ANNEX F (NORMATIVE) CAPACITORS**		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	Terms and definitions		—
1.5.3	Class X capacitors tested according to subclass X2		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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 3 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 11 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
	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 are applicable		N/A
4.14.7	Only insulation resistance and voltage proof are checked		N/A
	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:		—
7	Marking and instructions		P
7.1	Transformers for specific use marked with:		P

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Clause	Requirement + Test	Result - Remark	Verdict
	-name, trademark or identification mark of the manufacturer or responsible vendor.....:	(see table 24.1)	P
	-model or type reference.....:	(see table 24.1)	P
17	Overload protection of transformers and associated circuits		P
	Fail-safe transformers comply with subclause 15.5 of IEC 61558-1		N/A
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, 29.3	The distances specified in items 2a, 2c and 3 in table 13 of IEC 61558-1 apply		P
	For insulated winding wires complying with subclause 19.12.3 of IEC 61558-1 there are no requirements for clearances or creepage distances		N/A
	For windings providing reinforced insulation, the distance specified in item 2c of table 13 of IEC 61558-1 is not assessed		P
	For safety isolating transformers subjected to periodic voltages with a frequency exceeding 30 kHz, the clearances, creepage distances and solid insulation values specified in IEC 60664-4 are applicable, if greater than the values specified in items 2a, 2c and 3 in table 13 of IEC 61558-1		N/A
H	**ANNEX H (NORMATIVE) SWITCHES**		N/A
	Switches comply with the following clauses of IEC 61058-1, as modified below:		—
	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
	However, a switch 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

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Clause	Requirement + Test	Result - Remark	Verdict
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 declared according to 7.1.4 is 10 000, unless		N/A
	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		N/A
	switches operated by hand that are interlocked so that they cannot be operated under load,		N/A
	are not subjected to the tests		N/A
	However, switches without this interlock are subjected to the test of 17.2.4.4 for 100 cycles of operation		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 IEC 60335-1		N/A
	The temperature rise of the terminals not more than 30 K above the temperature rise measured in clause 11 of IEC 60335-1 (K) ..... :		N/A
20	Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies		N/A
	Clause 20 is applicable to clearances across full disconnection and micro-disconnection		N/A
	It is also applicable to 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
8.1	Metal parts of the motor are considered to be bare live parts		N/A
11	Heating		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
11.3	The temperature rise of the body of the motor is determined instead of the temperature rise of the windings		N/A
11.8	The 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 is not subjected to the test		N/A
19	Abnormal operation		N/A
19.1	The tests of 19.7 to 19.9 are not carried out		N/A
19.l.101	Appliance operated at rated voltage with each of the following fault conditions:		—
	- 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.l.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:		—
5.7	Conditioning of the test specimens		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

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Clause	Requirement + Test	Result - Remark	Verdict
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		P
	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**
	Information 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 macroenvironment		P
	Means may be provided to reduce pollution at the insulation by effective enclosures or similar		P
	Minimum clearances specified where pollution may be present in the microenvironment		P
	Degrees of pollution in the microenvironment		P

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Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
	- pollution degree 3: conductive pollution occurs or dry non-conductive pollution occurs that becomes conductive due to condensation that is to be expected		P
	- 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**		**P**
	The proof tracking test is carried out in accordance with IEC 60112 with the following modifications:		P
7	Test apparatus		P
7.3	Test solutions		P
	Test solution A is used		P
10	Determination of proof tracking index (PTI)		P
10.1	Procedure		P
	The proof voltage is 100V, 175V, 400V or 600V ..:	175V	P
	The test is carried out on five specimens		P
	In case of doubt, additional test with proof voltage reduced by 25 V, the number of drops increased to 100		N/A
10.2	Report		P
	The report states if the PTI value was based on a test using 100 drops with a test voltage of (PTI-25) V		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
	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
5.7	The ambient temperature for the tests of clauses 11 and 13 is 40 +3/0 °C		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 residual current device (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
11.8	The values of Table 3 are reduced by 15 K		N/A
13.2	The leakage current for class I appliances not exceeding 0,5 mA		N/A
15.3	The value of t is 37 °C		N/A
16.2	The leakage current for class I appliances not exceeding 0,5 mA (mA):		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**
	Description of tests for appliances incorporating electronic circuits		P
R	**ANNEX R (NORMATIVE)** **SOFTWARE EVALUATION**		N/A
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 validated in accordance with the requirements of this annex		N/A
R.1	Programmable electronic circuits using software		N/A
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 constructed so that the software does not impair compliance with the requirements of this standard		N/A
R.2	Requirements for the architecture		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 use measures to control and avoid software-related faults/errors in safety-related data and safety-related segments of the software		N/A
R.2.1.1	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.2 have one of the following structures:		N/A
	- single channel with periodic self-test and monitoring		N/A
	- dual channel (homogenous) with comparison		N/A
	- dual channel (diverse) with comparison		N/A
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 have one of the following structures:		N/A
	- single channel with functional test		N/A
	- single channel with periodic self-test		N/A
	- dual channel without comparison		N/A
R.2.2	Measures to control faults/errors		N/A
R.2.2.1	When redundant memory with comparison is provided on two areas of the same component, the data in one area is stored in a different format from that in the other area		N/A
R.2.2.2	Programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.2 and that use dual channel structures with comparison, have additional fault/error detection means for any fault/errors not detected by the comparison		N/A
R.2.2.3	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, means are provided for the recognition and control of errors in transmissions to external safety-related data paths		N/A
R.2.2.4	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the programmable electronic circuits incorporate measures to address the fault/errors in safety-related segments and data indicated in table R.1 and R.2 as appropriate		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
R.2.2.5	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, detection of a fault/error occur before compliance with clause 19 is impaired		N/A
R.2.2.6	The software is referenced to relevant parts of the operating sequence and the associated hardware functions		N/A
R.2.2.7	Labels used for memory locations are unique		N/A
R.2.2.8	The software is protected from user alteration of safety-related segments and data		N/A
R.2.2.9	Software and safety-related hardware under its control is initialized and terminates before compliance with clause 19 is impaired		N/A
R.3	Measures to avoid errors		N/A
R.3.1	General		N/A
	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the following measures to avoid systematic fault in the software are applied		N/A
	Software that incorporates measures used to control the fault/error conditions specified in table R.2 is inherently acceptable for software required to control the fault/error conditions specified in table R.1		N/A
R.3.2	Specification		N/A
R.3.2.1	Software safety requirements:	Software Id:	N/A
	The specification of the software safety requirements includes the descriptions listed		N/A
R.3.2.2	Software architecture		N/A
R.3.2.2.1	The specification of the software architecture includes the aspects listed - techniques and measures to control software faults/errors (refer to R.2.2); - interactions between hardware and software; - partitioning into modules and their allocation to the specified safety functions; - hierarchy and call structure of the modules (control flow); - interrupt handling; - data flow and restrictions on data access; - architecture and storage of data; - time-based dependencies of sequences and data	Document ref. No:	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
R.3.2.2.2	The architecture specification is validated against the specification of the software safety requirements by static analysis		N/A
R.3.2.3	Module design and coding		N/A
R.3.2.3.1	Based on the architecture design, software is suitably refined into modules		N/A
	Software module design and coding is implemented in a way that is traceable to the software architecture and requirements		N/A
R.3.2.3.2	Software code is structured		N/A
R.3.2.3.3	Coded software is validated against the module specification by static analysis		N/A
	The module specification is validated against the architecture specification by static analysis		N/A
R.3.3.3	Software validation		N/A
	The software is validated with reference to the requirements of the software safety requirements specification		N/A
	Compliance is checked by simulation of:		N/A
	- input signals present during normal operation		N/A
	- anticipated occurrences		N/A
	- undesired conditions requiring system action		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

TABLE R.1 [e] – GENERAL FAULT/ERROR CONDITIONS						
Component [a]	Fault/error	Acceptable measures [b, c]	Definitions	Document reference for applied measure	Document reference for applied test	Verdict
1 CPU 1.1 Registers	Stuck at	Functional test, or periodic self-test using either: static memory test, or word protection with single bit redundancy	H.2.16.5 H.2.16.6 H.2.19.6 H.2.19.8.2			N/A
1.2 VOID						N/A
1.3 Programme counter	Stuck at	Functional test, or Periodic self-test, or Independent time-slot monitoring, or Logical monitoring of the programme sequence	H.2.16.5 H.2.16.6 H.2.18.10.4 H.2.18.10.2			N/A
2 Interrupt handling and execution	No interrupt or too frequent interrupt	Functional test, or time-slot monitoring	H.2.16.5 H.2.18.10.4			N/A
3 Clock	Wrong frequency (for quartz synchronized clock: harmonics/ sub-harmonics only)	Frequency monitoring, or time slot monitoring	H.2.18.10.1 H.2.18.10.4			N/A
4. Memory 4.1 Invariable memory	All single bit faults	Periodic modified checksum, or multiple checksum, or word protection with single bit redundancy	H.2.19.3.1 H.2.19.3.2 H.2.19.8.2			N/A
4.2 Variable memory	DC fault	Periodic static memory test, or word protection with single bit redundancy	H.2.19.6 H.2.19.8.2			N/A

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Clause	Requirement + Test	Result - Remark	Verdict

TABLE R.1 [e] – GENERAL FAULT/ERROR CONDITIONS						
Component [a]	Fault/error	Acceptable measures [b, c]	Definitions	Document reference for applied measure	Document reference for applied test	Verdict
4.3 Addressing (relevant to variable and invariable memory)	Stuck at	Word protection with single bit redundancy including the address	H.2.19.8.2			N/A
5 Internal data path	Stuck at	Word protection with single bit redundancy	H.2.19.8.2			N/A
5.1 VOID						N/A
5.2 Addressing	Wrong address	Word protection with single bit redundancy including the address	H.2.19.8.2			N/A
6 External communication	Hamming distance 3	Word protection with multi-bit redundancy, or CRC – single work, or Transfer redundancy, or Protocol test	H.2.19.8.1 H.2.19.4.1 H.2.18.2.2 H.2.18.14			N/A
6.1 VOID						N/A
6.2 VOID						N/A
6.3 Timing	Wrong point in time	Time-slot monitoring, or scheduled transmission Time-slot and logical monitoring, or comparison of redundant communication channels by either: reciprocal comparison independent hardware comparator	H.2.18.10.4 H.2.18.18 H.2.18.10.3 H.2.18.15 H.2.18.3			N/A
	Wrong sequence	Logical monitoring, or time-slot monitoring, or Scheduled transmission	H.2.18.10.2 H.2.18.10.4 H.2.18.18			
7 Input/output periphery	Fault conditions specified in 19.11.2	Plausibility check	H.2.18.13			N/A
7.1 VOID						N/A

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Clause	Requirement + Test	Result - Remark	Verdict

TABLE R.1 [e] – GENERAL FAULT/ERROR CONDITIONS						
Component [a]	Fault/error	Acceptable measures [b, c]	Definitions	Document reference for applied measure	Document reference for applied test	Verdict
7.2 Analog I/O 7.2.1 A/D and D/A-converter	Fault conditions specified in 19.11.2	Plausibility check	H.2.18.13			N/A
7.2.2 Analog multiplexer	Wrong addressing	Plausibility check	H.2.18.13			N/A
8 VOID						N/A
9 Custom chips [d] e.g. ASIC, GAL, gate array	Any output outside the static and dynamic functional specification	Periodic self-test	H.2.16.6			N/A
NOTE A Stuck-at fault model denotes a fault model representing an open circuit or a non-varying signal level. A DC fault model denotes a stuck-at fault model incorporating short circuit between signal lines.						
a) For fault/error assessment, some components are divided into their sub-functions. b) For each sub-function in the table, the Table R.2 measure will cover the software fault/error. c) Where more than one measure is given for a sub-function, these are alternatives. d) To be divided as necessary by the manufacturer into sub-functions. e) Table R.1 is applied according to the requirements of R.1 to R.2.2.9 inclusive.						

S	ANNEX S (NORMATIVE) BATTERY OPERATED APPLIANCES POWERED BY BATTERIES THAT ARE NON-RECHARGEABLE OR NOT RECHARGED IN THE APPLIANCE		N/A
	The following modifications to this standard are applicable for battery-operated appliances where the batteries are either non-rechargeable (primary batteries), or		N/A
	rechargeable batteries (secondary batteries) that are not recharged in the appliance		N/A
5.8.1	If the supply terminals for the connection of the battery have no indication of polarity, the more unfavourable polarity is applied		N/A
5.S.101	Appliances intended for use with a battery box are tested with the battery box supplied with the appliance or with the battery box recommended in the instructions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.S.102	Appliances are tested as motor-operated appliances.		N/A
7.1	Appliances marked with the battery voltage (V) and the polarity of the terminals, unless ....:		N/A
	the polarity is irrelevant		N/A
	Appliances also marked with:		—
	– name, trade mark or identification mark of the manufacturer or responsible vendor ....:		N/A
	– model or type reference ....:		N/A
	– IP number according to degree of protection against ingress of water, other than IPX0... .....:		N/A
	– type reference of battery or batteries ....:		N/A
	If relevant, the positive terminal is indicated by the symbol IEC 60417-5005 and the negative terminal by the symbol IEC 60417-5006		N/A
	If appliances use more than one battery, they are marked to indicate correct polarity connection of the batteries		N/A
7.6	Additional symbols		N/A
7.12	The instructions contain the following, as applicable:		—
	– the types of batteries that may be used... .....:		N/A
	– how to remove and insert the batteries		N/A
	– non-rechargeable batteries are not to be recharged		N/A
	– rechargeable batteries are to be removed from the appliance before being charged		N/A
	– different types of batteries or new and used batteries are not to be mixed		N/A
	– batteries are to be inserted with the correct polarity		N/A
	– exhausted batteries are to be removed from the appliance and safely disposed of		N/A
	– if the appliance is to be stored unused for a long period, the batteries are removed		N/A
	– the supply terminals are not to be short-circuited		N/A
11.5	Appliances are supplied with the most unfavourable supply voltage between		—
	– 0,55 and 1,0 times the battery voltage, if the appliance can be used with non-rechargeable batteries		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	– 0,75 and 1,0 times battery voltage, if the appliance is designed for use with rechargeable batteries only		N/A
	The values specified in Table S.101 for the internal resistance per cell of the battery is taken into account		N/A
19.1	The tests are carried out with the battery fully charged unless otherwise specified		N/A
19.13	The battery does not rupture or ignite		N/A
19.S.101	Appliances are supplied with the voltage specified in 11.5. The supply terminals having an indication of polarity are connected to the opposite polarity, unless		N/A
	such a connection is unlikely to occur due to the construction of the appliance		N/A
19.S.102	For appliances with provision for multiple batteries, one or more of the batteries are reversed and the appliance is operated, if reversal of batteries is allowed by the construction		N/A
25.5	The flexible leads or flexible cord used to connect an external battery or battery box in is connected to the appliance by a type X attachment		N/A
25.13	This requirement is not applicable to the flexible leads or flexible cord connecting external batteries or a battery box with an appliance		N/A
25.S.101	Appliances have suitable means for connection of the battery. If the type of battery is marked on the appliance, the means of connection is suitable for this type of battery		N/A
26.5	Terminal devices in an appliance for the connection of the flexible leads or flexible cord connecting an external battery or battery box are so located or shielded that there is no risk of accidental connection between supply terminals		N/A
30.2.3.2	There is no battery in the area of the vertical cylinder used for the consequential needle flame test, unless		N/A
	the battery is shielded by a barrier that meets the needle flame test of Annex E, or		N/A
	that comprises material classified as V-0 or V-1 according to IEC 60695-11-10		N/A

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict

AA	**ANNEX AA (NORMATIVE)** **BATTERY CHARGERS FOR USE BY CHILDREN (IEC 60335-2-29/A1)**		N/A
	Battery chargers intended to be used by children at least eight years old without supervision shall comply with this standard but as modified by this annex. 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	**GENERAL CONDITIONS FOR THE TESTS**		N/A
5.201	When batteries are used, the generally available rechargeable batteries giving the most unfavourable conditions are used		N/A
6.1	Battery chargers suitable for outdoor use shall be class III		N/A
	Other battery chargers shall be class II or class III		N/A
6	**CLASSIFICATION**		N/A
6.2	Battery chargers suitable for outdoor use shall be at least IPX7		N/A
6.201	Enclosures shall be classified at least IP3X with regard to protection against ingress of solid foreign objects.		N/A
7	**MARKING AND INSTRUCTIONS**		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
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

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Clause	Requirement + Test	Result - Remark	Verdict
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	**PROTECTION AGAINST ACCESS TO LIVE PARTS**		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	**POWER INPUT AND CURRENT**		N/A
10.101	The output voltage not exceed 42,4 V peak		N/A
11	**HEATING**		N/A
11.8	Temperature rises of parts that can be touched by test probe 18 of IEC 61032	(see appended table)	N/A
	- 25 K, if of metal;		N/A
	- 35 K, if of other material.		N/A
17	**OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS**		N/A
	Temperature rises of parts that can be touched by test probe 18 of IEC 61032	(see appended table)	N/A
	- 45 K, if of metal;		N/A
	- 55 K, if of other material.		N/A
19	**ABNORMAL OPERATION**		N/A
19.13	Temperature rises of parts that can be touched by test probe 18 of IEC 61032	(see appended table)	N/A
	- 45 K, if of metal;		N/A
	- 55 K, if of other material.		N/A
21	**MECHANICAL STRENGTH**		N/A
21.201	Impact test Eha of IEC 60068-2-75, with impact energy of 2 J		N/A
	For rectangular shaped battery chargers, the four sides and four edges are subjected to an impact. For other battery chargers, the enclosure is subjected to eight impacts equally spaced over the periphery.		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 shall not become accessible		N/A
22	**CONSTRUCTION**		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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	Battery chargers shall be constructed so that reverse charging is prevented, regardless of the state of charge of the battery. This applies even if the battery is inserted with the wrong polarity.		N/A
24	**COMPONENTS**		N/A
24.201	Transformer for toys tested in accordance with sub-clauses 7.2, 20.5.1 and 20.101 and clause 15 of standard IEC 61558-2-7		N/A
25	**SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS**		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

IEC 60335-2-29			
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: Input current deviation				P
Current deviation of/at:	I rated (mA)	I measured (mA)	ΔI (%)	Required ΔI (%)	Remark
Test 1:					
100V, 60Hz	2.3	2.244	-2.5%	+15% or 0.3A	--
100V, 50Hz	2.3	2.331	1.4%	+15% or 0.3A	--
240V, 60Hz	2.3	1.046	-54.5%	+15% or 0.3A	--
240V, 50Hz	2.3	1.074	-53.3%	+15% or 0.3A	--
Test 2:					
100V, 60Hz	2.3	2.249	-2.2%	+15% or 0.3A	--
100V, 50Hz	2.3	2.370	3.1%	+15% or 0.3A	--
240V, 60Hz	2.3	1.064	-53.7%	+15% or 0.3A	--
240V, 50Hz	2.3	1.096	-52.3%	+15% or 0.3A	--
Supplementary information: Test 1: battery charger connected to the circuit of Figure 101. Test 2: Load with Li-ion battery rated 14Ah.					

10.102	TABLE: Output current deviation					P
Current deviation of/at:	U_o rated (V)	I_o rated (A)	I_o measured (A)	ΔI_o (%)	Required ΔI_o (%)	Remark
100V, 50Hz	29.0	2.0	1.981	-1.0%	±10%	--
240V, 50Hz	29.0	2.0	1.993	-0.4%	±10%	--
100V, 60Hz	29.0	2.0	1.993	-0.4%	±10%	--
240V, 60Hz	29.0	2.0	1.995	-0.3%	±10%	--

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict

11.8-1	TABLE: Heating Test				P
	Test voltage (V).....	264V 50Hz	90V 50Hz	264V 60Hz	—
	Ambient (°C)	23.5 ℃	24.0℃	23.3 ℃	—
Thermocouple Locations		Max. temperature rise measured, ΔT (K)			Max. temperature rise limit, ΔT (K)
Power cord		12.2	16.3	11.5	50
Upper enclosure (above PCBA1) inside		35.0	34.9	34.0	For cl.30
Lower enclosure (under PCBA1) inside		45.9	45.9	44.8	For cl.30
Battery connector support (Plastic for the pins)		30.4	31.9	29.9	For cl.30
Connector on PCB (for L/N)		27.2	42.3	26.3	For cl.30
Power switch		24.3	26.4	23.4	T85-25=60
Internal input wire		18.0	21.5	16.4	T105-25=80
Lead wire to charge terminal		36.7	39.1	35.9	T200-25=175
Lower enclosure outside		39.9	44.5	39.0	50
Test floor		20.3	26.8	26.0	65
Transformer T1 winding – pri.		94.5	87.6	94.8	115
Transformer T1 winding – sec.		96.6	87.3	95.2	115
Transformer T1 Core (Top)		85.1	78.2	84.4	115
Transformer T1 Bobbin		65.7	75.6	79.8	For cl.30
LF1 Winding		29.3	47.0	28.6	65
LF2 Winding		30.6	41.4	28.3	65
PCB, near Q1		58.0	66.6	57.4	T130-25=105
CX1 body		23.8	29.3	22.1	T100-25=75
CX2 body		39.1	53.6	36.6	T100-25=75
Varistor ZNR1		31.5	51.5	30.8	T85-25=60
Opto-coupler U2 body		52.6	55.3	51.7	T110-25=85
Y-capacitor CY1 body		74.1	69.9	73.6	T125-25=100
Supplementary information: Battery charger connected to the circuit of Figure 101.					

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict

11.8-2	TABLE: Heating Test					P
	Test voltage (V).....	264V 50Hz	90V 50Hz	264V 63Hz	90V 60Hz	—
	Ambient (°C)	23.1 ℃	23.7℃	23.2℃	24.1℃	—
Thermocouple Locations		Max. temperature rise measured, ΔT (K)				Max. temperature rise limit, ΔT (K)
Power cord		13.8	17.0	13.8	17.1	50
Upper enclosure (above PCBA1) inside		43.1	44.0	44.0	43.3	For cl.30
Lower enclosure (under PCBA1) inside		47.3	49.4	48.5	48.4	For cl.30
Battery connector support (Plastic for the pins)		34.9	35.7	35.9	35.2	For cl.30
Connector on PCB (for L/N)		28.4	43.2	29.7	41.8	For cl.30
Power switch		26.5	28.4	27.3	27.9	T85-25=60
Internal input wire		19.8	23.8	20.8	23.6	T105-25=80
Lead wire to charge terminal		38.4	40.4	39.3	40.2	T200-25=175
Lower enclosure outside		41.3	48.0	42.4	46.7	50
Battery		34.1	36.8	33.5	35.3	Ref.
Test floor		24.3	28.5	22.7	24.8	65
Transformer T1 winding – pri.		99.1	91.2	98.9	89.7	115
Transformer T1 winding – sec.		99.4	91.2	99.8	90.0	115
Transformer T1 Core (Top)		87.5	80.9	88.1	80.0	115
Transformer T1 Bobbin		81.9	78.0	77.8	71.6	For cl.30
LF1 Winding		30.9	48.6	31.3	46.6	65
LF2 Winding		30.9	43.5	31.4	41.7	65
PCB, near Q1		60.2	68.6	60.6	67.0	T130-25=105
CX1 body		24.6	31.4	24.9	30.2	T100-25=75
CX2 body		39.5	56.1	39.9	53.9	T100-25=75
Varistor ZNR1		33.2	52.5	33.5	50.7	T85-25=60
Opto-coupler U2 body		54.3	57.6	54.6	56.6	T110-25=85
Y-capacitor CY1 body		76.6	72.3	76.7	71.4	T125-25=100
Supplementary information: Load with Li-ion battery rated 14Ah.						

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict

11.8	TABLE: Heating test, resistance method		N/A
	Test voltage (V) ..... :	—	—
	Ambient, t_1 (°C) ..... :	—	—
	Ambient, t_2 (°C) ..... :	—	—

Temperature rise of winding	R_1 (Ω)	R_2 (Ω)	ΔT (K)	Max. ΔT (K)	Insulation class
—	—	—	—	—	—

Supplementary information:

13.2	TABLE: Leakage current		P
	Heating appliances: 1,15 x rated input (W) ..... :	—	—
	Motor-operated and combined appliances: 1,06 x rated voltage (V) ..... :	1.06 x240V=254.4V	—

Leakage current between	I (mA)	Max. allowed I (mA)
Live/Neutral – switch surface	0.0138	0.35 peak
Live/Neutral – enclosure	0.0132	0.35 peak
Live/Neutral – LCD panel	0.0132	0.35 peak
Live/Neutral – earth terminal	0.0158	0.75
Live/Neutral – output terminal(+)	0.0939	0.35 peak
Live/Neutral – output terminal(-)	0.0887	0.35 peak

Supplementary information: —

13.3	TABLE: Electric strength		P

Test voltage applied between:	Test potential applied (V)	Breakdown / flashover (Yes/No)
Live/Neutral – switch surface	3000	No
Live/Neutral – enclosure	3000	No
Live/Neutral – LCD panel	3000	No
Live/Neutral – output terminal	3000	No
Primary of transformer to secondary of transformer	2.4 x 262+2400=3029	No
Secondary to core of transformer	2.4 x 262+2400=3029	No
Insulation tape for one layers-transformer	1.2 x 262+1450=1765	No
Live/Neutral – earth terminal	1.2 x 262+1450=1765	No

Supplementary information: —

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict

14	TABLE: Transient overvoltages					N/A
Clearance between:		Cl (mm)	Required Cl (mm)	Rated impulse voltage (V)	Impulse test voltage (V)	Flashover (Yes/No)
—		—	—	—	—	—
Supplementary information: —						

16.2	TABLE: Leakage current		P
	Single phase appliances: 1,06 x rated voltage (V).....:	1.06x240V=254.4V	—
	Three phase appliances 1,06 x rated voltage divided by √3 (V) .....:	—	—

Leakage current between	I (mA)	Max. allowed I (mA)
Live/Neutral – switch surface	0.015	0.25
Live/Neutral – enclosure	0.014	0.25
Live/Neutral – LCD panel	0.015	0.25
Live/Neutral – earth terminal	0.023	0.75
Live/Neutral – output terminal(+)	0.213	0.25
Live/Neutral – output terminal(-)	0.127	0.25
Supplementary information: —		

16.3	TABLE: Dielectric strength for all test models	P
Test voltage applied between:	Test potential applied (V)	Breakdown / flashover (Yes/No)
Live/Neutral – switch surface	3000	No
Live/Neutral – enclosure	3000	No
Live/Neutral – LCD panel	3000	No
Live/Neutral – output terminal	3000	No
Primary of transformer to secondary of transformer	2.4 x 262+2400=3029	No
Secondary to core of transformer	2.4 x 262+2400=3029	No
Insulation tape for one layers-transformer	1.2 x 262+1450=1765	No
Insulation tape for two layers-transformer	2.4 x 262+2400=3029	No
Live/Neutral – earth terminal	1.2 x 262+700V=1014	No
Supplementary information: —		

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict

17	TABLE: Overload protection		P
Thermocouple locations	Max. temperature rise measured, ΔT (K)		Max. temperature rise limit, ΔT (K)
	Test 1	Test 2	
PCB under T1	78.5	32.5	T130-25=105
T1 winding pri.	113.1	38.5	130
T1 winding aux.	123.1	39.2	130
T1 core	101.4	34.2	Ref.
Enclosure	54.9	19.0	Cl.30
Test corner	29.0	10.6	150
Ambient	24.0 °C	24.4 °C	—
Supplementary information: 1).Overload of transformer T1 2).Output short			

17	TABLE: Overload protection, resistance method					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:						

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict

19	Abnormal operation conditions						P
Operational characteristics		YES/NO	Operational conditions				
Are there electronic circuits to control the appliance operation?		Yes	With electronic circuits				
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	according the standard	No hazard	N/A	N/A	N/A	N/A	P
19.11.4.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.101	according the standard	No hazard	N/A	N/A	N/A	N/A	P
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: —						

19.13	TABLE: Abnormal operation, temperature rises	P
Thermocouple locations	Max. temperature rise measured, ΔT (K)	Max. temperature rise limit, ΔT (K)
LF1 Winding	30.8	T200-25=175
LF2 Winding	33.6	T200-25=175
Transformer T1 winding – pri.	89.0	T240-25=215
Transformer T1 winding – sec.	91.4	T240-25=215
Transformer T1 Core (Top)	77.3	Ref.
Enclosure inside	42.5	Cl.30
Enclosure of battery	33.6	Ref.
Supplementary information: For 19.101		

21.1	TABLE: Impact resistance		P
Impacts per surface	Surface tested	Impact energy (Nm)	Comments
3 times	Enclosure	1.0	P
3 times	Enclosure (openings)	1.0	P
3 times	LCD panel	1.0	P
3 times	Switch	1.0	P
3 times	Battery connector support	1.0	P
Supplementary information: --			

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict

24.1	TABLE: Components				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
Plug for detachable power cord	Carry On Electrical Co., Ltd	CO-005	AC 250V,16A	VDE 0620-1	VDE 40012558
Plug for detachable power cord for Mexico	Carry On Electrical Co., Ltd	CO-103	NEMA 5-15P 125V/10A	UL817 CSA-C22.2 No. 49	UL E171605
Detachable power cord	Carry On Electrical Co., Ltd	H05VV-F	3g0.75mm^2	VDE 0281-5	VDE 123936
Detachable power cord for Mexico	Carry On Electrical Co., Ltd	SJT	18AWG x 3C, 300V, 105ºC, VW-1 Length 1.8-3.0m	UL817 CSA-C22.2 No. 49	UL E171605
AC connector for detachable power cord	Carry On Electrical Co., Ltd	CO-004	AC 250V,10A	IEC 60320-1	VDE 40014372
AC connector for detachable power cord for Mexico	Carry On Electrical Co., Ltd	CO-104	AC 250V,10A	UL817 CSA-C22.2 No. 49	UL E171605
Appliance inlet	Zhe Jiang Bei Er Jia Electronic Co., Ltd	ST-A01-002L	AC 250V,10A, 70℃	IEC 60320-1 UL498 / UL60320-1, CSA-C22.2 No. 42	VDE 40013388, UL E225980
Fuse	Walter Electronic Co. Ltd	FSD-Serie(s)	AC250V 6.3A	IEC 60127-1 IEC 60127-2	VDE 40016929
Fuse holder	Zhong Shan Lanbao Electrical Appliances Co Ltd	FH511	AC 250 V,10A	IEC 60335-1 IEC 60335-2-29	Tested with appliance & UL E234112
Power switch	Zhejiang LECI Electronics Co., Ltd	RS606 series	16A, AC 250V, T85, 1E4	IEC 61058-1	VDE40021500
Output terminal support (blue and gray)	RADICI PLASTICS (SUZHOU) CO LTD	Radiflam S FR(a)	PA6. V-0, 65℃	IEC 60335-1 IEC 60335-2-29	Tested with appliance & UL E337835
Main Enclosure	RADICI PLASTICS (SUZHOU) CO LTD	Radiflam S RV 200K AE(a)C	PA6. V-0, 140℃	IEC 60335-1 IEC 60335-2-29	Tested with appliance & UL E337835

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict

24.1	TABLE: Components				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
Internal wire for connecting to power supply	ZHONGSHAN XINSHENG ELECTRIC CO LTD	1015	AC600V, 105℃, 16AWG	IEC 60335-1 IEC 60335-2-29	Tested with appliance & UL E328303
Internal wire for connecting to main PCB and output terminals	DONGGUAN HAODE WIRE & CABLE TECHNOLOGY CO LTD	3135	AC600V, 200℃,	IEC 60335-1 IEC 60335-2-29	Tested with appliance & UL E364036
Tubing for quick-connect connector	FOSHAN FANGPU DIPPING TECHNOLOGY CO LTD	Series FP	PVC. 600V, 105℃, VW-1	IEC 60335-1 IEC 60335-2-29	Tested with appliance & UL E185679
Sleeving for Internal wire	SHENZHEN WAHCHANGWEI INDUSTRIAL CO LTD	SRS-70*	600V, 200℃, VW-1	--	UL E233803
PCB for indication lamp	GOLDENMAX INTERNATIONAL TECHNOLOGY (ZHUHAI) LTD	FR-4	V-0, 130°C	IEC 60335-1 IEC 60335-2-29	Tested with appliance & UL E330731
Main PCB	Kingboard Chemical Holdings Ltd.	FR-4	V-0, 130°C	IEC 60335-1 IEC 60335-2-29	Tested with appliance & UL E123995
X2 Capacitor	Tenta Electric Industrial Co. Ltd.	MEX	275VAC, 0.22μF, 40/100/21	IEC 60384-14	VDE 119119
NTC	Thinking Electronic Industrial Co., Ltd	SCK-054	5Ω	IEC 60539-1 IEC 60730-1	TUV R 50050155
Varistor (MOV)	Thinking Electronic Industrial Co., Ltd	10D471K	470VAC, 40/85/56	IEC 61051-1 IEC 61051-2 IEC 61051-2-2	VDE 5944
Fuse (on PCB)	Dongguan Chevron Electronics Technology Co., Ltd	SET	T3.15A 250VAC	IEC 60127-1 IEC 60127-3	VDE 40038565
Inductance (LF1, LF2)	Shenzhen Yuyuan Power Co., Ltd	D10.5-550uH D16-5.5mH	Class 130 (B)	IEC 60335-1 IEC 60335-2-29	Tested with appliance
Connector	JAPAN SOLDERLESS TERMINAL MFG CO LTD	S4P-VH	--	IEC 60335-1 IEC 60335-2-29	Tested with appliance

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict

24.1	TABLE: Components				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
Connector Base(CN01)	JAPAN SOLDERLESS TERMINAL MFG CO LTD	B 4P-VH	--	IEC 60335-1 IEC 60335-2-29	Tested with appliance
Y1 Capacitor (CY1, CY2)	JYH HSU(JEC) ELECTRONICS LTD	JD222M	2200pF, 400V, Y1, 40/125/21	IEC 60384-14	VDE 137027
Optocoupler (U2)	Everlight Electronics Co Ltd	EL817	Di≥ 0.4mm, Int dcr=7.6mm, ext dcr=8.0mm, T110°C	IEC 60747-5-2	VDE 132249
Transformer	Shenzhen Yuyuan Power Co., Ltd	WL-134-02	INPUT: 100-240 V, 50-60 HZ, OUTPUT: 29VDC CLASS F	IEC 60335-1 IEC 60335-2-29	Tested with appliance
- Magnet wire (N1, N3)	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	UEWN/U	**155**℃	IEC 60335-1 IEC 60335-2-29	Tested with appliance & UL E201757
- Triple insulation wire (N2, N4)	COSMOLINK CO LTD	TIW-M(F)	155°C	IEC 60335-1 IEC 60335-2-29	Tested with appliance & UL E213764
- Margin	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	WF	130°C	IEC 60335-1 IEC 60335-2-29	UL E165111
- Insulating Tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	PF301	(brown) 180°C	IEC 60335-1 IEC 60335-2-29	UL E165111
- Bobbin	E I DUPONT DE NEMOURS & CO INC	FR530(I)(+)(f1)	PET. V-0, 155°C	IEC 60335-1 IEC 60335-2-29	UL E59481
- Tube	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD	WF	600V, 200°C, VW-1	IEC 60335-1 IEC 60335-2-29	UL E203950
- Varnish	SUZHOU TAIHU ELECTRIC ADVANCED MATERIAL CO LTD	T-4260(a)	155°C	IEC 60335-1 IEC 60335-2-29	UL E233623

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict

24.1	TABLE: Components				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
Supplementary information: [1)] Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

28.1	TABLE: Threaded part torque test			P
Threaded part identification	Diameter of thread (mm)	Column number (I, II, or III)	Applied torque (Nm)	
Screw for fixed enclosure	3.98	II	1.2	
Fix screw of the earthed wire	4.00	II	1.2	
Fix screw of the inlet	2.83	II	0.5	
Supplementary information: —				

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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
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*** **	8.0	10.0	--	9.9	P
4 000	**3,0** / **3,5*** **	--	--	7.5	--	P
6 000	5,5 / 6,0***	--	--	--	--	N/A
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 3

***) If the construction is affected by wear, distortion, movement of the parts or during assembly

Remark:

Basic:

Cl.=Cr.=8.4mm measured between CY1 capacitor;

Functional:

Cl.=9.9mm, Cr.=13.5mm measured between L/N on PCB;

Cl.=Cr.=8.0mm measure between terminals of fuseholder;

Supplementary:

Cl=Cr=10.0mm measured between internal wire and accessible part;

Reinforced:

Cl.=7.5mm, Cr.=15.0mm measure between live part of input circuit and accessible part;

Cl.=11.0mm, Cr.=13.0mm measure between primary to secondary on transformer;

Cl.=Cr.=13.0mm measure between live part of fuseholder and accessible part;

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict

29.2	TABLE: Creepage distances, basic, supplementary and reinforced insulation										P
Working voltage (V)	Creepage distance (mm) Pollution degree										
	1	2			3			Type of insulation			
		Material group			Material group						
		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
≤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**	8.0	—	—	P
250	0,56	1,25	1,8	2,5	3,2	3,6	**4,0**	—	10.0	—	P
250	1,12	2,5	3,6	5,0	6,4	7,2	**8,0**	—	—	13.0	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

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Clause	Requirement + Test	Result - Remark	Verdict

>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
>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

Remarks: See details in table 29.1.

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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

Remarks:

See details in table 29.1.

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict

30.1	TABLE: Ball Pressure Test of Thermoplastics		P
Allowed impression diameter (mm) .....:		2.0	—
Object/ Part No./ Material	**Manufacturer/ trademark**	**Test temperature (°C)**	**Impression diameter (mm)**
Enclosure	See table 24.1	96.0	1.2
Bobbin of T1	See table 24.1	140.0	0.8
Output terminal support	See table 24.1	125.0	1.3
Connector on PCB	See table 24.1	125.0	0.9
Fuseholder	See table 24.1	125.0	1.3
Supplementary information:--			

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**		
Enclosure	See table 24.1	--	--	--	0	0	P	P
Transformer bobbin	See table 24.1	--	--	--	0	0	P	P
X capacitor:	See table 24.1	--	--	--	0	0	P	P
Output terminal support	See table 24.1	--	--	--	0	0	P	P
Insulated pager above transformer	See table 24.1	--	--	--	0	0	P	P
PCB	See table 24.1	--	--	--	0	0	P	P
Fuseholder	See table 24.1	--	--	--	13.2	0.8	P	P
Power switch	See table 24.1	--	--	--	0	0	--	P
Object/ Part No./ Material	**Manufacturer / trademark**	**Glow-wire flammability index (GWFI), °C**				**GW ignition temp. (GWIT), °C**		**Verdict**
		550	**650**	**750**	**850**	**675**	**775**	
--	--	--	--	--	--	--	--	--

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict

--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--

The test specimen passed the glow wire test (GWT) with no ignition [($t_e - t_i$) ≤ 2s] (Yes/No) :	No
If no, then surrounding parts passed the needle-flame test of annex E (Yes/No) ..... :	Yes
The test specimen passed the test by virtue of most of the flaming material being withdrawn with the glow-wire (Yes/No)? ..... :	No
Ignition of the specified layer placed underneath the test specimen (Yes/No) ..... :	No
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	See table 24.1	30	No	8.6	P
Enclosure	See table 24.1	30	No	1.0	P
Inlet	See table 24.1	30	No	0.9	P
Fuseholder	See table 24.1	30	No	1.0	P
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					

--- End of Test Report ---

Attachment 2

IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict
BB	**Annex BB**		P
	Particular requirements for associated transformers for switch mode power supplies with internal frequencies > 500 Hz		P
BB.4	General requirement		P
BB.4.2	Associated transformer for switch mode power supplies used in appliance, tested under the conditions present in the appliance		P
BB.5	General notes on tests		P
	Clause 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.15		P
BB.6	**Rating**		P
BB.7	Classification		P
	According to short-circuit protection or protective against abnormal		P
	According to duty type		P
BB.8	**MARKING AND OTHER INFORMATION**		P
BB.8.2	Marking for transformers IP00 or for associated transformers: type and trademark		P
BB8.11	Correct symbol use	Incorporated use	N/A
BB.9	**PROTECTION AGAINST ELECTRIC SHOCK**		N/A
BB.10	**CHANGE OF INPUT VOLTAGE SETTING**		N/A
BB.11	**OUTPUT VOLTAGE AND OUTPUT CURRENT UNDER LOAD**		N/A
BB.12	**NO-LOAD OUTPUT VOLTAGE (see supplementary requirements in Part 2)**		N/A
BB.13	**SHORT-CIRCUIT VOLTAGE**		N/A
BB.14	**HEATING**		N/A
BB14.101	For SMPS incorporating transformers with internal frequencies higher than 1kHz	See completed product's report, clause 11	N/A
	Thermocouples or equivalent of measuring temperature may be used to determine the temperature of the windings and the insulating materials.		N/A
	The max. temperature limit shall be reduced by 10°C for the thermocouple measurements		N/A
BB.15	**SHORT-CIRCUIT AND OVERLOAD PROTECTION**		N/A
BB.16	MECHANICAL STRENGTH		N/A
BB.17	**PROTECTION AGAINST HARMFUL INGRESS OF WATER AND MOISTURE**		N/A
BB.18	**INSULATION RESISTANCE AND ELECTRIC STRENGTH**		P
BB.18.2	Insulation resistance between:		P
	– live parts and body for basic insulation ≥ 2 MΩ		N/A

Attachment 2

IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict
	– live parts and body for reinforced insulation ≥ 7 MΩ		P
	– input circuits and output circuits for basic insulation ≥ 2 MΩ		N/A
	– input circuits and output circuits for double or reinforced insulation ≥ 5 MΩ		P
	– each input circuit and all other input circuits connected together ≥ 2 MΩ		N/A
	– each output circuit and all other output circuits connected together ≥ 2 MΩ		N/A
	– hazardous live parts and metal parts with basic insulation (Class II transformers) ≥ 2 MΩ		N/A
	– body and metal parts with basic insulation (Class II transformers) ≥ 5 MΩ		P
	– metal foil in contact with inner and outer surfaces of enclosures ≥ 2 MΩ		N/A
BB.18.3	Electric strength test (1 min): no flashover or breakdown:		P
	1) basic insulation between input circuits and output circuits; working voltage (V); test voltage (V)		N/A
	2) double or reinforced insulation between input circuits and output circuits; working voltage (V); test voltage (V)	4200V	P
	3) basic or supplementary insulation between:		P
	a) live parts of different polarity; working voltage (V); test voltage (V)	2100V	P
	b) live parts and the body if intended to be connected to protective earth		N/A
	c) inlet bushings and cord guards and anchorages		N/A
	d) live parts and an intermediate conductive part		N/A
	e) intermediate conductive parts and body ...	4200V	P
	4) Reinforced insulation between the body and live parts; working voltage (V); test voltage (V)	4200V	P
	5) Functional insulation for windings intended to be connected in series or parallel (test voltage = working voltage + 500 V) (IEC 61558-2-16:2009)		P
BB.19	**CONSTRUCTION**		P

Attachment 2

IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict
BB.19.1	Separation of input and output circuits		P
BB.19.1.1	SMPS incorporating auto-transformers (IEC 61558-2-16:2009)		N/A
BB.19.1.2	SMPS incorporating separating transformers (IEC 61558-2-16:2009)		N/A
BB.19.1.2.1	Input and output circuits electrically separated. (IEC 61558-2-16:09)		P
BB.19.1.2.2	The insulation between input and output winding(s) consist of basic insulation (IEC 61558-2-16:09)		N/A
	Class I SMPS		N/A
	– Insulation between input windings and body consist of basic insulation		N/A
	– Insulation between output windings and body consist of basic insulation		N/A
	Class II SMPS (IEC 61558-2-16:09)		P
	– Insulation between input windings and body consist of double or reinforced insulation		P
	– Insulation between output windings and body consist of double or reinforced insulation		P
BB.19.1.2.3	The insulation between input windings and intermediate conductive parts and the output windings and intermediate part consist of basic insulation (IEC 61558-2-16:09)		N/A
	For class I SMPS the insulation between input and output windings via the intermediate conductive parts consist of basic insulation (IEC 61558-2-16:09)		N/A
	For class II SMPS the insulation between input winding and the body and between the output windings and the body via the intermediate conductive parts consist of double or reinforced insulation (IEC 61558-2-16:09)		P
BB.19.1.2.4	Parts of output circuits may be connected to protective earth (IEC 61558-2-16:09)		N/A
BB.19.1.2.5	No direct contact between output circuits and the body, unless: (IEC 61558-2-16:2009)		P
	– Allowed for associated transformers by the equipment standard		P
	– Clause 19.8 of part 1 is fulfilled		P
BB.19.1.3	SMPS incorporating isolating transformers and safety isolating transformers (IEC 61558-2-16:09)		P

Attachment 2

IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict
BB.19.1.3.1	Input and output circuits electrically separated (IEC 61558-2-16:09)		P
	No possibility of any connection between these circuits		P
BB.19.1.3.2	The insulation between input and output winding(s) consist of double or reinforced insulation (exception see 19.1.3.4) (IEC 61558-2-16:09)		P
	Class I SMPS **not** intended for connection to the mains by a plug:		—
	– Insulation between input windings and body connected to earth consist of basic insulation rated to the input voltage		N/A
	– Insulation between output windings and body, connected to earth consist of basic insulation rated for the output voltage		N/A
	Class I SMPS intended for connection to the mains by a plug (EN 61558-2-16:09):		N/A
	– Insulation between input windings and body connected to earth consist of basic insulation rated to the working voltage		N/A
	– Insulation between output windings and body, connected to earth consist of supplementary insulation rated for the working voltage		N/A
	Class II SMPS (IEC 61558-2-16:09)		P
	– Insulation between input windings and body consist of double or reinforced insulation rated to the input voltage		P
	– Insulation between output windings and body consist of double or reinforced insulation, rated to the output voltage		P
BB.19.1.3.3	SMPS with intermediate conductive parts not connected to the body (between input/output) (EN 61558-2-16:09):		P
19.1.3.3.1	For class I and class II SMPS the insulation between input and output windings, via intermediate conductive parts, consist of double or reinforced insulation, rated to the working voltage (EN 61558-2-16:09)		P

Attachment 2

IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict
	– For class II SMPS the insulation between input winding and the body and between the output windings and the body via the intermediate conductive parts consist of double or reinforced insulation. (rated to the input voltage, for SELV circuits only basic insulation to the body))		P
	– For transformers, different from independent, the insulation between input and output windings, via intermediate conductive parts, consist of double or reinforced insulation, rated to the working voltage.		N/A
BB.19.1.3.3.2	Class I transformers with earthed core, and not allowed for class II equipment (EN 61558-2-16:09)		N/A
	– Insulation from the input to the earthed core: basic insulation rated for the input voltage		N/A
	– Insulation from the output voltage to the earthed core: basic insulation rated for the output voltage		N/A
BB.19.1.3.3.3	Insulation between : input to intermediate conductive parts and output and intermediate parts consist of at least basic insulation (EN 61558-2-16:09)		N/A
	– If the insulation from input or output to the intermediate metal part is less than basic insulation, the part is considered to be connected to input or output.		N/A
BB.19.1.3.4	For class I SMPS, with protective screen, **no**t connected to the mains by a plug the following conditions comply (EN 61558-2-16:09):		N/A
	– The insulation between input winding and protective screen consist of basic insulation (rated input voltage)		N/A
	– The insulation between output winding and protective screen consist of basic insulation (rated output voltage)		N/A
	– The protective screen consist of metal foil or a wire wound screen extending the full width of the windings and has no gaps or holes		N/A
	– Where the protective screen does not cover the entire width of the input winding, additional insulation to ensure double insulation in this area, is used.		N/A
	– If the screen is made by a foil, the turns are isolated, overlap at least 3 mm		N/A

Attachment 2

IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict
	– The cross-section of the screen and the lead out wire is at least corresponding to the rated current of the overload device		N/A
	– The lead our wire is soldered or fixed to the protective screen.		N/A
	Protective screening is not allowed for SMPS with plug connection to the mains (EN 61558-2-16:09)		N/A
BB.19.1.3.5	No connection between output circuit and protective earth, except of associated transformers (allowed by equipment standard) or 19.8 is fulfilled (EN 61558-2-16:09)		N/A
BB.19.1.3.6	No connection between output circuit and body, except of associated transformers (allowed by equipment standard) (EN 61558-2-16:09)		P
BB.19.1.3.7	The distance between input and output terminals for the connection of external wiring is ≥ 25 mm		P
BB.19.1.3.8	Portable SMPS having an rated output ≤ 630 VA (EN 61558-2-16:09)		P
BB.19.1.3.9	No connection between input and output circuit, except of associated transformers (allowed by equipment standard) (EN 61558-2-16:09)		P
BB.19.1.3.10	Protective screening is not allowed for SMPS with plug connection to the mains (EN 61558-2-16:09)		N/A
BB.19.12	Windings construction		P
BB.19.12.1	Undue displacement in all types of transformers not allowed:		P
	– of input or output windings or turns thereof		P
	– of internal wiring or wires for external connection		P
	– of parts of windings or of internal wiring in case of rupture or loosening		P
BB.19.12.2	Serrated tape:		N/A
	– distance through insulation according to table 13		N/A
	– one additional layer of serrated tape, and		N/A
	– one additional layer without serration		N/A
	– in case of cheek less bobbins the end turns of each layer shall be prevented from being displaced		N/A
BB.19.12.3	Insulated windings wires:		P

Attachment 2

IEC 61558-2-16			
Clause	Requirement + Test	Result - Remark	Verdict
	– to all types of transformers for basic or supplementary insulation taken separately		N/A
	a) Winding wire with basic or supplementary insulation:		N/A
	-comply with Annex K		N/A
	-the insulation of the conductor: two layers		N/A
	b) Winding wire with double or reinforced insulation:		P
	–comply with Annex K		P
	–the insulation of the insulated winding wire: three layers		P
	–dielectric strength test with the values according 18.3 multiplied by 1,25		P
	Where the wire is wound:		-
	– upon metal or ferrite cores		N/A
	– upon enamelled wire		N/A
	– under enamelled wire		N/A
	An additional insulation with a dti of supplementary insulation provided between insulated an enamelled wires		N/A
	100 % Routine test according to Annex K.3 for windings giving double or reinforced insulation		N/A
	For windings providing reinforced insulation the values in table 13, table C.1 and table D1, box 2) c), are not required		P
BB.20	**COMPONENTS**		N/A
BB.21	**INTERNAL WIRING**		N/A
BB.22	**SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CABLES AND CORDS**		N/A
BB.23	**TERMINALS FOR EXTERNAL CONDUCTORS**		N/A
BB.24	**PROVISION FOR PROTECTIVE EARTHING**		N/A
BB.25	**SCREWS AND CONNECTIONS**		N/A
BB.26	**CREEPAGE DISTANCES AND CLEARANCES**		N/A
BB.27	**RESISTANCE TO HEAT, FIRE AND TRACKING**		N/A
BB.28	**RESISTANCE TO RUSTING**		N/A

-- End of test report --

Attachment 3

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict

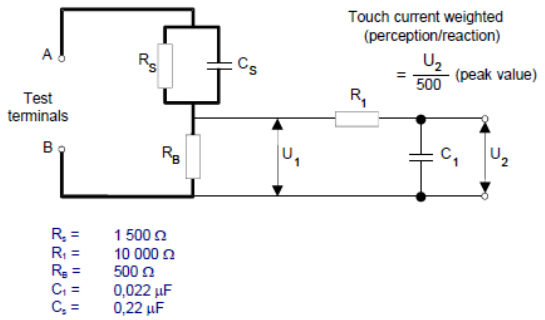
MEXICO DIFFERENCES

Mexico Differences per NMX-J-521-1-ANCE-2012			
3.1.4 (1 NN)	National note that shall be applied to 3.1.4 (NOTE) For this Mexican Standard a second note is added to the definition indicated in this national note. NOTE 2 - For other appliances, the wattage is calculated based on rated current and rated voltage, unless the applicable part 2 specifies that it determines otherwise.		N/A
3.6.3, 8.1.1, 8.1.2, 8.1.3, 8.2, 20.2, 22.11, 29.1, 29.2 (2 NN)	For this Mexican Standard the reference to the International Standard IEC 61032 shall be replaced by the Mexican Standard NMX-J-586-ANCE.		P
5.18 (3 NN)	For this Mexican Standard the reference to the International Standard ISO 2768-1 shall be replaced by the Mexican Standard NMX-CH-2768-1-IMNC.		N/A
6.2, 15.1.1, 22.1 (4 NN)	For this Mexican Standard the reference to the International Standard IEC 60529 shall be replaced by the Mexican Standard NMX-J-529-ANCE.		N/A

Attachment 3

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
7.1, 7.8 (5 NN)	For this Mexican Standard applies the following: In paragraph 7.1 - The 5172 symbol indicated in 7.6, for **class II appliances** only; and - The 5180 symbol indicated in 7.6 for **class III appliances**. This indication is not necessary for appliances that operate with batteries only (primary or secondary batteries that are recharged outside the appliance). The hydraulic valves enclosure that are incorporated into external sets with hoses for the appliance connection to the mains water supply, shall be marked with the 5036 symbol indicated in 7.6, if their **working voltage** is higher that the **safety extra-low voltage**. In paragraph 7.8 - Protective ground terminals shall be indicated with the 5019 symbol indicated in 7.6. The above, because it is not necessary to refer to the International Standard being the symbols referred in paragraph 7.1, are found in paragraph 7.6 of this Mexican Standard.		P
7.5 (6 NN)	For this Mexican Standard the following note is added: **NOTE** - There may be cases in which the wattage or rated current is the same for two values or a range of rated voltages. In these cases the marking of a single wattage or rated current value is allowed (e.g. 100 V - 127 V ~ 300 W). The above is to reflect an international practice in accordance with the standard requirement.		P
7.6, 19.11, 19.12, ANNEX Q (8 NN)	For this Mexican Standard the mention to the International Standard IEC 60127 is deleted because this is of an informative nature only. The above at determine the requirement for the test prescribed in this standard.		P

Attachment 3

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
7.8 (9 NN)	For this Mexican Standard after the second paragraph, the following note is added: **NOTE -** Also the use of a green color screw with hexagonal head, hexagonal terminal nut, or a pressure connector is allowed, provided that this cannot be detached from the appliance. The above is based on that is indicated in section 250-119 of the NOM-001-SEDE, with respect to terminals for grounding devices.		P
7.13 (10 NN)	For this Mexican Standard the first paragraph of item which is outlined in this national note is replaced by the following: "Instructions and other texts that required this standard shall be written in Spanish language, without detrimental to include other languages". The above is because the Spanish is the predominant language in Mexico.	In Spanish.	P
8.1.4, 13.2 (11 NN)	For this Mexican Standard the reference to figure 4 of the International Standard IEC 60990 is replaced by the following figure:  **Figure 4.- Measurement circuit, touch current weighted for perception or reaction** The figure 4 of International Standard IEC 60990 is imported into this Mexican Standard to meet the normative requirement.		P

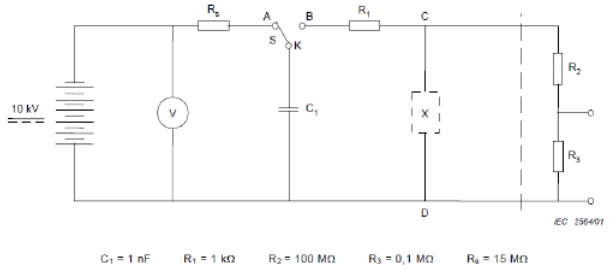
Attachment 3

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
10.1 (12 NN)	For this Mexican Standard, the following note is added after the penultimate paragraph of 10.1: **NOTE -** For household appliances and similar appliances that incorporate a heating element PTC type, the representative period is not defined in part 1. This depends on the appliance. The input power shall be measured when steady conditions are established or at the end of the test specified in 11.7 of the corresponding part 2, whichever is shorter. The above, in order to specify the particular risk conditions that are described in the corresponding Part 2".		N/A
11.3 (13 NN)	For this Mexican Standard, the following note is added after the third paragraph: **NOTE 101 -** The maximum distance between the disks shall be 7,62 cm ± 0,2 cm. In a 3 by 3 disk arrangement, there shall be minimum one thermocouple that senses the higher temperature. The area of the appliance sides (roof, corner, floor and walls) shall be covered by the number of required arrays. The above in order to ensure reproducibility and repeatability of the test method, based on the criteria of the Technical Committee of Laboratories of the conformity evaluation system of the International Electrotechnical Commission IEC-EE.		P
11.8 (14 NN)	For this Mexican Standard the reference to the International Standard IEC 60085 is replaced by the Mexican Standard NMX-J-640-ANCE. In addition, at the foot of table "d" the reference to table 12.1 of the International Standard IEC 60598-1 shall be replaced by the reference to table 9 "maximum limits of temperature" of the Mexican Standard NMX-J-307-ANCE.		P
11.8, 23.10, 25.7 (15 NN)	For this Mexican Standard the references to International Standards on codes for the power supply cords designation are deleted. The above, as these are of informative nature.		P
14 (16 NN)	For this standard the references to International Standards IEC 61180-1 and IEC 61180-2, are replaced by the reference to the Mexican Standard NMX-J-550/4-5-ANCE. This NMX covers the International Standards requirements as follows: a) For the 1,2/50 µs waveform, the specifications are in Figure 2 of the NMX-J-550/4-5-ANCE, b) For transient overvoltages generator, the specifications are in clause 6 of the NMX-J-550/4-5-ANCE.		N/A

Attachment 3

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
14, 29, 29.1, 29.1.4, 29.1.5, 29.2, 29.2.4, 29.3.4, ANNEX K, ANNEX L, ANNEX M (17 NN)	For this Mexican Standard the reference to the International Standard IEC 60664-1, is replaced by the Mexican Standard NMX-J-597/1-ANCE.		P
19.11.4, 24.1, 24.1.3, 24.1.4, 24.1.9, ANNEX R (18 NN)	For this Mexican Standard the reference to the International Standard IEC 60730-1, is replaced by the Mexican Standard NMX-J-591/1-ANCE		N/A
19.11.4.1, 19.11.4.2, 19.11.4.3, 19.11.4.4, 19.11.4.5, 19.11.4.6, 19.11.4.7 (19 NN)	For this Mexican Standard the reference to the International Standards is replaced by the applicable Mexican Standards: - IEC 61000-4-2 by NMX-J-610/4-2-ANCE; - IEC 61000-4-3 by NMX-J-550/4-3-ANCE; - IEC 61000-4-4 by NMX-J-550/4-4-ANCE; - IEC 61000-4-5 by NMX-J-550/4-5-ANCE; - IEC 61000-4-6 by NMX-J-579/4-6-ANCE; - IEC 61000-4-11 by NMX-J-550/4-11-ANCE; and - IEC 61000-4-13 by NMX-J-550/4-13-ANCE.		N/A
21.1 (20 NN)	For this Mexican Standard the reference to the International Standard IEC 60068-2-75, is replaced by the Mexican Standard NMX-J-607-ANCE.		P

Attachment 3

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
22.42 (21 NN)	For this Mexican Standard the reference to the test of item "a" paragraph 14.1 of the International Standard IEC 60065, is replaced by the following: For resistors connected between HAZARDOUS LIVE parts and ACCESSIBLE conductive parts and for resistors bridging contact gaps of MAINS SWITCHES, the 10 specimens are each subjected to 50 discharges at a maximum rate of 12/min, from a 1 nF capacitor charged to 10 kV in a test circuit as shown in the following figure:  C_1 = 1 nF R_1 = 1 kΩ R_2 = 100 MΩ R_3 = 0,1 MΩ R_s = 15 MΩ After this test, the value of resistance shall not differ more than 20 % from the value measured before the damp heat test. No failure is allowed. The above to include the test method specified in the International Standard IEC 60050, paragraph 14.1 in order to meet the normative requirement in this standard.		P
22.48, 24.7 (22 NN)	For this Mexican Standard the reference to the International Standard IEC 61770 is replaced by the Mexican Standard NMX-J-608-ANCE. Also in paragraph 24.7 the wording of the last paragraph is modified by the following: *"Compliance is checked by inspection and the tests of 22.48"*		N/A
22.50 (23 NN)	For this Mexican Standard, after the paragraph which stated this national note, the following is added: **NOTE -** In order to not confuse a remote control that operates by infrared with a **remote operation** device see 3.1.12. The above is to refer to the remote operation definition, and avoid misunderstanding in the reading of this standard.		N/A
23.3, 23.5, 23.10, 24.7 (24 NN)	For this Mexican Standard the mention to the sheath of a flexible cord that is described in the International Standard IEC 60227 and IEC 60245, is replaced by the sheath of a flexible cord that complies with the Mexican Standards NMX-J-436-ANCE or NMX-J-451-ANCE as a suitable insulation sheath.		N/A
24.1 (Note 2) (25 NN)	For this Mexican Standard the mention to the International Standard IEC 60034-1 is deleted due to it is of informative nature only, because it does not imply compliance.		N/A

Attachment 3

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
24.1.7 (26 NN)	For this Mexican Standard the mention to the International Standard IEC 62151 is deleted due to it is of informative nature only, because it does not imply compliance.		N/A
24.8, 30.2.1, 30.2.2, 30.2.3.2, 30.2.4 (27 NN)	For this Mexican Standard the reference to the International Standard IEC 60695-11-10, is replaced by the Mexican Standard NMX-J-565/11-10-ANCE.		N/A
26.1 (28 NN)	For this Mexican Standard the references to International Standards IEC 60998-2-1, IEC 60998-2-2 and IEC 60999-1 are deleted. The above mentioned because these are of informative nature only.		N/A
26.3 (29 NN)	For this Mexican Standard the reference to paragraph 9.6 of the International Standard IEC 60999-1 is replaced by the following: "For screwless-type clamping units, the insertion and disconnection of the conductors must be in accordance with the manufacturer's instructions. The disconnection of a conductor requires an operation, different from the action of pulling only one con conductor, which can be performed in normal use with or without the aid of a tool. The openings provided for the use of a tool in order to assist in the insertion or disconnection of the conductors must be clearly distinguished from the openings provided for conductors. *Compliance is checked by inspection, the torque applied is equivalent to two thirds of the torque specified in Table 14. "* The above to incorporate to this standard the requirement referred to paragraph 9.6 of the International Standard IEC 60999-1.		N/A

Attachment 3

<table>
<tr><th colspan="4">IEC 60335-2-29</th></tr>
<tr><td>Clause</td><td>Requirement + Test</td><td>Result - Remark</td><td>Verdict</td></tr>
<tr><td>29
(30 NN)</td><td>For this Mexican Standard the reference to "Table 1" of the International Standard IEC 60664-3, shall be replaced by the following table:
Minimum spacings for type 2 protection
<table>
<tr><th>Maximum peak value of any voltage a)
kV</th><th>Minimum spacings
mm</th></tr>
<tr><td>≤ 0,33</td><td>0,01</td></tr>
<tr><td>> 0,33 and ≤ 0,4</td><td>0,02</td></tr>
<tr><td>> 0,4 and ≤ 0,5</td><td>0,04</td></tr>
<tr><td>> 0,5 and ≤ 0,6</td><td>0,06</td></tr>
<tr><td>> 0,6 and ≤ 0,8</td><td>0,1</td></tr>
<tr><td>> 0,8 and ≤ 1,0</td><td>0,15</td></tr>
<tr><td>> 1,0 and ≤ 1,2</td><td>0,2</td></tr>
<tr><td>> 1,2 and ≤ 1,5</td><td>0,3</td></tr>
<tr><td>> 1,5 and ≤ 2,0</td><td>0,45</td></tr>
<tr><td>> 2,0 and ≤ 2,5</td><td>0,6</td></tr>
<tr><td>> 2,5 and ≤ 3,0</td><td>0,8</td></tr>
<tr><td>> 3,0 and ≤ 4,0</td><td>1,2</td></tr>
<tr><td>> 4,0 and ≤ 5,0</td><td>1,5</td></tr>
<tr><td>> 5,0 and ≤ 6,0</td><td>2</td></tr>
<tr><td>> 6,0 and ≤ 8,0</td><td>3</td></tr>
<tr><td>> 8,0 and ≤ 10</td><td>3,5</td></tr>
<tr><td>> 10 and ≤ 12</td><td>4,5</td></tr>
<tr><td>> 12 and ≤ 15</td><td>5,5</td></tr>
<tr><td>> 15 and ≤ 20</td><td>8</td></tr>
<tr><td>> 20 and ≤ 25</td><td>10</td></tr>
<tr><td>> 25 and ≤ 30</td><td>12,5</td></tr>
<tr><td>> 30 and ≤ 40</td><td>17</td></tr>
<tr><td>> 40 and ≤ 50</td><td>22</td></tr>
<tr><td>> 50 and ≤ 60</td><td>27</td></tr>
<tr><td>> 60 and ≤ 80</td><td>35</td></tr>
<tr><td>> 80 and ≤ 100</td><td>45</td></tr>
<tr><td colspan="2">a) Transient overvoltages are disregarded since they are unlikely to degrade the protected assembly.</td></tr>
</table>
Table 1 of International Standard IEC 60664-3 is added in order to meet the normative requirement that is mentioned in this standard</td><td></td><td>N/A</td></tr>
<tr><td>29.3.3
(31 NN)</td><td>For this Mexican Standard the reference to the International Standard IEC 60068-2-2, is replaced by the Mexican Standard NMX-J-607-ANCE.</td><td></td><td>N/A</td></tr>
<tr><td>30.1
(32 NN)</td><td>For this Mexican Standard the reference to the International Standard IEC 60695-10-2, is replaced by the Mexican Standard NMX-J-565/10-2-ANCE. In addition, to check the fulfillment of this requirement shall be considered a 2 mm maximum indentation in the ball pressure test.</td><td></td><td>P</td></tr>
<tr><td>30.2.3.2
(33 NN)</td><td>For this Mexican Standard the reference to the International Standard IEC 60695-2-13, is replaced by the Mexican Standard NMX-J-565/2-13-ANCE.</td><td></td><td>P</td></tr>
</table>

Attachment 3

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
ANNEX B 21.b.101 (34 NN)	For this Mexican Standard the reference to the "Repeated free fall" test procedure 2 of International Standard IEC 60068-2-31 is replaced by the contents of Annex DA. The above to include in Annex DA the "Repeated free fall" test of the International Standard IEC 60068-2-31 to meet the normative requirement that is mentioned in this standard.		N/A
ANNEX E (35 NN)	For this Mexican Standard the reference to the International Standard IEC 60695-11-5, is replaced by the Mexican Standard NMX-J-565/11-5-ANCE.		P
BIBLIOGRAPHY (36 NN)	For this Mexican Standard, the bibliographical references are replaced by the following: IEC 60065 ed7.2 (2011-02) Audio, video and similar electronic apparatus - Safety requirements. IEC 60068-2-31 ed2.0 (2008-05) Environmental testing - Part 2-31: Tests - Test Ec: Rough handling shocks, primarily for equipment-type specimens. IEC 60335-1 ed5.0 (2010-05) Household and similar electrical appliances - Safety - Part 1: General requirements. IEC 60664-3 ed2.1 (2010-08) Insulation coordination for equipment within low-voltage systems - Part 3: Use of coating, potting or moulding for protection against pollution. IEC 60695-10-3 ed1.0 (2002-04) Fire hazard testing - Part 10-3: Abnormal heat - Mould stress relief distortion test. IEC 60990 ed2.0 (1999-08) Methods of measurement of touch current and protective conductor current. IEC 60999-1 ed2.0 (1999-11) Connecting devices - Electrical copper conductors - Safety requirements for screwtype and screwless-type clamping units - Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm^2 up to 35 mm^2 (included). TRF 60335-1 (2012-03) Test report form - IEC 60335-1 (fifth edition) Safety of household and similar electrical appliances The above as these bibliographical references were taken as the basis for the development of this Mexican Standard.		P
(37 NN)	**CONCORDANCE WITH INTERNATIONAL STANDARDS** For this Mexican Standard the clause of concordance with international standards is added, the above to establish the degree of concordance between the Mexican Standard and the International Standard pursuant to the Federal Law on Metrology and Standardization and its regulation		P

Attachment 3

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
ANNEX DA, ANNEX DB, ANNEX DC, ANNEX DD, ANNEX DE, ANNEX DF (38 NN)	For this Mexican Standard the following annexes are added: **ANNEX DA,** The above to cover the "Repeated free fall" test requirement. **ANNEX DB,** The above to provide the evaluation method for the lighting strings, seasonal decorative figures and lighting flexible hoses. **ANNEX DC,** The above to mention the accuracy of measuring equipment used to apply the tests that are established in this Mexican Standard and its parts 2. Furthermore, to have repeatability and reproducibility parameters. **ANNEX DD,** The above to provide a listing of the Mexican Standards parts 2 that complement this Mexican Standard. **ANNEX DE,** The above to provide "Deformation by molding strength due to temperature test" as optional test method to verify compliance with the resistance to heat and fire established in 30.1. **ANNEX DF,** The above to provide the minimum content of the test report.		N/A

Attachment 3

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
2 (1 DR)	For this Mexican Standard the contents of clause 2 shall be replaced by the following: For the purposes of this Mexican Standard is indispensable to apply the standards that are listed in Annex DD and the listed below, or that those that replace them, since they constitute provisions of this Mexican Standard: NMX-CH-2768-1-IMNC-2011 General tolerances - Part 1: Tolerances for linear and angular dimension without individual tolerance indicated. NMX-J-024-ANCE-2005 Lighting - Edison - Base lamp holders – Specification and test methods. NMX-J-066-ANCE-2007 Wires and cables - Determination of diameter of electrical conductors - test method. NMX-J-098-ANCE-1999 Power systems - Supply - Standard voltages. NMX-J-163-ANCE-2004 Wiring devices - Configurations. NMX-J-212-ANCE-2007 Wires and cables - Electrical resistance, resistivity and conductivity - Test method. NMX-J-307-ANCE-2004 Indoors and outdoors luminaries for general use. NMX-J-352-ANCE-2010 Lighting - Edison screw bases and gauge-Specifications. NMX-J-417-ANCE-2005 Wires and cables - Convection laboratory ovens for evaluation of electrical insulation - Specifications and test methods. NMX-J-436-ANCE-2007 Wires and cables - Flexible cords and cables - Specifications. NMX-J-451-ANCE-2011 Wires and cables - Thermoset insulated wires and cables - Specifications. NMX-J-529-ANCE-2006 Degrees of protection provided by enclosures (IP CODE). NMX-J-550/4-3-ANCE-2008 Electromagnetic compatibility (emc) – Part 4-3: Testing and measurement techniques – Radiated, radio frequency, electromagnetic field immunity test. NMX-J-550/4-4-ANCE-2005 Electromagnetic compatibility (emc) Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test. NMX-J-550/4-5-ANCE-2006 Electromagnetic compatibility (emc) Part 4-5: Testing and measurement techniques - Surge immunity test. NMX-J-550/4-11-ANCE-2006 Electromagnetic compatibility (emc) Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltaje variations immunity tests		P

Attachment 3

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
	NMX-J-550/4-13-ANCE-2006 Electromagnetic compatibility (emc) - Part 4-13: testing and measurement techniques - Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests. NMX-J-565/2-11-ANCE-2005 Fire hazard testing - Part 2-11: Glowing/hot – Wire based test methods - Glowing/hot - Wire based test methods - Glow – Wire flammability test method for end - products. NMX-J-565/2-12-ANCE-2006 Fire hazard testing - Part 2-12: Glowing/hot-wire based test methods - Glow - Wire flammability test method for materials. NMX-J-565/2-13-ANCE-2011 Fire hazard testing – Part 2-13: Glowing/hot-wire based test methods – Glow-wire ignitability test method for materials. NMX-J-565/10-2-ANCE-2008 Fire Hazard Test Part 10-2: Abnormal heat – Ball pressure test. NMX-J-565/11-5-ANCE-2009 Test methods – Glow-wire apparatus and common test procedure. NMX-J-565/11-10-ANCE-2011 Fire hazard testing – Part 11-10: Test flames – 50 w horizontal and vertical flame test methods. NMX-J-574-ANCE-2005 Method for the determination of the proof and the comparative tracking indices of solid insulating materials. NMX-J-577/1-ANCE-2006 Switches for appliances - Part 1: General requirements. NMX-J-579/4-6-ANCE-2006 Testing and measurement techniques - Part 4-6: Immunity to conducted disturbances, induced by radio-frequency fields. NMX-J-586-ANCE-2006 Protection of persons and equipment by enclosures – Probes for verification. NMX-J-597/1-ANCE-2007 Insulation coordination for equipment within low voltage systems - Part 1: Principles, requirements and tests. NMX-J-591/1-ANCE-2007 Automatic electrical controls for household and similar use Part 1: General requirements. NMX-J-607-ANCE-2008 Household and similar electrical appliances Safety – Mechanical tests. NMX-J-608-ANCE-2008 Electric appliances connected to the water mains - Avoidance of backsiphonage and failure of hose-sets. NMX-J-610/4-2-ANCE-2012 Electromagnetic compatibility (emc) Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test. NMX-J-640-ANCE-2010 Electrical insulation – Thermal evaluation and designation. The above is based on that is established in articles 42 and 46, fraction V, of the Regulation of the Federal Law on Metrology and Standardization.		P

Attachment 3

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
3.1.3 (2 D1)	For this Mexican Standard the following definition shall be added: **3.1.3.101 nominal test voltage:** voltage value corresponding to 127 V ± 1 V for single-phase appliances and 220 V ± 2 V for other appliances. While the Regulation of the Law of Public Service of Electrical Energy indicates a tolerance of ±10 % of the voltage available from the supplier, this Mexican Standard considers a 127 V test voltage, since this is the nominal voltage of preponderant system in Mexico. **NOTE -** For three-phase appliances with operating voltages greater than 300 V and up to 480 V, a 480 V ± 2 V **nominal test voltage** shall be considered. The above is based on that is established in the NOM-001-SEDE, NMX-J-098-ANCE and the Regulation of the Law of Public Service of Electrical Energy.		P
4 (3 D1)	For this Mexican Standard the following text shall be added, after the first paragraph: For this Mexican Standard the appliances shall be designed to operate at standardizes voltages established in the NMX-J-098-ANCE. The above to specify that the appliances design shall be suitable to operate at the voltages used in Mexico. Such voltages are specified in the Mexican Standard NMXJ-098-ANCE "Power systems - Supply – Standard voltages".		P
5.8.1, 13.3, 16.3, 25.2, and ANNEX A (4 DR)	For Mexico, the test frequency shall be 60 Hz. This frequency is established in Article 18 fraction I of the Regulation of the Law of Public Service of Electrical Energy.		P
11.5, 11.6, 13.1, 17, 19.6, 19.7, 19.8, 19.9, 19.10, 22.5, 23.3, and ANNEX B 19.101 (5 D1)	For purposes of applicable tests to the requirements outlined in this national deviation, the nominal test voltage shall be applied. The predominant voltage in Mexico, to which operate the products under normal operating conditions is 127 ± 10 %, so for safety purposes the value of 127 V is considered to carry out the tests.		P
11.8, 19.11.2, 22.42, 24.1.1, and ANNEX F (6 DC)	For this Mexican Standard the requirement for "fixed capacitors for electrical purposes" component, which is established in the International Standard IEC 60384-14, is considered as informative. The above is by not have the Mexican Standard applicable to this component.		P

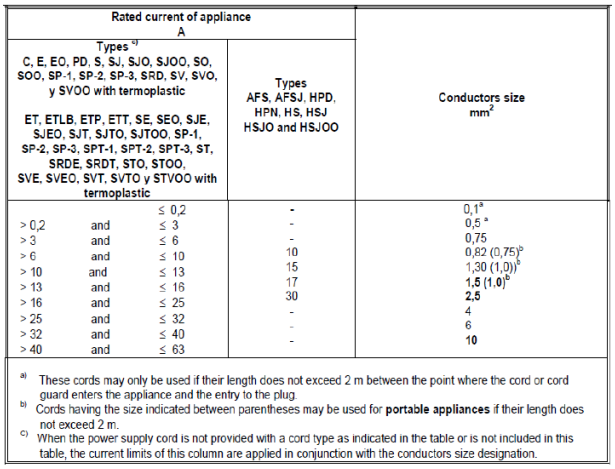
Attachment 3

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
15.3 (7 DR)	For this Mexican Standard compliance with the "Cab: damp heat" test, which is established in the International Standard IEC 60068-2-78 is considered as informative. The above is by not have the Mexican Standard applicable to this component.		P
17, 19.11, 24.1.2, ANNEX G (8 DC)	For this Mexican Standard the requirement for the "Safety isolating transformers" component, which is established in the International Standards IEC 61558-1 and IEC 61558-2-6, is considered as informative. The above is by not have the Mexican Standards applicable to this component.		P
19.7, 24.8 (9 DC)	For this Mexican Standard the requirement for the "Capacitors for motors" component, which is established in the International Standard IEC 60252-1 is considered as informative. The above is by not have the Mexican Standard applicable to this component.		N/A
19.11.4.6 (10 DR)	For this Mexican Standard the requirement for "Immunity to sudden decreases, short interruptions and voltage variations for equipment with input current greater than 16 A per phase tests", which is established in the International Standard IEC 61000-4-34, is considered as informative. The above is by not have the Mexican Standard applicable to this requirement.		N/A
24.1, 24.1.1, 24.1.2, 24.1.3, 24.1.4, 24.1.5, 24.1.6, 24.1.7, 24.1.8, 24.1.9, 24.8 (11 DR)	For this Mexican Standard the reference to compliance with the IEC international Standards for components shall be replaced by the Mexican Standards for components. The above is based on that is established in articles 42 and 46, fraction V, of the Regulation of the Federal Law on Metrology and Standardization. The compliance of components standards is considered relevant for achieving the security requirements of this Standard. However in order to not increasing the requirements for conformity assessment for Mexico they are considered as informative. The above does not exclude to manufacturer ensure meeting safety for components of their products.		P
24.1.3 (12 DC)	For this Mexican Standard the requirement for the "Motor start relays" component, which is established in the International Standard IEC 60730-2-10, is considered as informative. The above is by not have the Mexican Standard applicable to this component.		N/A
24.1.4 (13 DC)	For this Mexican Standard the requirement for the "Hydraulic Electro-valves" component, which is established in the International Standard IEC 60730-2-8, is considered as informative. The above is by not have the Mexican Standard applicable to this component.		N/A

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IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
24.1.3, 24.3, ANNEX H (14 DR)	For this Mexican Standard, the reference to the International Standard IEC 61058-1, shall be replaced by the Mexican Standard NMX-J-577/1-ANCE.		P
24.1, 24.1.5, 24.4, 25.22 (15 DC)	For this Mexican Standard the requirement for the "connectors for household use and similar" component, which is established in the International Standards IEC 60320-1, IEC 60320-2-2 and IEC 60320-2-3, is considered as informative. The above is by not have the Mexican Standards applicable to this component.		P
24.1.6 (16 DC)	For this Mexican Standard the first paragraph shall be replaced by the following: "The corresponding standard for small lampholders similar to type E10 (or E9) lampholders is the NMX-J- 024-ANCE, remain applicable the requirements for type E9 lampholders. However it is not necessary to accept a lamp with an E10 shell that complies with those specified in the Mexican Standard NMX-J-352- ANCE." The above is based on that is established in articles 42 and 46, fraction V, of the Regulation of the Federal Law on Metrology and Standardization		N/A
24.1, 24.4, 25.25 (17 DR)	For this Mexican Standard, the reference to the International Standards IEC 60083 and IEC 60906-1 shall be Replaced by the Mexican Standard NMX-J-163-ANCE. The above is based on that is established in articles 42 and 46, fraction V, of the Regulation of the Federal Law on Metrology and Standardization.		N/A
24.1.8 (18 DC)	For this Mexican Standard the requirement for the "Thermal protectors" component, which is established in the International Standard IEC 60691, is considered as informative. The above is by not have the Mexican Standards applicable to this component.		N/A

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IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
2.8 (19 D2)	For Mexico table 11 "Minimum cross-sectional area of conductors" shall be replaced by the following table, since the conductors size designations that are specified in this table shall be meet. TABLE 11.- Minimum corss-sectional area of conductors  Furthermore after the table mentioned above, add the following notes: NOTES.- 101 The cross-sectional area of the conductors shall not be less than 98 % of the values that are specified in table 11. 102 In order to determine compliance of the cross-sectional area designation, the method established in NMX-J- 066-ANCE can be used or by indirect method determine compliance by resistance measurement with the application of the method that is established in NMX-J-212-ANCE, in conjunction with NMX-J-297-ANCE and NMX-J-012-1-ANCE. The above, to use the conductor size designation which is established in national standards, and is described in the Official Mexican Standard NOM-001-SEDE - Electrical installations.		P
25.10 (20 D2)	For Mexico, the class I appliances power supply cords shall have a conductor green/yellow, or solid green, which is connected to the appliance grounding terminal and for appliances that are not intended to permanently connect to a fixed wiring, to the attachment plug grounding contact. The above is based on that is established in the NOM-001-SEDE, in its 250-59 section item b, about the conductors identification connected to ground.		N/A

Attachment 3

<table>
<tr><th colspan="4">IEC 60335-2-29</th></tr>
<tr><td>Clause</td><td>Requirement + Test</td><td>Result - Remark</td><td>Verdict</td></tr>
<tr><td>26.6
(21 D2)</td><td>For Mexico, the values of cross-sectional area specified in the following table (table 13) shall be met:
TABLA 13.- Nominal cross-sectional area of conductors
<table><tr><th rowspan="2">Rated current of the appliance
A</th><th colspan="2">Nominal cross-sectional area</th></tr><tr><th>Flexible cords
mm²</th><th>Conductors for fixed wiring
mm²</th></tr><tr><td>≤ 3</td><td>0,50 and 0,82</td><td>1,0 and 3,31</td></tr><tr><td>> 3 and ≤ 6</td><td>0,75 and 1,31</td><td>1,0 and 3,31</td></tr><tr><td>> 6 and ≤ 10</td><td>1,0 and 2,08</td><td>1,0 and 3,31</td></tr><tr><td>> 10 and ≤ 16</td><td>1,5 and 3,31</td><td>1,5 and 5,26</td></tr><tr><td>> 16 and ≤ 25</td><td>2,5 and 5,26</td><td>2,5 and 8,37</td></tr><tr><td>> 25 and ≤ 32</td><td>4,0 and 8,37</td><td>4,0 and 13,30</td></tr><tr><td>> 32 and ≤ 50</td><td>6,0 and 13,30</td><td>6,0 and 21,20</td></tr><tr><td>> 50 and ≤ 63</td><td>10,0 and 21,2</td><td>10,0 and 33,60</td></tr></table>The above in order to meet the cross-sectional areas used in Mexico, in accordance with NOM-001-SEDE and NOM-063-SCFI.</td><td></td><td>N/A</td></tr>
<tr><td>27.4
(22 DR)</td><td>For this Mexican Standard the reference to the International Standards ISO 2178 and ISO 1463 is deleted.
The above mentioned in accordance with the Note wording, which establishes "in case of doubt” only the consultation of these standards.</td><td></td><td>N/A</td></tr>
<tr><td>24.1.4,
29.1.5,
29.2.1,
29.2.2,
29.2.3,
29.2.4,
29.3,
ANNEX G,
ANNEX L
(23 DR)</td><td>For this Mexican Standard the requirement for the voltage stresses at high frequency, which is established in the International Standard IEC 60664-4, is considered as informative. The above is by not have the Mexican Standards applicable.</td><td></td><td>P</td></tr>
<tr><td>29.2,
ANNEX N
(24 DR)</td><td>For this Mexican Standard the reference to the International Standard IEC 60112, shall be replaced by the Mexican Standard NMX-J-574-ANCE.
The above is based on that is established in articles 42 and 46, fraction V, of the Regulation of the Federal Law on Metrology and Standardization.</td><td></td><td>P</td></tr>
</table>

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IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
30.1 (25 D1)	For this Mexican Standard Annex DE "Deformation by molding stresses due to temperature test" is added which includes an optional test method to evaluate the requirement of paragraph 30.1 With the above the wording of the paragraph affected by this national deviation changes by the following: *"Compliance is checked by submitting the relevant part to the pressure sphere test of the IEC 60695-10-2 standard or the deformation by molding stresses due to temperature test prescribed in Annex DE of this Mexican Standard."* The above at include this as alternative method to determine compliance with paragraph 30.1, with the purpose of evaluating the end product under intended use conditions, being that the criteria of acceptance and rejection is linked to the absence of deformation and distortion involving compliance with the requirements of this standard.		N/A
30.2, 30.2.1, 30.2.2, 30.2.3.1, 30.2.3.2 (26 DR)	For this Mexican Standard the reference to the International Standard IEC 60695-2-11, shall be replaced by the Mexican Standard NMX-J-565/2-11-ANCE. The above is based on that is established in articles 42 and 46, fraction V, of the Regulation of the Federal Law on Metrology and Standardization.		P
30.2.1 (27 DR)	For this Mexican Standard the application of the test method of ISO 9772 is considered as informative. The above is by not have the Mexican Standards applicable to this method.		N/A
30.2.1, 30.2.2, 30.2.3.1, 30.2.3.2 (28 DR)	For this Mexican Standard the reference to the International Standard IEC 60695-2-12, shall be replaced by the Mexican Standard NMX-J-565/2-12-ANCE. The above is based on that is established in articles 42 and 46, fraction V, of the Regulation of the Federal Law on Metrology and Standardization.		P
30.2.4 (29 DR)	For this Mexican Standard the VTM-0 classification described in the ISO 9773 standard, is considered as informative. The above is by not have the applicable Mexican Standards.		N/A
ANNEX B (30 DR)	For this Mexican Standard the reference to the International Standard IEC 60335-2-29, shall be replaced by the Mexican Standard NMX-J-521/2-29-ANCE. The above is based on that is established in articles 42 and 46, fraction V, of the Regulation of the Federal Law on Metrology and Standardization.		N/A
ANNEX F, ANNEX G, ANNEX H, ANNEX J (31 D1)	For this Mexican Standard the appendices mentioned in this deviation are considered of "Informative" nature.		P

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IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
ANNEX H (32 DR)	For this Mexican Standard the reference to the International Standard IEC 60335-1, shall be replaced by the Mexican Standard NMX-J-521/1-ANCE. The above is based on that is established in articles 42 and 46, fraction V, of the Regulation of the Federal Law on Metrology and Standardization.		N/A
ANNEX J (33 DR)	For this Mexican Standard the application of the test method of the protective coatings of printed wiring boards described in the standard IEC 60664-3, is considered as informative. The above is by not have the Mexican Standards applicable to this method.		N/A

-- End of test report --