中国认可国际
互认检测
TESTING
CNAS L7462

Test Report

Report No.:	SFT22042131285-01E
Applicant:	Xinsu Global Electronic Co.,Limited
Lab Name:	Guangdong Safety Testing Co., Ltd.
Report Date:	May 24, 2022

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Test Report issued under the responsibility of:

TEST REPORT

IEC 60335-2-29

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

Report Number.....:	SFT22042131285-01E
Date of issue.....:	2022-05-24
Total number of pages.....:	104
Name of Testing Laboratory preparing the Report.....:	Guangdong Safety Testing Co., Ltd.
Applicant's name.....:	Xinsu Global Electronic Co.,Limited
Address.....:	Unit 2508A, 25/F Bank Of America Tower, 12 Harcourt Road, Central, HONG KONG
Test specification:	
Standard.....:	IEC 60335-2-29:2016, AMD1:2019 for use in conjunction IEC 60335-1:2010, COR1:2010, COR2:2011, AMD1:2013, COR1:2014, AMD2:2016, COR1:2016
Test procedure.....:	Safety Test
Non-standard test method.....:	N/A
Test Report Form No.....:	IEC60335_2_29M
Test Report Form(s) Originator.....:	SIQ
Master TRF.....:	Dated 2020-03-12

General disclaimer:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the responsible for this Test Report.

Test item description.....:	CHARGER(BATTERY CHARGER)
Trade Mark(s).....:	Xinsu Global®
Manufacturer.....:	Same as applicant
Model/Type reference.....:	see 'General product information and other remarks' for details of model description
Ratings.....:	Input: 100-240VAC, 50/60Hz, 3.0A Max Output: See 'General product information and other remarks' for details

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

☒	**Testing Laboratory:**	Guangdong Safety Testing Co., Ltd.	
Testing location/ address.....:		No.1, the 1st North Industry Road, Songshan Lake Sci.&Tech. Park, Dongguan, Guangdong, China	
Tested by (name, function, signature).....:		Curry Jiang Project handler	
Approved by (name, function, signature)...:		Wade Huang Reviewer	
☐	**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 No. 1: 5 pages of models list.

Attachment No. 2: 4 pages of Batteries used to perform the tests with the battery chargers in this report.

Attachment No. 3: 6 pages of AUSTRALIA / NEW ZEALAND NATIONAL DIFFERENCES for AS/NZS60335.2.29:2017 and AS/NZS 60335.1:2011 + A1:2012 + A2:2014 + A3:2015 +A4:2017.

Attachment No. 4: 7 pages of photo documentation.

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
The submitted samples were tested and found to comply with the requirements of: ➢ Electrical safety - EN 60335-1:2012+ A11:2014 + A13:2017 + A1:2019 + A14:2019 + A2:2019 - EN 60335-2-29:2004 + A2:2010 + A11:2018	Guangdong Safety Testing Co., Ltd. No.1, the 1st North Industry Road, Songshan Lake Sci.&Tech. Park, Dongguan, Guangdong, China

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

List of countries addressed: See the attachment No. 3 of National and Group Differences for details.

☒ The product fulfils the requirements of AS/NZS60335.1:2011+A1:2012+A2:2014+A3:2015+A4:2017, AS/NZS60335.2.29:2017

Statement concerning the uncertainty of the measurement systems used for the tests

(may be required by the product standard or client)

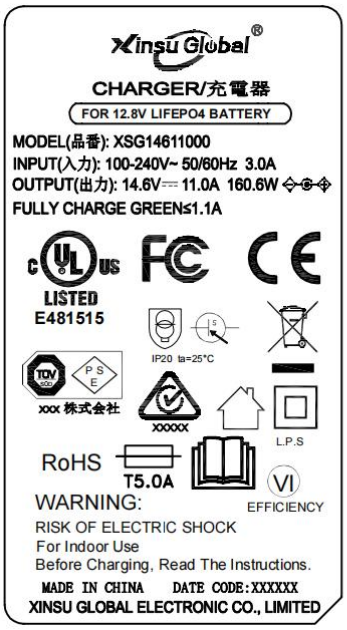
Procedure number, issue date and title:

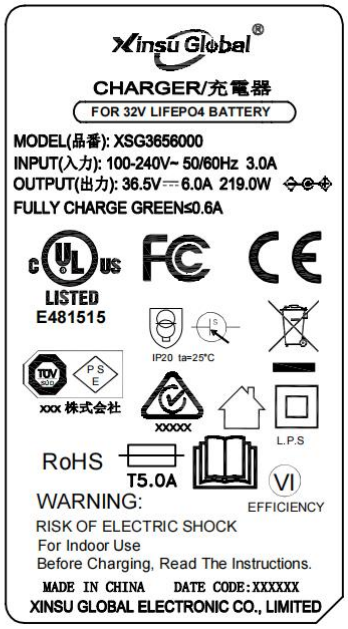
Calculations leading to the reported values are on file with the testing laboratory that conducted the testing.

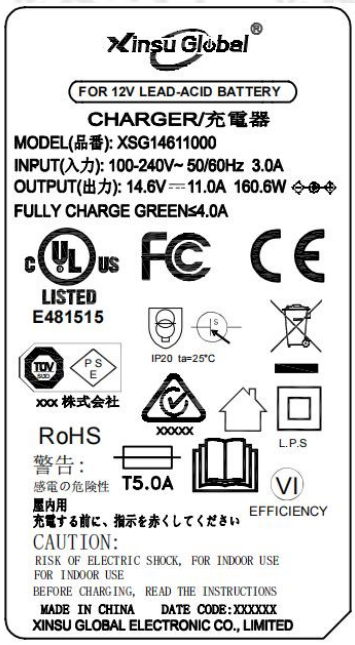
☒ **Statement not required by the standard used for type testing**

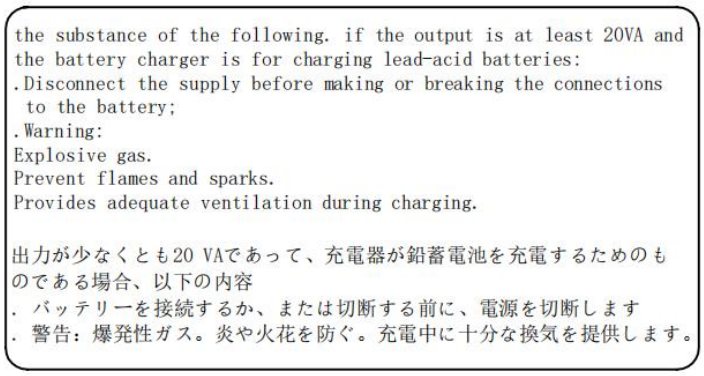
Copy of marking plate:

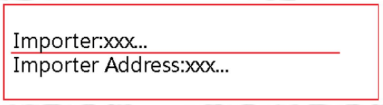
The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.











The importer information should be marked in label when this product import to European Market.

Remark:

1). Representative marking for above models, marking plates of other models are identical except for the model designation and output rating.

2). The height dimension of CE mark should not less than 5mm, the height dimension of WEEE symbol should not less than 7mm.

Test item particulars..... :	CHARGER(BATTERYCHARGER)
Classification of installation and use..... :	Portable appliance and household indoor use
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..... :	2022-04-24
Date (s) of performance of tests..... :	2022-04-24 to 2022-05-10

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.

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

Name and address of factory (ies)..... :	XinsuGlobalElectronicCo.,Limited 3rd Floor, No.1 Building, C District, 108 Honghu Road, Yanluo Street, Bao'an District, 518127 Shenzhen, Guangdong, PEOPLE'S REPUBLIC OF CHINA

General product information and other remarks:

Product description:

1. These CHARGER(BATTERY CHARGER) are desk-top appliances with Class II construction, for indoor use only.
2. The specified maximum operating ambient temperature is 25°C.
3.These CHARGER(BATTERY CHARGER) have no jump start function and not used by children.
4. The top enclosure is sealed with bottom enclosure by ultrasonic welding.
5. The test samples are pre-production samples without serial numbers.
6. These CHARGER(BATTERY CHARGER) These battery chargers are intended to charge rechargeable Li-Ion battery pack, rechargeable LiFePO4 battery packs or Lead-acid rechargeable battery packs, through the additional charging circuit.
7. These Li-ion and LiFePO4 battery packs intended to be charged by the battery charger shall comply with IEC 62133-2:2017 or the latest edition of this publication; These Lead-acid battery packs intended to be charged by the battery charger shall comply with IEC 60095/IEC 60254-1:2005 or the latest edition of relevant standard publication.
8. No BMS was included in these battery chargers, BMS was contained in designated battery pack, The charger system (charger plus battery pack with BMS) shall be evaluated to the end product standard.
9. All models are identical to each other except for the output rating, model name, parameters of some components and secondary windings/ auxiliary windings of transformers.
10. Model list see Attachment No. 1 for details.
11. Batteries used to perform the tests with the battery chargers in this report see Attachment No. 2 for details.

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
5.2	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 II	P
	For a class III construction with a detachable power supply part the appliance is classified according to the detachable power supply part		N/A
6.2	Protection against harmful ingress of water	IP20	P
	Battery chargers for outdoor use at least IPX4 (IEC 60335-2-29)		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).....:	50-60Hz	P
	Rated power input (W), or.....:		N/A
	Rated current (A) .....:	1.0A Max	P
	Manufacturer's or responsible vendor's name, trademark or identification mark.....:	See rating label	P
	Model or type reference.....:	See marking plate and model list	P
	Symbol IEC 60417-5172, for class II appliances	Double square symbol used	P
	IP number, other than IPX0..... :	IP20	N/A
	Symbol IEC 60417-5180, for class III appliances, unless		N/A
	the appliance is operated by batteries only, or		N/A
	for appliances powered by rechargeable batteries recharged in the appliance		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
	- rated d.c. output current (A)		P
	No other output current shall be marked		P

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
	- rated current (A) of protective devices incorporated in a d.c. distribution board		N/A
	– the polarity of the output terminals unless incorrect polarity connection is prevented		P
	- The positive terminal indicated by symbol IEC 60417-5005 (2002-10) and the negative terminal by symbol IEC 60417-5006 (2002-10)	Positive terminal indicated by symbol+, negative terminal indicated by symbol -	P
	- time-current characteristic of fuse-links of the time-lag type		N/A
	If the output exceeds 20 VA, battery chargers marked with (IEC 60335-2-29):		—
	- “Before charging, read the instructions” or symbol ISO 7000-0790 (2004-01) (IEC 60335-2-29:2016/AMD1:2019)		P
	“For indoor use” or symbol IEC 60417-5957 (2004-12) or “Do not expose to rain” or symbol IEC 60417-6062 (2011-05) (IEC 60335-2-29:2016/AMD1:2019)		P
	Not required if the battery charger output is less than 20 VA or the battery charger has a degree of protection against harmful ingress of water of at least IPX4 (IEC 60335-2-29:2016/AMD1:2019)		N/A
	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	100-240V	P
	Different rated values marked with the values separated by an oblique stroke	50/60Hz	P
7.4	Appliances adjustable for different rated voltages or rated frequencies, the voltage or the frequency setting is clearly discernible	No adjustable device	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
	If the battery charger can be adjusted to different rated DC output voltages, the output voltage to which		N/A

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
	the battery charger is adjusted clearly discernible (IEC 60335-2-29)		
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 or current are 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		P
	Units of physical quantities and their symbols according to international standardized system		P
	The positive polarity terminal (plus) indicated by symbol IEC 60417-5005 (2002-10) and the negative polarity terminal (minus) by symbol IEC 60417-5006 (2002-10) (IEC 60335-2-29)		P
	for indoor use only indicated by symbol IEC 60417-5957 (2004-12) (IEC 60335-2-29:2016/AMD1:2019)		P
	do not expose to moisture indicated by symbol IEC 60417-6062 (2011-05) (IEC 60335-2-29:2016/AMD1:2019)		N/A
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply, unless	Single supply voltage range	N/A
	correct mode of connection is obvious		N/A
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		N/A
7.10	Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means..... :		N/A
	This applies also to switches which are part of a control		N/A

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
	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	Refer to user manual	P
	Details concerning precautions during user maintenance		P
	The instructions state that:		P
	- 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
	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
	The instructions for appliances incorporating a functional earth states that the appliance incorporates an earth connection for functional purposes only		N/A
	The instructions shall (IEC 60335-2-29:2016/AMD1:2019):		—
	- state that during charging, the battery must be placed in a well-ventilated area (for chargers for batteries that release gases into the atmosphere during normal charging)		N/A
	- state that the battery charger must only be plugged into an earthed socket-outlet (for portable class I battery chargers for outdoor use)		N/A
	- explain the automatic function, stating any limitation (for automatic battery chargers)		N/A
	The instructions for type 1 battery chargers shall also:		—
	- specify the types, the number of batteries and the rated capacity of the batteries that can be charged		P
	- include a warning against recharging non-rechargeable batteries.		P
	The instructions for type 2 battery chargers shall also:		—
	- specify the batteries intended to be charged, such as by a catalogue number, series identification or the		N/A

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
	equivalent		
	- specify the ambient temperature range for the charger during charging		N/A
	If symbol IEC 60417-5957 (2004-12) or symbol IEC 60417-6062 (2011-05) is used, its meaning shall be explained.		P
	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
7.12.1	Sufficient details for installation supplied		N/A
	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		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:		N/A
	- 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

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
	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	Type Z attachment for output cord	P
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:		N/A
	- max. inlet water pressure (Pa)..... :		N/A
	- min. inlet water pressure, if necessary (Pa)..... :		N/A
	Instructions concerning new and old hose-sets for appliances connected to the water mains by detachable hose-sets		N/A
7.12.9	Instructions specified in 7.12 and from 7.12.1 to 7.12.8 appear together before any other instructions supplied with the appliance		P
	These instructions may be supplied with the appliance separately from any functional use booklet		P
	They may follow the description of the appliance that identifies parts, or follow the drawings/sketches		N/A
	In addition, instructions are also available in an alternative format such as on a website or on request from the user in a format such as a DVD		P
	In addition, instructions are also available in an alternative format such as on a website or in a format such as a DVD..... :		N/A
7.13	Instructions and other texts in an official language	English, other should be evaluated during national approval	P
7.14	Markings clearly legible and durable:		P
	Signal words WARNING, CAUTION, DANGER in uppercase having a height as specified..... :	Min. 3.0mm	P
	Uppercase letter of the text explaining the signal word not smaller than 1,6 mm ..... :	Min. 1.6mm	P
	Moulded in, engraved, or stamped markings either raised above or have a depth below the surface of at least 0,25 mm, unless		N/A
	contrasting colours are used		P
	Markings checked by inspection, measurement and rubbing test as specified		P
7.15	Markings on a main part	On body	P
	Marking clearly discernible from the outside, if		P

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
	necessary after removal of a cover		
	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		N/A
	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	Not replaceable fuse/fusible resistor used	N/A
7.101	D.C. distribution boards marked with (IEC 60335-2-29):		N/A
	- 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**
8.1	Adequate protection against accidental contact with live parts		P
	During insertion or removal of batteries having a battery voltage exceeding 42,4 V, protection against contact with live parts of the battery or of the battery charger ensured (IEC 60335-2-29)		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		P
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 or supporting parts	No visible glowing heating elements	N/A

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
	For a single switching action obtained by a switching device, requirements as specified		N/A
	For appliances with a supply cord and without a switching device, the single switching action may be obtained by the withdrawal of the plug		N/A
8.1.4	Accessible part not considered live if:		P
	- safety extra-low a.c. voltage: peak value not exceeding 42.4 V	For models with rated output voltage≤ 42.4VDC: Max. 42.2Vd.c. (between '+' and '-' of output connector) for XSG4205000 under no load; For models with rated output voltage >42.4VDC: The output terminal is not accessible	P
	- safety extra-low d.c. voltage: not exceeding 42.4 V	Max. 42.29VDC at output terminal (no load)	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	Max. 0.20mA (Tested under two Y1 type capacitors CY2+CY3 used, normal condition); Max. 0.44mA peak (single fault: CY2 short-circuit) (When CY2+CY3 used); Max. 0.376mA peak (single fault: CY8 short-circuit) (When CY8 & CY9 in series used); Max. 0.376mA peak (single fault: CY9 short-circuit) (When CY8 & CY9 in series used); Max. 0.376mA peak (single fault: CY6 short-circuit) (When CY6 & CY7 in series used); Max. 0.376mA peak (single fault: CY7 short-circuit) (When CY6 & CY7 in series used)	P
	- for peak values over 42.4 V up to and including 450 V, capacitance not exceeding 0,1 μF		P
	- for peak values over 450 V up to and including 15 kV, discharge not exceeding 45 μC		P
	- for peak values over 15kV, the energy in the discharge not exceeding 350 mJ		N/A

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
	For type 2 battery chargers, voltages and currents are also measured between relevant accessible parts of opposite polarity (IEC 60335-2-29:2016/AMD1:2019)		N/A
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		N/A
	- built-in appliances		N/A
	- fixed appliances		N/A
	- appliances delivered in separate units		N/A
8.2	Class II appliances and constructions constructed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only		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
	the rated current is related to the arithmetic mean		N/A

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
	value of the range		
10.101	The DC output voltage of type 1 battery chargers not exceed 120 V (IEC 60335-2-29:2016/AMD1:2019)..:	See clause 8.1.4	P
	The DC output voltage of type 2 battery chargers not exceed 250 V (IEC 60335-2-29:2016/AMD1:2019)..:		N/A
10.102	For type 1 battery chargers, the arithmetic mean value of the output current not deviate from the rated DC output current by more than 10 % (IEC 60335-2-29:2016/AMD1:2019)	(see appended table)	P
	For type 2 battery chargers, the arithmetic mean value of the output current not exceed the rated DC output current by more than 10 % (IEC 60335-2-29:2016/AMD1:2019)		N/A
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.....:	(see appended table)	P
	Battery chargers 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 operated under normal operation and supplied with the most unfavourable voltage between 0,94 times and 1,06 times the rated voltage.	Both at 1.06 times and at 0.94 times rated voltage (requested by applicant)	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 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		N/A
	Protective devices do not operate, except		P
	components in protective electronic circuits tested for the number of cycles specified in 24.1.4		N/A

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
13	**LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE**		**P**
13.1	Leakage current not excessive and electric strength adequate		P
	Heating appliances operated at 1.15 times 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	The leakage current is measured by means of the circuit described in Figure 4 of IEC 60990:1999		P
	For class 0I appliances and class I appliances, except parts of class II construction, C may be replaced by a low impedance ammeter		N/A
	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**		**P**
	Appliances withstand the transient over-voltages to which they may be subjected		P
	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	IP20	P
	Compliance checked as specified in 15.1.1, taking into account 15.1.2, followed by the electric strength test of 16.3		N/A
	No trace of water on insulation which can result in a reduction of clearances 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.....:	IP20	N/A
	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

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
	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
	Appliances incorporating an appliance inlet tested with or without a connector, whichever is most unfavourable		N/A
	Detachable parts are removed		N/A
	Overfilling test with additional amount of the solution, 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

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
	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	93% RH, 25°C, 48h	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:		N/A
	- 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
	With the radio interference filters disconnected, the leakage current do not exceed limits specified..... :	(see appended table)	P
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)..... :	1.06 x 240V = 254.4V	P
	Output terminals of battery chargers short-circuited (IEC 60335- 2- 29)	The unit shut down immediately when output terminals short-circuited	P
	Basic insulation is not short-circuited		P

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
	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
	Appliances incorporating heating elements subjected to the tests of 19.2 and 19.3, and		N/A
	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
	if applicable, to the test of 19.5		N/A
	Appliances incorporating PTC heating elements are also subjected to the test of 19.6		N/A
	Appliances incorporating motors subjected to the tests of 19.7 to 19.10, as applicable		N/A
	Appliances incorporating electronic circuits subjected to the tests of 19.11 and 19.12 and 19.101 to 19.103, as applicable (IEC 60335-2-29)		P
	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
	Appliances incorporating voltage selector switches subjected to the test of 19.15		N/A
	Unless otherwise specified, the tests are continued until a non-self-resetting thermal cut-out operates, or		N/A
	until steady conditions are established		P
	If a heating element or intentionally weak part becomes open-circuited, the relevant test is repeated on a second sample		P
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).....:	No heating elements	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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	short- circuited		
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
	the capacitor is of class S2 or S3 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
	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		N/A
	Other appliances supplied with rated voltage for a period as specified.....:		N/A
	Winding temperatures not exceeding values specified in table 8.....:		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
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		P
	Appliances incorporating an electronic circuit that relies upon a programmable component to function correctly, subjected to the test of 19.11.4.8, unless		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
	- 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	See clause 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:		N/A
	- 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:		N/A
	- the electronic circuit is a low-power circuit, that is, the maximum power at low-power points does not exceed 15 W according to the tests specified		N/A
	- the protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction 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:		P
	a) short circuit of functional insulation if clearances or creepage distances are less than the values	(see appended table)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	specified in clause 29		
	b) open circuit at the terminals of any component	(see appended table)	P
	c) short circuit of capacitors, unless	(see appended table)	P
	they comply with IEC 60384-14	(see appended table)	P
	d) short circuit of any two terminals of an electronic component, other than integrated circuits	(see appended table)	P
	This fault condition is not applied between the two circuits of an optocoupler	(see appended table)	N/A
	e) failure of triacs in the diode mode		N/A
	f) failure of microprocessors and integrated circuits	(see appended table)	P
	g) failure of an electronic power switching device	(see appended table)	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
19.11.3	If the appliance incorporates a protective electronic circuit that operates to ensure compliance with clause 19, the appliance is tested as specified		P
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, at frequency ranges specified		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

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Clause	Requirement + Test	Result - Remark	Verdict
	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
	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).....:	Measured current flowing through the fuse>14A (fuse-link rated T5.0A)	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)		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:		P
	- basic insulation (V).....:	(see appended table)	P
	- supplementary insulation (V).....:		N/A
	- reinforced insulation (V)..... :	(see appended table)	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

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Clause	Requirement + Test	Result - Remark	Verdict
	The appliance does not undergo a dangerous malfunction, and		P
	no failure of protective electronic circuits, if the appliance is still operable		P
	Appliances tested with an electronic switch in the off position, or in the stand-by mode:		N/A
	- do not become operational, or		N/A
	- if they become operational, do not result in a dangerous malfunction during or after the tests of 19.11.4		N/A
	If the appliance contains lids or doors that are controlled by one or more interlocks, one of the interlocks may be released provided that:		N/A
	- 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)		N/A
19.102	Reverse connection of battery chargers to a fully charged battery at rated voltage (IEC 60335-2-29)	Used D9 and D13 Components	P
	The capacity of the battery (IEC 60335-2-29)..... :	44Ah	P
19.103	Battery chargers intended to be used with a d.c. distribution board supplied at rated voltage and operated under normal operation, load increased as specified until protective device operates or short-circuit conditions are established (IEC 60335-2-29)		N/A
20	**STABILITY AND MECHANICAL HAZARDS**		**P**
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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	elements, angle of inclination increased to 15°		
	Possible heating test in overturned position; temperature rise does not exceed values shown in table 9		N/A
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury	No moving parts inside	N/A
	Protective enclosures, guards and similar parts are non-detachable, and		P
	have adequate mechanical strength		P
	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)	(see appended table)	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		P
	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	Enclosure: min. 2.0mm	P
	The insulation is tested as specified, and does withstand the electric strength test of 16.3		P
21.101	Battery chargers, other than built-in battery chargers, having a mass not exceeding 5 kg, subjected to free-fall procedure of IEC 60068-2-31 (IEC 60335-2-29)		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 under conditions specified (IEC 60335-2-29)		N/A

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
	Battery chargers show no damage that could impair compliance with 8.1, 15.1.1, 16.3 and cl. 29 (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	IP20	P
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 50N to each pin after the appliance has being placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1mm		N/A
	Each pin subjected to a torque of 0.4Nm; the pins are not rotating, unless		N/A
	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 pins, 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	CX1=0.68uF Max; R1=R2=R1A=R2A=1.0M ohm	P
	Voltage not exceeding 34 V (V)..... :	Measured Max. 28V	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

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Clause	Requirement + Test	Result - Remark	Verdict
	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	Output cord is protected by strain relief bushings.	P
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-s`elf-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
	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	Enclosure is fixed by ultrasonic.	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	50N, 10s applied on enclosure	P
22.12	Handles, knobs etc. fixed in a reliable manner, if loosening result in a hazard		N/A
	Removing or fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible, if resulting in a hazard		N/A
	A choking hazard does not apply to appliances for commercial use		N/A
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		N/A
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	If the part is removed and can be contained within the small parts cylinder, it is considered to be a choking hazard		N/A
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
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		N/A
	material used is non-corrosive, non-hygroscopic and non-combustible		N/A
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless	No such material used	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	No asbestos	P
22.23	Oils containing polychlorinated biphenyl (PCB) not used	Not such parts	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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	contain live parts, cannot come into contact with accessible metal parts		
22.26	The output circuit of a type 1 battery charger supplied through a safety isolating transformer and shall not be connected to accessible metal parts or an earthing terminal (IEC 60335-2-29:2016/AMD1:2019)		P
	The insulation between parts operating at safety extra-low voltage and live parts comply with the requirements for double insulation or reinforced insulation (IEC 60335-2-29:2016/AMD1:2019)		P
	The output circuit of a type 2 battery charger supplied through an isolating transformer and shall not be connected to accessible metal parts or an earthing terminal (IEC 60335-2-29:2016/AMD1:2019)		N/A
	The insulation between parts operating at safety extra-low voltage and live parts comply with the requirements for double insulation or reinforced insulation (IEC 60335-2-29:2016/AMD1:2019)		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
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or	No parts can be omitted	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		P
	Ceramic material not tightly sintered, similar materials or beads alone not used as supplementary	No such material used	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	or reinforced insulation		
	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
	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	No handles	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	operators hand is not likely to touch metal parts, unless		
	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		P
	the capacitors comply with 22.42		P
22.38	Capacitors not connected between the contacts of a thermal cut-out		P
22.39	Lamp holders used only for the connection of lamps		N/A
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	Two Y capacitor connected in series (CY2, CY3)	P
	Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited	Max. 0.44mA when short-circuited CY2; Limit: 0.7mA	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	Approved Y capacitor used	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

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Clause	Requirement + Test	Result - Remark	Verdict
	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
	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:		N/A
	- 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
22.55	Devices operated to stop the intended function of the appliance, if any, are be distinguished from other manual devices by means of shape, size, surface texture or position .....:		N/A
	The requirement concerning position does not preclude use of a push on push off switch		N/A
	An indication when the device has been operated is given by:		N/A
	– tactile feedback from the actuator or from the appliance, or		N/A
	– reduction in heat output; or		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	– audible and visible feedback		N/A
22.56	Detachable power supply part provided with the part of class III construction		N/A
22.57	The properties of non-metallic materials do not degrade from exposure to UV-C radiation, as specified in Annex T		N/A
	This requirement does not apply to glass, ceramics or similar materials		N/A
22.101	Each circuit supplied from a d.c. distribution board incorporates an overload protective device (IEC 60335-2-29)		N/A
22.102	Battery chargers for installing in caravans and similar vehicles constructed so that they can be securely fixed to a support (IEC 60335-2-29)		N/A
22.102	Keyhole slots, hooks and similar means, without any further means to prevent the battery charger from being inadvertently lifted off the support not considered to be securely fixed (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
	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	Output cord with stain relief bushing	P
	Flexible metallic tubes not causing damage to insulation of conductors		N/A
	Open-coil springs not used		P
	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

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Clause	Requirement + Test	Result - Remark	Verdict
23.4	Bare internal wiring sufficiently rigid and fixed		P
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,		N/A
	except that the sheath of a cord complying with IEC 60227 or IEC 60245 may provide supplementary insulation.		N/A
	A single layer of internal wiring insulation does not provide reinforced insulation		N/A
23.6	Sleeving used as supplementary insulation on internal wiring retained in position by clamping at both ends, or		N/A
	be such that it can only be removed by breaking or cutting		N/A
23.7	The colour combination green/yellow only used for earthing conductors		N/A
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	Output wire is double fixed by soldering and glue	P
	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		P

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Clause	Requirement + Test	Result - Remark	Verdict
	insulation in the relevant component standard		
	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
	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		N/A
24.1.1	Capacitors likely to be permanently subjected to the supply voltage and used for radio interference suppression or for voltage dividing, comply with IEC 60384-14		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 comply with IEC 61558-2-6		N/A
	If they have to be tested, they are tested according to Annex G		P

IEC 60335-2-29				
Clause	Requirement + Test		Result - Remark	Verdict
	The relevant standard for isolating transformers is IEC 61558-2-4 (IEC 60335-2-29:2016/AMD1:2019)			N/A
	If they have to be tested, they tested in accordance with Annex BB (IEC 60335-2-29:2016/AMD1:2019)			P
24.1.3	Switches comply with IEC 61058-1, the number of cycles of operation being at least 10 000			N/A
	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 comply with IEC 60730-1 with the relevant part 2. The number of cycles of operation being at least:			N/A
	- 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 comply with IEC 60320-1			P
	However, for class II appliances classified higher than IPX0, the appliance couplers comply with IEC 60320-2-3			N/A
	Interconnection couplers comply with IEC 60320-2-2			N/A
24.1.6	Small lamp holders similar to E10 lampholders comply with IEC 60238, the requirements for E10			N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	lampholders being applicable		
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:		P
	- switches, automatic controls or power supplies in flexible cords		P
	- devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance		N/A
	- thermal cut-outs that can be reset by soldering, unless		N/A
	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	No standard output plug or socket-outlets for output connections	P
	The requirement also applicable to plugs, connectors, socket-outlets and appliance outlets in the battery charger output circuit (IEC 60335-2-29)		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
	In addition, the motors comply with the requirements of Annex I		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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:		N/A
	- the capacitors are of class S2 or S3 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:		P
	- 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		N/A
	- pins for insertion into socket-outlets		P
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
25.3	Appliance intended to be permanently connected to fixed wiring provided with one of the following means for connection to the supply mains:		N/A
	- 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		N/A

IEC 60335-2-29			
Clause	Requirement + Test	Result - Remark	Verdict
	to its support		
	- 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 and output flexible cord for battery chargers having a rated output voltage exceeding 42,4 V to the appliance: (IEC 60335-2-29)		P
	- type X attachment		N/A
	- type Y attachment		N/A
	- type Z attachment, if allowed in relevant part 2		P
	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		P
25.7	Supply cords and output flexible cord for battery chargers having a rated output voltage exceeding 42,4 V, other than for class III appliances, being one of the following types: (IEC 60335-2-29)		P
	- rubber sheathed (at least 60245 IEC 53)		N/A
	- 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		P
	- light polyvinyl chloride sheathed cord (60227 IEC 52), for appliances not exceeding 3 kg		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		N/A
	- 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
	- halogen-free, low smoke, thermoplastic insulated and sheathed		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- light duty halogen-free low smoke flexible cable (62821 IEC 101) for circular cable and (62821 IEC 101f) for flat cable		N/A
	- ordinary duty halogen-free low smoke flexible cable (62821 IEC 102) for circular cable and (62821 IEC 102f) for flat cable		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 vehicle batteries not fitted with natural rubber sheathed supply cords (IEC 60335-2-29)		N/A
	For battery chargers intended for use at low temperatures, the supply cord have properties not less than those specified for ordinary polychloroprene sheathed cords (code designation 60245 IEC 57) (IEC 60335-2-29)		N/A
25.8	Nominal cross-sectional area of supply cords and output flexible cord for battery chargers having a rated output voltage exceeding 42,4 V not less than table 11; rated current (A); cross-sectional area (mm²) (IEC 60335-2-2……..:		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
	Where additional neutral conductors are provided in the supply cord:		N/A
	– other colours may be used for these additional neutral conductors;		N/A
	– all of the neutral conductors and line conductors are identified by marking using the alpha numeric notation specified in IEC 60445		N/A
	– the supply cord is fitted to the appliance		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
	If unsheathed supply cord, a similar additional		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	bushing or lining is required, unless the appliance is		
	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:		N/A
	- applied force (N).....:		N/A
	- number of flexings.....:		N/A
	The test does not result in:		N/A
	- short-circuit between the conductors, 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 and output flexible cord for battery chargers having a rated output voltage exceeding 42,4 V, conductors of the cord relieved from strain, twisting and abrasion by use of cord anchorage (IEC 60335-2-29)		P
	The cord cannot be pushed into the appliance to such an extent that the cord or internal parts of the appliance can be damaged		P
	Pull and torque test of cord:		P
	- 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).....:	Mass<1kg, 30N, 0.1Nm	P
	Cord not damaged and max. 2 mm displacement of the cord	Max. 0.7mm displacement	P
25.16	Cord anchorages for type X attachments constructed and located so that:		N/A
	- replacement of the cord is easily possible		N/A
	- 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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	bears directly on the cord		
	- 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		N/A
	Tying the cord into a knot or tying the cord with string not used		N/A
25.20	The conductors of the supply cord for type Y and Z attachment insulated from accessible metal parts		P
25.21	Space for supply cord for type X attachment or for connection of fixed wiring constructed:		N/A
	- 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:		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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:		P
	- the cross-sectional area of the conductors is determined on the basis of the maximum current during clause 11		P
	- the thickness of the insulation may be reduced		N/A
	- for class I or class II appliance with class III construction, the cross sectional areas of the conductors need not comply with 25.8 if specified conditions are met		P
	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		P
25.25	Dimensions of pins that are inserted into socket-outlets compatible with the dimensions of the relevant socket-outlet.		P
	Dimensions of pins and engagement face in accordance with the dimensions of the relevant plug in IEC/TR 60083		P
26	**TERMINALS FOR EXTERNAL CONDUCTORS**		**P**
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 of 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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	conductors		
	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:		N/A
	- 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
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
	Requirement not apply to the terminals of the output circuit having a no-load voltage not exceeding 42,4 V (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 (mm²).....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
26.11	For type Y and Z attachment, soldered, welded, crimped or similar connections may be used		P
	For Class II appliances, the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone	The output wire additionally fixed PCB with glue.	P
	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		N/A
	Earthing terminals and earthing contacts not connected to the neutral terminal		N/A
	Class 0, II and III appliances have no provision for protective earthing	Class II appliance	P
	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		N/A
	Terminals for the connection of external equipotential bonding conductors allow connection of conductors of 2,5 to 6 mm², and		N/A
	- do not provide earthing continuity between different parts of the appliance, and		N/A
	- conductors cannot be loosened without the aid of a tool		N/A
	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
27.3	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		N/A
	For appliances with supply cords, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		N/A
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
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		N/A
	Parts providing earthing continuity, other than parts of a metal frame or enclosure, have adequate resistance to corrosion		N/A
	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		N/A
	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		N/A
	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		N/A
	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)..... :		N/A
27.6	The printed conductors of printed circuit boards not used to provide earthing continuity in hand-held appliances.		N/A
	They may be used 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**		**N/A**

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Clause	Requirement + Test	Result - Remark	Verdict
28.1	Fixings, electrical connections and connections providing earthing continuity withstand mechanical stresses	No screw used	N/A
	Screws not of soft metal liable to creep, such as zinc or aluminium		N/A
	Diameter of screws of insulating material min. 3 mm		N/A
	Screws of insulating material not used for any electrical 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..... :		N/A
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		N/A
	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:		N/A
	• 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		N/A
	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:		N/A
	- in normal use,		N/A
	- during user maintenance,		N/A
	- when replacing a supply cord having a type X attachment, or		N/A
	- during installation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	At least two screws being used for each connection providing earthing continuity, unless		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..... :		P
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		N/A
	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:		N/A
	- when the microenvironment is pollution degree 3, or		N/A
	- for basic insulation of class 0 and class 01 appliances, or		N/A
	- to appliances intended for use at altitudes exceeding 2 000 m		N/A
	Appliances are in overvoltage category II		P

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Clause	Requirement + Test	Result - Remark	Verdict
	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:		P
	- table 16 based on the rated impulse voltage.....:	(see appended table)	P
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		P
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		P
	If values of table 16 are largest, the impulse voltage test of clause 14 may be applied instead, unless		P
	the microenvironment is pollution degree 3, or		N/A
	the distances can be affected by wear, distortion, movement of the parts or during assembly		P
	However, clearances are not specified if the appliance complies with clause 19 with the functional insulation short-circuited		P
	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:		P
	- table 16 based on the rated impulse voltage.....:		P
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		P
	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		P
	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		P
	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
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		P
	- precautions taken to protect the insulation; pollution degree 1		N/A
	- insulation subjected to conductive pollution; pollution degree 3		N/A
	- battery chargers for outdoor use, the microenvironment is pollution degree 3 unless the insulation is enclosed or located so that it is unlikely to be exposed to pollution during normal use of the appliance (IEC 60335-2-29)		N/A
	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.....:		P

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Clause	Requirement + Test	Result - Remark	Verdict
	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.....:		P
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.....:		P
	Creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited		P
29.3	Supplementary and reinforced insulation have adequate thickness, or a sufficient number of layers, to withstand the electrical stresses		P
	Compliance checked:		P
	- 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	For output cord used in models which rated output voltage exceed 42.4Vd.c.	P
	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		N/A
	Reinforced insulation have a thickness of at least 2 mm	Enclosure: Min. 2.0mm thickness	P
29.3.2	Each layer of material withstand the electric strength		P

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Clause	Requirement + Test	Result - Remark	Verdict
	test of 16.3 for supplementary insulation		
	Supplementary insulation consist of at least 2 layers		N/A
	Reinforced insulation consist of at least 3 layers	3 layers of insulation tape wrapped around transformer core.	P
29.3.3	The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by		P
	the electric strength test of 16.3		P
	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	For output cord used in models which rated output voltage exceed 42.4Vd.c.	P
29.3.4	Thickness of accessible parts of reinforced insulation consisting of a single layer not less than specified in table 19.....:	Enclosure: thickness 2.0mm min.	P
30	**RESISTANCE TO HEAT AND FIRE**		**P**
30.1	External parts of non-metallic material,	Enclosure	P
	parts supporting live parts, and	Transformer bobbin, AC inlet, enclosure	P
	parts of thermoplastic material providing supplementary or reinforced insulation	Enclosure	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 30.1)	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 30.1)	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 30.1)	P
30.2	Parts of non-metallic material resistant to ignition and spread of fire		P
	This requirement does not apply to:		N/A
	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		N/A
	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

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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	(see appended table 30.2)	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
	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 with appropriate severity level:		N/A
	- 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 not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least:		N/A
	- 750 °C, for connections carrying a current exceeding 0,5 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:		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
	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	(see appended table 30.2)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	parts of non-metallic material, other than small parts, within a distance of 3 mm,	(see appended table 30.2)	P
	subjected to the glow-wire test of IEC 60695-2-11 with a test severity of 850 °C	(see appended table 30.2)	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	(see appended table 30.2)	P
	parts of non-metallic material within a distance of 3mm,	(see appended table 30.2)	P
	subjected to the glow-wire test of IEC 60695-2-11 with appropriate severity level:	(see appended table 30.2)	P
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation	(see appended table 30.2)	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:		N/A
	- 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:		N/A
	- 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	PCB: V-0	P
	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:		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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:		N/A
	- 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		N/A
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		P
A	**ANNEX A (INFORMATIVE) ROUTINE TESTS**		**P**
A.2	Electric strength test (IEC 60335-2-29):		P
	An electric strength test is carried out between the input and output circuits, the test voltage being:		P
	- 2 000 V, for battery chargers having a rated voltage not exceeding 150 V		N/A
	- 2 500 V, for other battery chargers		P
B	**ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES THAT ARE RECHARGED IN THE APPLIANCE**		**N/A**

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Clause	Requirement + Test	Result - Remark	Verdict
	The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance		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:		N/A
	- the appliance, supplied by its fully charged battery, operated as specified in relevant part 2		N/A
	- the battery is charged, the battery being initially discharged to such an extent that the appliance cannot operate		N/A
	-if possible, the appliance is supplied from the supply mains through its battery charger, the battery being initially discharged to such an extent that the appliance cannot operate. The appliance is operated as specified in relevant part 2		N/A
	- if the appliance incorporates inductive coupling between two parts that are detachable from each other, the appliance is supplied from the supply mains with the detachable part removed		N/A
3.6.2	Part to be removed in order to discard the battery is not considered to be detachable		N/A
5.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 (V) 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

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Clause	Requirement + Test	Result - Remark	Verdict
	Instructions for appliances incorporating batteries intended to be replaced by the user include required information		N/A
	Instructions for appliances containing non user-replaceable batteries state the substance of the following:		N/A
	This appliance contains batteries that are only replaceable by skilled persons		N/A
	Instructions for appliances containing non-replaceable batteries shall state the substance of the following:		N/A
	This appliance contains batteries that are non-replaceable		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
	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
19.13	The battery does not rupture or ignite		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
21.B.101	Appliances having pins for insertion into socket-outlets have adequate mechanical strength		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:		N/A
	- 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
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:		P
7	Severities		P
	The duration of application of the test flame is 30 s ± 1 s		P
9	Test procedure		P
9.1	The specimen so arranged that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1		P
9.2	The first paragraph does not apply		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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	withstanding the test		
11	Evaluation of test results		P
	The duration of burning not exceeding 30 s		P
	However, for printed circuit boards, the duration of burning not exceeding 15 s		P
F	**ANNEX F (NORMATIVE) CAPACITORS**		**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		N/A
1.5.3	Class X capacitors tested according to subclass X2		N/A
1.5.4	This subclause is applicable		N/A
1.6	Marking		N/A
	Items a) and b) are applicable		N/A
3.4	Approval testing		N/A
3.4.3.2	Table 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

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Clause	Requirement + Test	Result - Remark	Verdict
G	**ANNEX G (NORMATIVE)** **SAFETY ISOLATING TRANSFORMERS**		**P**
	The following modifications to this standard are applicable for safety isolating transformers:		P
7	Marking and instructions		P
7.1	Transformers for specific use marked with:		P
	-name, trademark or identification mark of the manufacturer or responsible vendor.....:		P
	-model or type reference..... :		P
17	Overload protection of transformers and associated circuits		P
	Fail-safe transformers comply with subclause 15.5 of IEC 61558-1		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		P
	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		P
H	**ANNEX H (NORMATIVE)** **SWITCHES**		**N/A**
	Switches comply with the following clauses of IEC 61058-1, as modified below:		N/A
	The tests of IEC 61058-1 carried out under the conditions occurring in the appliance		N/A
	Before being tested, switches are operated 20 times without load		N/A
8	Marking and documentation		N/A
	Switches are not required to be marked		N/A
	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

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Clause	Requirement + Test	Result - Remark	Verdict
15.2	Not applicable		N/A
15.3	Applicable for full disconnection and micro-disconnection		N/A
17	Endurance		N/A
	Compliance is checked on three separate appliances or switches		N/A
	For 17.2.4.4, the number of cycles 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
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

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Clause	Requirement + Test	Result - Remark	Verdict
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.I.101	Appliance operated at rated voltage with each of the following fault conditions:		N/A
	- short circuit of the terminals of the motor, including any capacitor incorporated in the motor circuit		N/A
	- short circuit of each diode of the rectifier		N/A
	- open circuit of the supply to the motor		N/A
	- open circuit of any parallel resistor, the motor being in operation		N/A
	Only one fault simulated at a time, the tests carried out consecutively		N/A
22	Construction		N/A
22.I.101	For class I appliances incorporating a motor supplied by a rectifier circuit, the d.c. circuit being insulated from accessible parts of the appliance by double or reinforced insulation		N/A
	Compliance checked by the tests specified for double and reinforced insulation		N/A
J	**ANNEX J (NORMATIVE)** **COATED PRINTED CIRCUIT BOARDS**		**N/A**
	Testing of protective coatings of printed circuit boards carried out in accordance with IEC 60664-3 with the following modifications:		N/A
5.7	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
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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	special requirements		
	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
	For evaluating creepage distances, the following degrees of pollution in the microenvironment are established:		P
	- pollution degree 1: no pollution or only dry, non-conductive pollution occurs. The pollution has no influence		N/A
	- pollution degree 2: only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be expected		P
	- pollution degree 3: conductive pollution occurs or dry non-conductive pollution occurs that becomes conductive due to condensation that is to be expected		N/A
	- pollution degree 4: the pollution generates persistent conductivity caused by conductive dust or by rain or snow		N/A
N	**ANNEX N (NORMATIVE) PROOF TRACKING TEST**		**P**
	The proof tracking test is carried out in accordance with IEC 60112 with the following modifications:		P

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Clause	Requirement + Test	Result - Remark	Verdict
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.....:	PCB: 175V	P
	The test is carried out on five specimens		P
	In case of doubt, additional test with proof voltage reduced by 25V, the number of drops increased to 100		N/A
10.2	Report		N/A
	The report 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 TROPICAL CLIMATES**		**N/A**
	Modifications applicable for class 0 and 01 appliances having a rated voltage exceeding 150V, intended to be used in countries having a tropical climate and that are marked with symbol IEC 60417-6332		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 tropical climate and that are marked with symbol IEC 60417-6332, 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 symbol IEC 60417-6332		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 tropical climate, but may also be used in other countries		N/A
	If symbol IEC 60417-6332 is used, its meaning is explained		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

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Clause	Requirement + Test	Result - Remark	Verdict
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
	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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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		
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
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;	Document ref. No:	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- architecture and storage of data; - time-based dependencies of sequences and data		
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

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

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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
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
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	Wrong point	Time-slot monitoring, or	H.2.18.10.4	--	--	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
Timing	in time Wrong sequence	scheduled transmission Time-slot and logical monitoring, or comparison of redundant communication channels by either: - reciprocal comparison - independent hardware comparator Logical monitoring, or time-slot monitoring, or Scheduled transmission	H.2.18.18 H.2.18.10.3 H.2.18.15 H.2.18.3 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
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.

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Clause	Requirement + Test	Result - Remark	Verdict

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
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:		N/A
	– 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:		N/A
	– 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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	appliance and safely disposed of		
	– 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		N/A
	– 0,55 and 1,0 times the battery voltage, if the appliance can be used with non-rechargeable batteries		N/A
	– 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

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Clause	Requirement + Test	Result - Remark	Verdict
T	**ANNEX T (NORMATIVE)** **UV-C RADIATION EFFECT ON NON-METALLIC MATERIALS**		**N/A**
	Requirements for non-metallic materials subject to direct or reflected UV-C radiation exposure and whose mechanical and electrical properties are relied upon for compliance with the		N/A
	Does not apply to glass, ceramic and similar materials		N/A
	Tested as specified in ISO 4892-1 and ISO 4892-2, with the following modifications:		N/A
	Modifications to ISO 4892-1:		N/A
5.1.6	The UV-C emitter is a low pressure mercury lamp with a quartz envelope having a continuous spectral irradiance of 10 W/m2 at 254 nm		N/A
	Subclause 5.1.6.1 and Table 1 are not applicable		N/A
5.2.4	The black-panel temperature shall be 63 °C +/- 3 °C		N/A
5.3.1	Humidification of the chamber air is specified in part 2 when necessary		N/A
9	This clause is not applicable		N/A
	Modifications to ISO 4892-2:		N/A
7.1	At least three test specimens are tested		N/A
	Ten samples of internal wiring is tested		N/A
7.2	The specimens are attached to the specimen holders such that they are not subject to any stress		N/A
7.3	Apparatus prepared as specified		N/A
	The test specimens and, if used, the irradiance-measuring instrument are exposed for 1 000 h		N/A
7.4	If used, a radiometer is mounted and calibrated such that it measures the irradiance at the exposed surface of the test specimen		N/A
7.5	Material properties and test methods for parts providing mechanical support or impact resistance as specified in Table T.1		N/A
	Material properties and test method for electrical insulation of internal wiring as specified in Table T.2		N/A
8	This clause is not applicable		N/A
AA	**ANNEX AA (NORMATIVE)** **BATTERY CHARGERS FOR USE BY CHILDREN (IEC 60335-2-29)**		**N/A**
	Battery chargers intended to be used by children at least eight years old without supervision comply with this standard but as modified by this annex		N/A
	The battery charger have a d.c. output at SELV not exceeding 30 V and a rated output not exceeding 50 VA		N/A
5.201	When batteries used, the generally available rechargeable batteries giving the most		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	unfavourable conditions used		
6.1	Battery chargers suitable for outdoor use class III		N/A
	Other battery chargers class II or class III		N/A
6.2	Battery chargers suitable for outdoor use at least IPX7		N/A
6.201	Enclosures classified at least IP3X with regard to protection against ingress of solid foreign objects		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:		—
	- Warning to only allow children at least 8 years old to use battery charger		N/A
	- Sufficient instructions for safe use of battery charger by a child		N/A
	- Explanation that battery charger is not a toy		N/A
	- Instruction for child not to try and recharge non-rechargeable batteries		N/A
	- Warning to examine battery charger regularly for damage		N/A
	- Warning in case battery charger is damaged		N/A
	Instruction for Class III battery charger to be supplied from transformer for toys		N/A
7.14	Height of symbol marked on the appliance at least 10 mm		N/A
	Height of lettering at least 3 mm		N/A
8.1.1	Use of test probe B of IEC 61032: no contact with live parts or metal parts separated from live parts by basic insulation only, even after use of a tool to remove parts of enclosure		N/A
10.101	The output voltage not exceed 42,4 V peak		N/A
11.8	Temperature rises of parts that can be touched by test probe 18 of IEC 61032		N/A
	- 25 K, if of metal		N/A
	- 35 K, if of other material		N/A
17	Temperature rises of parts that can be touched by test probe 18 of IEC 61032		N/A
	- 45 K, if of metal		N/A
	- 55 K, if of other material		N/A
19.13	Temperature rises of parts that can be touched by test probe 18 of IEC 61032		N/A
	- 45 K, if of metal		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- 55 K, if of other material		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		N/A
	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
22.201	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 constructed so that reverse charging is prevented, regardless of the state of charge of the battery		N/A
	This applies even if the battery is inserted with the wrong polarity		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
25.1	Battery charger not provided with an appliance inlet		N/A
25.5	Battery charger provided with type Y or type Z attachment		N/A
BB	**ANNEX BB (NORMATIVE) ISOLATING TRANSFORMERS (IEC 60335-2-29:2016/AMD1:2019)**		**P**
7.1	Isolating transformers for specific use marked with:		—
	– name, trademark or identification mark of the manufacturer or responsible vendor		P
	– model or type reference		P
	Fail-safe transformers comply with Subclause 15.5 of IEC 61558-1		N/A
	This test carried out on three transformers		N/A
22	Subclauses 19.1 and 19.1.2 of IEC 61558-2-4:2009 applicable		N/A
29.1, 29.2 and 29.3	The distances specified in items 2a, 2c and 3 in Table 13 of IEC 61558-1 apply		P
	For insulated winding wires complying with Subclause 19.12.3 of IEC 61558-1, there are no requirements for clearances or creepage distances		P
	In addition, for windings providing reinforced insulation, the distance specified in item 2c of Table 13 of IEC 61558-1 is not assessed		P

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Clause	Requirement + Test	Result - Remark	Verdict
	For 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 these values are greater than the values specified in items 2a, 2c and 3 in Table 13 of IEC 61558-1		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

10.1	TABLE: Input Power Deviation				N/A
Input deviation of/at:	**P rated (W)**	**P measured (W)**	**Δ P**	**Required Δ P**	**Remark**
--	--	--	--	--	--
Supplementary information:					

10.2	TABLE: Input current deviation				P
Current deviation of/at:	**I rated (A)**	**I measured (A)**	**ΔI (%)**	**Required ΔI (%)**	**Remark**
Test Model: XSG14611000					
94V / 50Hz	--	2.178	--	--	RC load Figure 101 (14.6VDC, 11.0A)
94V / 60Hz	--	2.183	--	--	
100V / 50Hz	3.0	1.942	-35.27%	+15%	
100V / 60Hz	3.0	1.944	-35.20%	+15%	
240V / 50Hz	3.0	0.833	-72.23%	+15%	
240V / 60Hz	3.0	0.830	-72.33%	+15%	
254.4V/ 50Hz	--	0.765	--	--	
254.4V/ 60Hz	--	0.763	--	--	
94V / 50Hz	--	2.154	--	--	Lead-Acid Battery load*
94V / 60Hz	--	2.157	--	--	
100V / 50Hz	3.0	1.914	-36.20%	+15%	
100V / 60Hz	3.0	1.911	-36.30%	+15%	
240V / 50Hz	3.0	0.805	-73.17%	+15%	
240V / 60Hz	3.0	0.808	-73.07%	+15%	
254.4V/ 50Hz	--	0.742	--	--	
254.4V/ 60Hz	--	0.741	--	--	
94V / 50Hz	--	2.157	--	--	LifePO4 Battery load*
94V / 60Hz	--	2.161	--	--	
100V / 50Hz	3.0	1.921	-35.97%	+15%	
100V / 60Hz	3.0	1.920	-36.00%	+15%	
240V / 50Hz	3.0	0.809	-73.03%	+15%	
240V / 60Hz	3.0	0.808	-73.07%	+15%	
254.4V/ 50Hz	--	0.742	--	--	
254.4V/ 60Hz	--	0.737	--	--	
Test Model: XSG2528500					
94V / 50Hz	--	2.980	--	--	RC load Figure 101 (25.2VDC, 8.5A)
94V / 60Hz	--	2.981	--	--	
100V / 50Hz	3.0	2.403	-19.90%	+15%	
100V / 60Hz	3.0	2.405	-19.83%	+15%	
240V / 50Hz	3.0	1.164	-61.20%	+15%	
240V / 60Hz	3.0	1.161	-61.30%	+15%	
254.4V/ 50Hz	--	0.976	--	--	
254.4V/ 60Hz	--	0.974	--	--	
94V / 50Hz	--	2.956	--	--	Li-ion Battery load*
94V / 60Hz	--	2.952	--	--	
100V / 50Hz	3.0	2.375	-20.83%	+15%	
100V / 60Hz	3.0	2.379	-20.70%	+15%	
240V / 50Hz	3.0	1.139	-62.03%	+15%	
240V / 60Hz	3.0	1.137	-62.10%	+15%	
254.4V/ 50Hz	--	0.953	--	--	
254.4V/ 60Hz	--	0.953	--	--	
Test Model: XSG3656000					
94V / 50Hz	--	3.014	--	--	RC load Figure 101 (36.5VDC, 6.0A)
94V / 60Hz	--	3.026	--	--	
100V / 50Hz	3.0	2.482	-17.27%	+15%	
100V / 60Hz	3.0	2.487	-17.10%	+15%	
240V / 50Hz	3.0	1.142	-61.93%	+15%	

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Clause	Requirement + Test	Result - Remark		Verdict

240V / 60Hz	3.0	1.139	-62.03%	+15%	
254.4V/ 50Hz	--	1.050	--	--	
254.4V/ 60Hz	--	1.048	--	--	
94V / 50Hz	--	2.990	--	--	LifePO4 Battery load*
94V / 60Hz	--	3.002	--	--	
100V / 50Hz	3.0	2.464	-17.87%	+15%	
100V / 60Hz	3.0	2.468	-17.73%	+15%	
240V / 50Hz	3.0	1.120	-62.67%	+15%	
240V / 60Hz	3.0	1.117	-62.77%	+15%	
254.4V/ 50Hz	--	1.028	--	--	
254.4V/ 60Hz	--	1.025	--	--	
Test Model: XSG7302790					
94V / 50Hz	--	2.765	--	--	RC load Figure 101 (73.0VDC, 2.79A)
94V / 60Hz	--	2.767	--	--	
100V / 50Hz	3.0	2.386	-20.47%	+20%	
100V / 60Hz	3.0	2.392	-20.27%	+20%	
240V / 50Hz	3.0	1.061	-64.63%	+20%	
240V / 60Hz	3.0	1.060	-64.67%	+20%	
254.4V/ 50Hz	--	0.984	--	--	
254.4V/ 60Hz	--	0.982	--	--	
94V / 50Hz	--	2.729	--	--	Li-ion Battery load*
94V / 60Hz	--	2.734	--	--	
100V / 50Hz	3.0	2.355	-21.50%	+15%	
100V / 60Hz	3.0	2.365	-21.17%	+15%	
240V / 50Hz	3.0	1.033	-65.57%	+15%	
240V / 60Hz	3.0	1.031	-65.63%	+15%	
254.4V/ 50Hz	--	0.959	--	--	
254.4V/ 60Hz	--	0.956	--	--	
94V / 50Hz	--	2.761	--	--	LifePO4 Battery load*
94V / 60Hz	--	2.762	--	--	
100V / 50Hz	3.0	2.384	-20.53%	+15%	
100V / 60Hz	3.0	2.387	-20.43%	+15%	
240V / 50Hz	3.0	1.055	-64.83%	+15%	
240V / 60Hz	3.0	1.052	-64.93%	+15%	
254.4V/ 50Hz	--	0.980	--	--	
254.4V/ 60Hz	--	0.980	--	--	
Supplementary information: 1. *Empty batteries used. 2. For battery type under test, see Attachment 2 for details.					

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**
Test Model: XSG14611000						
100V/50Hz	14.6	11.0	10.95	-0.45%	±10%	RC load Figure 101 (14.6VDC, 11.0A)
100V/60Hz	14.6	11.0	10.95	-0.45%	±10%	
240V/50Hz	14.6	11.0	10.94	-0.55%	±10%	
240V/60Hz	14.6	11.0	10.94	-0.55%	±10%	
Test Model: XSG2528500						
100V/50Hz	25.2	8.5	8.21	-3.41%	±10%	RC load Figure 101 (25.2VDC, 8.5A)
100V/60Hz	25.2	8.5	8.21	-3.41%	±10%	
240V/50Hz	25.2	8.5	8.19	-3.65%	±10%	

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Clause	Requirement + Test	Result - Remark	Verdict

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**
240V/60Hz		25.2	8.5	8.19	-3.65%	±10%	
Test Model: XSG3656000							
100V/50Hz		36.5	6.0	5.84	-2.67%	±10%	RC load Figure 101 (36.5VDC, 6.0A)
100V/60Hz		36.5	6.0	5.84	-2.67%	±10%	
240V/50Hz		36.5	6.0	5.83	-2.83%	±10%	
240V/60Hz		36.5	6.0	5.83	-2.83%	±10%	
Test Model: XSG7302790							
100V/50Hz		73.0	2.79	2.66	-4.66%	±10%	RC load Figure 101 (73.0VDC, 2.79A)
100V/60Hz		73.0	2.79	2.66	-4.66%	±10%	
240V/50Hz		73.0	2.79	2.64	-5.38%	±10%	
240V/60Hz		73.0	2.79	2.64	-5.38%	±10%	

11.8	TABLE: Heating Test		P
	Test voltage (V)..... :	See below	—
	Ambient (°C)..... :	See below	—

Thermocouple Locations	**Max. temperature rise measured, ΔT (K)**				**Max. temperature rise limit, ΔT (K)**
Model: XSG14611000 (RC load 14.6VDC/11.0A)	94V		254.4V		--
	Label up	Label down	Label up	Label down	
CON1	31.8	37.8	28.6	31.8	45
FL1 Winding	53.6	57.6	43.0	45.0	105
CX1	58.6	62.7	47.6	50.3	75
FL2 Winding	75.5	76.6	60.5	61.1	105
L1 Winding	83.0	84.0	69.0	69.6	105
C3	65.3	68.3	61.4	64.0	80
C4	74.0	73.7	64.7	65.8	80
PCB under BD1	75.9	79.9	63.5	67.5	105
PCB under Q1	82.3	88.7	76.9	82.3	105
T1 winding	73.2	77.5	70.8	74.1	85
T1 core	68.9	73.2	66.3	69.6	85
U2	56.2	69.2	53.1	60.8	75
CY1	67.1	77.1	57.7	62.0	100
PCB under Q2	73.5	75.8	77.3	78.3	105
C13	67.5	69.0	71.8	72.2	80
FL3 Winding	50.9	55.6	51.5	53.6	105
Output wire	42.2	46.5	40.4	42.0	55
C13E	58.5	60.6	51.7	53.7	80
Enclosure inside near T1 top	44.9	58.8	41.8	51.5	Cl.30
Enclosure inside near T1 bottom	58.5	46.0	48.1	39.4	Cl.30
Enclosure outside near T1 top	34.2	48.1	31.1	40.8	60
Enclosure outside near T1 bottom	46.7	34.2	36.3	27.6	60
PCB under U1	68.5	72.8	66.7	70.0	105

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Clause	Requirement + Test			Result - Remark	Verdict

Internal wire	63.2	65.3	56.9	58.9	80
CY5	62.3	66.4	51.6	54.3	100
CY6	48.2	52.9	48.8	50.9	100
Test corner	44.2	19.4	36.4	19.8	65
Supplementary information: 1. Tma is 25°C Max., the above temp. rise limits are adjusted according to ambient temperature 25°C. 2. Thermocouple method used.					

11.8	**TABLE: Heating Test**		**P**
	Test voltage (V)..... :	See below	—
	Ambient (°C)..... :	See below	—

Thermocouple Locations	**Max. temperature rise measured, ΔT (K)**				**Max. temperature rise limit, ΔT (K)**
Model: XSG14611000 (Lead-Acid Battery load used)	94V		--		--
	Label up	--	--	--	
CON1	28.3	--	--	--	45
FL1 Winding	50.7	--	--	--	105
CX1	55.1	--	--	--	75
FL2 Winding	72.4	--	--	--	105
L1 Winding	80.4	--	--	--	105
C3	61.6	--	--	--	80
C4	71.4	--	--	--	80
PCB under BD1	73.0	--	--	--	105
PCB under Q1	78.8	--	--	--	105
T1 winding	70.0	--	--	--	85
T1 core	65.1	--	--	--	85
U2	53.7	--	--	--	75
CY1	64.4	--	--	--	100
PCB under Q2	70.9	--	--	--	105
C13	64.1	--	--	--	80
FL3 Winding	48.1	--	--	--	105
Output wire	38.7	--	--	--	55
C13E	55.9	--	--	--	80
Enclosure inside near T1 top	41.6	--	--	--	Cl.30
Enclosure inside near T1 bottom	55.4	--	--	--	Cl.30
Enclosure outside near T1 top	31.8	--	--	--	60
Enclosure outside near T1 bottom	44.5	--	--	--	60
PCB under U1	66.1	--	--	--	105
Internal wire	61.1	--	--	--	80
CY5	60.0	--	--	--	100
CY6	45.7	--	--	--	100
Test corner	42.6	--	--	--	65
Supplementary information: 1. Tma is 25°C Max., the above temp. rise limits are adjusted according to ambient temperature 25°C. 2. Thermocouple method used.					

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Clause	Requirement + Test	Result - Remark	Verdict

11.8	**TABLE: Heating Test**		**P**
	Test voltage (V)..... :	See below	—
	Ambient (°C).....:	See below	—

Thermocouple Locations	**Max. temperature rise measured, ΔT (K)**				**Max. temperature rise limit, ΔT (K)**
Model: XSG2528500 (RC load 25.2VDC/8.5A)	94V		254.4V		--
	Label up	Label down	Label up	Label down	
CON1	39.2	43.0	35.9	35.3	45
FL1 Winding	61.7	65.1	49.6	47.3	105
CX1	64.3	67.4	53.3	51.9	75
FL2 Winding	84.8	86.5	72.0	69.6	105
L1 Winding	91.7	89.9	76.7	72.8	105
C3	74.2	75.0	69.6	68.5	80
C4	78.1	78.6	74.5	71.5	80
PCB under BD1	89.1	89.1	73.0	72.1	105
PCB under Q1	95.0	96.5	87.1	85.7	105
T1 winding	82.9	76.5	78.4	77.5	85
T1 core	75.2	75.6	75.6	74.4	85
U2	58.2	70.9	59.7	66.3	75
CY1	52.0	62.8	59.5	65.8	100
PCB under Q2	65.3	61.2	76.0	75.9	105
C13	71.2	71.9	78.1	76.1	80
FL3 Winding	53.8	55.6	57.4	56.9	105
Output wire	48.3	49.4	46.6	45.5	55
C13E	68.0	70.5	63.9	62.6	80
Enclosure inside near T1 top	51.2	61.7	49.9	56.4	Cl.30
Enclosure inside near T1 bottom	55.4	44.5	51.5	39.6	Cl.30
Enclosure outside near T1 top	40.5	51.0	39.2	45.7	60
Enclosure outside near T1 bottom	43.6	32.7	39.7	27.8	60
PCB under U1	78.2	71.8	74.2	73.3	105
Internal wire	72.7	75.2	68.5	67.2	80
CY5	68.3	71.4	56.8	55.4	100
CY6	50.6	52.4	54.2	53.7	100
Test corner	44.4	23.6	44.1	23.2	65

Supplementary information:
1. Tma is 25°C Max., the above temp. rise limits are adjusted according to ambient temperature 25°C.
2. Thermocouple method used.

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

11.8	**TABLE: Heating Test**		**P**
	Test voltage (V)..... :	See below	—
	Ambient (°C).....:	See below	—

Thermocouple Locations	**Max. temperature rise measured, ΔT (K)**				**Max. temperature rise limit, ΔT (K)**
Model: XSG2528500 (Li-ion Battery load used)	94V		--		--
	Label up	--	--	--	
CON1	35.7	--	--	--	45
FL1 Winding	58.8	--	--	--	105
CX1	60.8	--	--	--	75
FL2 Winding	81.7	--	--	--	105
L1 Winding	89.1	--	--	--	105
C3	70.5	--	--	--	80
C4	75.5	--	--	--	80
PCB under BD1	86.2	--	--	--	105
PCB under Q1	91.5	--	--	--	105
T1 winding	79.7	--	--	--	85
T1 core	71.4	--	--	--	85
U2	55.7	--	--	--	75
CY1	49.3	--	--	--	100
PCB under Q2	62.7	--	--	--	105
C13	67.8	--	--	--	80
FL3 Winding	51.0	--	--	--	105
Output wire	44.8	--	--	--	55
C13E	65.4	--	--	--	80
Enclosure inside near T1 top	47.9	--	--	--	Cl.30
Enclosure inside near T1 bottom	52.3	--	--	--	Cl.30
Enclosure outside near T1 top	38.1	--	--	--	60
Enclosure outside near T1 bottom	41.4	--	--	--	60
PCB under U1	75.8	--	--	--	105
Internal wire	70.6	--	--	--	80
CY5	66.0	--	--	--	100
CY6	48.1	--	--	--	100
Test corner	42.8	--	--	--	65

Supplementary information:
1. Tma is 25°C Max., the above temp. rise limits are adjusted according to ambient temperature 25°C.
2. Thermocouple method used.

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Clause	Requirement + Test	Result - Remark	Verdict

11.8	**TABLE: Heating Test**		**P**
	Test voltage (V)..... :	See below	—
	Ambient (°C).....:	See below	—

Thermocouple Locations	**Max. temperature rise measured, ΔT (K)**				**Max. temperature rise limit, ΔT (K)**
Model: XSG3656000 (RC load 36.5VDC/6.0A)	94V		254.4V		--
	Label up	Label down	Label up	Label down	
CON1	36.7	40.8	33.2	32.6	45
FL1 Winding	58.8	62.5	46.5	44.2	105
CX1	61.6	65.0	50.4	49.0	75
FL2 Winding	81.6	83.6	68.6	66.2	105
L1 Winding	88.1	86.6	72.9	69.0	105
C3	71.6	72.7	66.8	65.7	80
C4	75.4	76.2	71.6	68.6	80
PCB under BD1	85.0	85.3	68.7	67.8	105
PCB under Q1	90.7	92.5	82.6	81.2	105
T1 winding	78.0	71.9	73.3	72.4	85
T1 core	69.8	70.5	70.0	68.8	85
U2	55.6	68.6	56.9	63.5	75
CY1	48.8	59.9	56.1	62.4	100
PCB under Q2	61.9	58.1	72.4	72.3	105
C13	68.0	69.0	74.7	72.7	80
FL3 Winding	49.9	52.0	53.3	52.8	105
Output wire	45.3	46.7	43.4	42.3	55
C13E	65.6	68.4	61.3	60.0	80
Enclosure inside near T1 top	48.5	59.3	47.0	53.5	Cl.30
Enclosure inside near T1 bottom	52.9	42.3	48.8	36.9	Cl.30
Enclosure outside near T1 top	37.8	48.6	36.3	42.8	60
Enclosure outside near T1 bottom	41.1	30.5	37.0	25.1	60
PCB under U1	74.5	68.4	70.3	69.4	105
Internal wire	70.9	73.7	66.5	65.2	80
CY5	65.4	68.8	53.7	52.3	100
CY6	48.2	50.3	51.6	51.1	100
Test corner	43.0	22.5	42.5	21.6	65

Supplementary information:
1. Tma is 25°C Max., the above temp. rise limits are adjusted according to ambient temperature 25°C.
2. Thermocouple method used.

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Clause	Requirement + Test	Result - Remark	Verdict

11.8	**TABLE: Heating Test**		**P**
	Test voltage (V)..... :	See below	—
	Ambient (°C).....:	See below	—

Thermocouple Locations	**Max. temperature rise measured, ΔT (K)**				**Max. temperature rise limit, ΔT (K)**
Model: XSG3656000 (LifePO4 Battery load used)	94V		--		--
	Label up	--	--	--	
CON1	33.5	--	--	--	45
FL1 Winding	56.4	--	--	--	105
CX1	58.5	--	--	--	75
FL2 Winding	78.7	--	--	--	105
L1 Winding	86.1	--	--	--	105
C3	68.0	--	--	--	80
C4	73.1	--	--	--	80
PCB under BD1	82.6	--	--	--	105
PCB under Q1	87.6	--	--	--	105
T1 winding	75.3	--	--	--	85
T1 core	66.2	--	--	--	85
U2	53.2	--	--	--	75
CY1	46.4	--	--	--	100
PCB under Q2	59.9	--	--	--	105
C13	64.9	--	--	--	80
FL3 Winding	47.6	--	--	--	105
Output wire	42.5	--	--	--	55
C13E	63.3	--	--	--	80
Enclosure inside near T1 top	45.6	--	--	--	Cl.30
Enclosure inside near T1 bottom	50.0	--	--	--	Cl.30
Enclosure outside near T1 top	35.9	--	--	--	60
Enclosure outside near T1 bottom	39.1	--	--	--	60
PCB under U1	72.4	--	--	--	105
Internal wire	69.2	--	--	--	80
CY5	63.4	--	--	--	100
CY6	45.8	--	--	--	100
Test corner	41.6	--	--	--	65

Supplementary information:
1. Tma is 25°C Max., the above temp. rise limits are adjusted according to ambient temperature 25°C.
2. Thermocouple method used.

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Clause	Requirement + Test	Result - Remark	Verdict

11.8	**TABLE: Heating Test**		**P**
	Test voltage (V)..... :	See below	—
	Ambient (°C).....:	See below	—

Thermocouple Locations	**Max. temperature rise measured, ΔT (K)**				**Max. temperature rise limit, ΔT (K)**
Model: XSG7302790 (RC load 73.0VDC/2.79A)	94V		254.4V		--
	Label up	Label down	Label up	Label down	
CON1	37.0	41.0	33.9	33.3	45
FL1 Winding	58.3	61.9	47.7	45.3	105
CX1	61.2	64.5	50.8	49.3	75
FL2 Winding	81.2	83.1	68.6	66.2	105
L1 Winding	87.8	86.2	73.0	69.1	105
C3	72.1	73.1	66.6	65.5	80
C4	75.6	76.3	71.4	68.4	80
PCB under BD1	85.6	85.8	69.8	68.9	105
PCB under Q1	91.2	92.9	83.6	82.1	105
T1 winding	80.2	74.0	75.1	74.2	85
T1 core	72.7	73.3	72.6	71.5	85
U2	55.3	68.2	57.4	64.1	75
CY1	49.1	60.1	57.1	63.6	100
PCB under Q2	68.1	64.2	78.7	78.7	105
C13	72.6	73.5	77.0	75.0	80
FL3 Winding	55.4	57.4	59.1	58.7	105
Output wire	47.7	49.0	45.3	44.3	55
C13E	66.2	68.9	65.7	64.3	80
Enclosure inside near T1 top	48.5	59.2	48.6	55.2	Cl.30
Enclosure inside near T1 bottom	53.0	42.3	50.1	38.4	Cl.30
Enclosure outside near T1 top	37.8	48.5	37.9	44.5	60
Enclosure outside near T1 bottom	41.2	30.5	38.3	26.6	60
PCB under U1	75.9	69.7	71.1	70.2	105
Internal wire	70.8	73.5	70.3	68.9	80
CY5	64.7	68.0	54.2	52.7	100
CY6	52.0	54.0	55.5	55.1	100
Test corner	42.2	21.6	43.0	22.7	65

Supplementary information:
1. Tma is 25°C Max., the above temp. rise limits are adjusted according to ambient temperature 25°C.
2. Thermocouple method used.

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Clause	Requirement + Test	Result - Remark	Verdict

11.8	**TABLE: Heating Test**		**P**
	Test voltage (V)..... :	See below	—
	Ambient (°C).....:	See below	—

Thermocouple Locations	**Max. temperature rise measured, ΔT (K)**				**Max. temperature rise limit, ΔT (K)**
Model: XSG7302790 (Lead-acid Battery load used)	94V		--		--
	Label up	--	--	--	
CON1	33.5	--	--	--	45
FL1 Winding	55.4	--	--	--	105
CX1	57.7	--	--	--	75
FL2 Winding	78.1	--	--	--	105
L1 Winding	85.2	--	--	--	105
C3	68.4	--	--	--	80
C4	73.0	--	--	--	80
PCB under BD1	82.7	--	--	--	105
PCB under Q1	87.7	--	--	--	105
T1 winding	77.0	--	--	--	85
T1 core	68.9	--	--	--	85
U2	52.8	--	--	--	75
CY1	46.4	--	--	--	100
PCB under Q2	65.5	--	--	--	105
C13	69.2	--	--	--	80
FL3 Winding	52.6	--	--	--	105
Output wire	44.2	--	--	--	55
C13E	63.6	--	--	--	80
Enclosure inside near T1 top	45.2	--	--	--	Cl.30
Enclosure inside near T1 bottom	49.9	--	--	--	Cl.30
Enclosure outside near T1 top	35.4	--	--	--	60
Enclosure outside near T1 bottom	39.0	--	--	--	60
PCB under U1	73.5	--	--	--	105
Internal wire	68.7	--	--	--	80
CY5	62.4	--	--	--	100
CY6	49.5	--	--	--	100
Test corner	40.6	--	--	--	65

Supplementary information:
1. Tma is 25°C Max., the above temp. rise limits are adjusted according to ambient temperature 25°C.
2. Thermocouple method used.

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Clause	Requirement + Test	Result - Remark	Verdict

11.8	**TABLE: Heating Test**		**P**
	Test voltage (V)..... :	See below	—
	Ambient (°C).....:	See below	—

Thermocouple Locations	**Max. temperature rise measured, ΔT (K)**				**Max. temperature rise limit, ΔT (K)**
Model: XSG7302790 (LifePO4 Battery load used)	94V		--		--
	Label up	--	--	--	
CON1	33.8	--	--	--	45
FL1 Winding	55.9	--	--	--	105
CX1	58.1	--	--	--	75
FL2 Winding	78.3	--	--	--	105
L1 Winding	85.8	--	--	--	105
C3	68.5	--	--	--	80
C4	73.3	--	--	--	80
PCB under BD1	83.2	--	--	--	105
PCB under Q1	88.1	--	--	--	105
T1 winding	77.5	--	--	--	85
T1 core	69.1	--	--	--	85
U2	52.9	--	--	--	75
CY1	46.7	--	--	--	100
PCB under Q2	66.1	--	--	--	105
C13	69.5	--	--	--	80
FL3 Winding	53.1	--	--	--	105
Output wire	44.9	--	--	--	55
C13E	63.9	--	--	--	80
Enclosure inside near T1 top	45.6	--	--	--	Cl.30
Enclosure inside near T1 bottom	50.1	--	--	--	Cl.30
Enclosure outside near T1 top	35.9	--	--	--	60
Enclosure outside near T1 bottom	39.2	--	--	--	60
PCB under U1	73.8	--	--	--	105
Internal wire	69.1	--	--	--	80
CY5	62.7	--	--	--	100
CY6	49.6	--	--	--	100
Test corner	40.8	--	--	--	65

Supplementary information:
1. Tma is 25°C Max., the above temp. rise limits are adjusted according to ambient temperature 25°C.
2. Thermocouple method used.

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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)..... :	254.4V, 60Hz	—

Leakage current between:	**I (mA)**	**Max. allowed I (mA)**
L/N poles and enclosure	0.005 mA peak	0.35 mA peak
L/N poles and output connector	0.040 mA peak	0.35 mA peak

Supplementary information:

13.3	**TABLE: Dielectric Strength**	**P**
Test voltage applied between:	**Test potential applied (V)**	**Breakdown / flashover (Yes/No)**
Between mains poles (F1 disconnected)	AC 1000	No
Between internal wire #	AC 1750	No
Between live parts and output circuit	AC 3000	No
Between live parts and external enclosure with metal foil	AC 3000	No
Between primary winding and secondary winding of transformer T1 #	AC 3000	No
Between iron core and secondary winding of transformer T1 #	AC 3000	No
Between the inner and accessible outer surfaces of output wire (Considered for models with rated output voltage > 60.0VDC only)	AC 1000	No
Between the live part and accessible outer surfaces with metal foil of output terminal # (Considered for models with rated output voltage > 60.0VDC only)	AC 1000	No
1 layer of insulation tape of transformer (RI)	AC 3000	No

Supplementary information:
1. Max. working voltage 247V r.m.s. for T1.
2. RI means reinforced insulation; SI means supplementary insulation; BI means basic insulation.

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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)..... :	254.4V, 60Hz	—
	Three phase appliances 1,06 x rated voltage divided by √3 (V)..... :	--	—

Leakage current between:	**I (mA)**	**Max. allowed I (mA)**
L/N poles and enclosure	0.005	0.25 mA
L/N poles and output connector	0.02	0.25 mA
Supplementary information: --		

16.3	TABLE: Dielectric Strength	P

Test voltage applied between:	**Test potential applied (V)**	**Breakdown / flashover (Yes/No)**
Between mains poles (F1 disconnected)	AC 1250	No
Between internal wire #	AC 1750	No
Between live parts and output circuit	AC 3000	No
Between live parts and external enclosure with metal foil	AC 3000	No
Between primary winding and secondary winding of transformer T1 #	AC 3000	No
Between iron core and secondary winding of transformer T1 #	AC 3000	No
Between the inner and accessible outer surfaces of output wire (Considered for models with rated output voltage > 60.0VDC only)	AC 1250	No
Between the live part and accessible outer surfaces with metal foil of output terminal # (Considered for models with rated output voltage > 60.0VDC only)	AC 1250	No
1 layer of insulation tape of transformer (RI)	AC 3000	No

Supplementary information:

1. Max. working voltage 247V r.m.s. for T1.

2. RI means reinforced insulation; SI means supplementary insulation; BI means basic insulation.

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Clause	Requirement + Test	Result - Remark	Verdict

17	**TABLE: Overload protection**		**P**
Thermocouple locations:		**Max. temperature rise measured, Δ T (K)**	**Max. temperature rise limit, Δ T (K)**
		254.4V/50Hz (Horizontal)	
Model: XSG14611000			
T1 winding		97.4	125
T1 core		89.0	125
Output wire		54.9	60
Enclosure outside near T1 top		59.4	Ref.
Enclosure outside near T1 bottom		40.6	Ref.
Support		30.1	105
Model: XSG2528500			
T1 winding		91.2	125
T1 core		85.7	125
Output wire		52.3	60
Enclosure outside near T1 top		60.9	Ref.
Enclosure outside near T1 bottom		37.8	Ref.
Support		26.7	105
Model: XSG3656000			
T1 winding		97.2	125
T1 core		93.7	125
Output wire		55.8	60
Enclosure outside near T1 top		62.8	Ref.
Enclosure outside near T1 bottom		45.6	Ref.
Support		38.3	105
Model: XSG7302790			
T1 winding		100.2	125
T1 core		96.7	125
Output wire		58.7	60
Enclosure outside near T1 top		61.7	Ref.
Enclosure outside near T1 bottom		43.3	Ref.
Support		29.4	105
Supplementary information: 1. Thermocouple method used. 2. Tested under 254.4V 3. The above temperature rise limits are corrected according to ambient temperature 25°C.			

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Clause	Requirement + Test	Result - Remark	Verdict

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)**	**Δ T (K)**	**T (°C)**	**Max. T (°C)**
--	--	--	--	--	--

Supplementary information:

19	**Abnormal Operation Conditions**	**P**

Operational characteristics	**YES/NO**	**Operational conditions**
Are there electronic circuits to control the appliance operation?	Yes	Input: 254.4V/50Hz, Load: RC load Figure 101 & Battery load
Are there "off" or "stand-by" position?	No	--
The unintended operation of the appliance results in dangerous malfunction?	No	--

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

Supplementary information:

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Clause	Requirement + Test	Result - Remark	Verdict

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)**	**Δ T (K)**	**T (°C)**	**Max. T (°C)**
--	--	--	--	--	--

Supplementary information:

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)**	**Δ T (K)**	**T (°C)**	**Max. T (°C)**
--	--	--	--	--	--

Supplementary information:

19.11.2	**TABLE: Fault Conditions**					**P**
Fault condition performed:						**Observation:**
component No.	**fault**	**test voltage (V)**	**test time**	**fuse No.**	**fuse current (A)**	**result**
Model: XSG7302790						
BD1#	SC	240	1s	F1	>14	After SC, F1 opened immediately, BD1 damaged, No hazard.
C3#	SC	240	1s	F1	>14	After SC, F1 opened immediately, BD1 damaged, No hazard.
C4#	SC	240	1s	F1	>14	After SC, F1 opened immediately, BD1 damaged, No hazard.
Q1 Pin G to S	SC	240	10 min	F1	0.016	After SC, unit shut down immediately. No damage, no hazard.
Q1 Pin G to D#	SC	240	1s	F1	>14	After SC, F1 opened immediately, BD1, Q1, U1 damaged, No hazard.
Q1 Pin D to S#	SC	240	1s	F1	>14	After SC, F1 opened immediately, Q1 damaged, No hazard
R5#	SC	240	1s	F1	>14	After SC, F1 opened immediately, Q1 damaged, No hazard
R21	SC	240	10 min	F1	0.016	After SC, unit shut down immediately. No damage, no hazard.
R22	SC	240	10 min	F1	0.016	After SC, unit shut down immediately. No damage, no hazard.
T1 Pin 1 to 3	SC	240	10 min	F1	0.016	After SC, unit shut down immediately. No damage, no hazard.

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Clause	Requirement + Test					Result - Remark	Verdict
T1 pin 4 to 5	SC	240	10 min	F1	0.016	After SC, unit shut down immediately. No damage, no hazard.	
T1 Pin A to B	SC	240	10 min	F1	0.016	After SC, unit shut down immediately. No damage, no hazard.	
T1 Pin A to C	SC	240	10 min	F1	0.016	After SC, unit shut down immediately. No damage, no hazard.	
T1 Pin C to B	SC	240	10 min	F1	0.016	After SC, unit shut down immediately. No damage, no hazard.	
Q2	SC	240	10 min	F1	0.016	After SC, unit shut down immediately. No damage, no hazard.	
U2 Pin 1 to 2	SC	240	10 min	F1	0.016	After SC, unit shut down immediately. No damage, no hazard.	
U2 Pin 3 to 4	SC	240	10 min	F1	0.016	After SC, unit shut down immediately. No damage, no hazard.	
U2 Pin 1	OC	240	10 min	F1	0.016	After OC, unit shut down immediately. No damage, no hazard.	
U2 Pin 3	OC	240	10 min	F1	0.016	After OC, unit shut down immediately. No damage, no hazard.	
Output	SC	240	10 min	F1	0.016	After SC, unit shut down immediately. No damage, no hazard.	
Supplementary information: 1. “SC” means short-circuited test, “OC” means open-circuited test. 2. All the test samples have passed the Hi-Pot test between primary and secondary (3000V, 1min). 2. Thermocouple method was used. 4. All types of fuse and fuse resistor were considered. When fuse resistor operated, test repeated 10 times and same result obtained. 5. All tests were considered in 94V also, same result.							

19.13	**TABLE: Abnormal Operation, temperature rises**	**P**
Thermocouple locations:	**Max. temperature rise measured, Δ T (K)**	**Max. temperature rise limit, Δ T (K)**
See table 19.11	See table 19.11	See table 19.11
Supplementary information:		

21.1	**TABLE: Impact Resistance**		**P**
Impacts per surface	**Surface tested**	**Impact energy (Nm)**	**Comments**
Three blows	Top enclosure	1.0	No hazards
Three blows	Right side enclosure	1.0	No hazards
Three blows	Left side enclosure	1.0	No hazards
Three blows	Bottom enclosure	1.0	No hazards
Three blows	Front enclosure	1.0	No hazards
Three blows	Rear enclosure	1.0	No hazards
Supplementary information:			

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Clause	Requirement + Test	Result - Remark	Verdict

24.1	TABLE: Critical components information				P
Object / part No.	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity[1)]**
Plastic enclosure	TEIJIN LIMITED RESIN AND PLASTIC	LN-1250G(#)(*)	V-0, 115°C, Min.thickness: 1.5mm	UL 94, IEC/EN 60335-1, IEC/EN 60335-2-29	UL Tested with appliance
(Alternative)	SABIC INNOVATIVE PLASTICS US L L C	940 (f1)	V-0, 120°C, Min.thickness: 1.5mm	UL 94, IEC/EN 60335-1, IEC/EN 60335-2-29	UL Tested with appliance
(Alternative)	SABIC INNOVATIVE PLASTICS B V	LTA6020(f1)	V-0, 125°C, Min.thickness: 1.5mm	UL 94, IEC/EN 60335-1, IEC/EN 60335-2-29	UL Tested with appliance
(Alternative)	TRINSEO (HONG KONG) LTD	EMERGE PC 8600(a)	V-0, 125°C, Min.thickness: 1.5mm	UL 94, IEC/EN 60335-1, IEC/EN 60335-2-29	UL Tested with appliance
AC Inlet	Zhe Jiang Bei Er Jia Electronic Co., Ltd.	ST-A03-005	2.5A, 250VAC, 70 °C. C8 type	IEC/EN60320-1, IEC/EN 60335-1, IEC/EN 60335-2-29	VDE Tested with appliance
(Alternative)	Dongguan HUACONN Electronics Co., Ltd	HC-88-05	2.5A, 250VAC, 70 °C. C8 type	IEC/EN60320-1, IEC/EN 60335-1, IEC/EN 60335-2-29	VDE Tested with appliance
(Alternative)	ZHEJIANG LECI ELECTRONICS CO LTD	DB-8	2.5A, 250VAC, 70 °C. C8 type	IEC/EN60320-1, IEC/EN 60335-1, IEC/EN 60335-2-29	VDE Tested with appliance
Internal wire (J15)	SHENZHEN HONGYA ELECTRONICS CO LTD	1672, 1015	VW-1, Min. 300V, 105°C, Min. 24AWG	UL 758	UL
(Alternative)	SHENZHEN MAKURAWAS TECHNOLOGY CO LTD	1015	VW-1, Min. 300V, 105°C, Min. 24AWG	UL 758	UL
(Alternative)	SHENZHEN COMLINK ELECTRONICS CO LTD	1672, 1015	VW-1, Min. 300V, 105°C, Min. 24AWG	UL 758	UL
Heat shrinkable tube for internal wire (J15) and output wire for models with rated output voltage 60.1V-73.0VDC	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD	RSFR, RSFR(CB), RSFR-135G, AMS, RSFR-H, RSFR-HPF	125°C, 300V, VW-1, Min. thickness 0.4mm	UL 224, IEC/EN 60335-1, IEC/EN 60335-2-29	UL Tested with appliance

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(Alternative)	CHANGYUAN ELECTRONICS GROUP CO LTD	CB-HFT	125°C, 300V, VW-1, Min. thickness 0.4mm	UL 224, IEC/EN 60335-1, IEC/EN 60335-2-29	UL Tested with appliance
(Alternative)	SHENZHEN WOLIDA TRADING CO LTD	RSFR (CB), RSFR-H	125°C, 300V, VW-1, Min. thickness 0.4mm	UL 224, IEC/EN 60335-1, IEC/EN 60335-2-29	UL Tested with appliance
(Alternative)	DONGGUAN SALIPT CO LTD	SALIPT S-901-300, SALIPT S-901-600, SALIPT S-HPT-600	125°C, 300V, VW-1, Min. Thickness 0.4mm	UL 224, IEC/EN 60335-1, IEC/EN 60335-2-29	UL Tested with appliance
PCB	SHENZHEN PINGTAI CIRCUIT BOARD CO LTD	PT-D	V-0, 130 °C	UL 94, UL 796, IEC/EN 60335-1, IEC/EN 60335-2-29	UL Tested with appliance
(Alternative)	SHANDONG JINBAO ELECTRONICS CO LTD	ZD-95(G)F	V-0, 130 °C	UL 94, UL 796, IEC/EN 60335-1, IEC/EN 60335-2-29	UL Tested with appliance
Fuse (F1)	Shenzhen Lanson Electronics Co. Ltd.	SMT	T5A L, 250VAC	IEC/EN 60127-1, IEC/EN 60127-3, UL 248-1, UL 248-14	VDE UL
(Alternative)	Conquer Electronics Co., Ltd.	MST	T5A L, 250VAC	IEC/EN 60127-1, IEC/EN 60127-3, UL 248-1, UL 248-14	VDE UL
(Alternative)	Ever Island Electric Co., Ltd. and Walter Electric	2010	T5A L, 250VAC	IEC/EN 60127-1, IEC/EN 60127-3, UL 248-1, UL 248-14	VDE UL
Inductor (FL1) (Optional)	SHENZHEN CHENG YEXIN ELECTRONIC TECHNOLOGY CO., LTD	T14×8×7	130°C	IEC/EN 60335-1, IEC/EN 60335-2-29	Tested with appliance
Inductor (FL2) (Optional)	SHENZHEN CHENG YEXIN ELECTRONIC TECHNOLOGY CO., LTD	T20×10×10	130°C	IEC/EN 60335-1, IEC/EN 60335-2-29	Tested with appliance
Inductor (L1) (Optional)	SHENZHEN CHENG YEXIN ELECTRONIC TECHNOLOGY CO., LTD	T68-26A	130°C	IEC/EN 60335-1, IEC/EN 60335-2-29	Tested with appliance
(Alternative)	SHENZHEN CHENG YEXIN ELECTRONIC TECHNOLOGY	T80-26	130°C	IEC/EN 60335-1, IEC/EN 60335-2-29	Tested with appliance

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Clause	Requirement + Test	Result - Remark	Verdict

	CO., LTD				
-Magnet wire used in FL1, FL2, L1	TAI-I ELECTRIC WIRE & CABLE CO LTD	UEW	130°C	UL 1446	UL
(Alternative)	SHANTOU SHENGANG ELECTRICAL INDUSTRIAL CO LTD	xUEW/130	130°C	UL 1446	UL
-Triple insulation wire used in FL1	Ta Ya Electric Wire & Cable Co Ltd	TILW-E	130°C	IEC/EN 60950-1; UL 2353	VDE UL
-(Alternative)	FURUKAWA ELECTRIC CO LTD	TEX-E	130°C	IEC/EN 60950-1; UL 2353	VDE UL
-Insulation tape of FL2	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	1350T-1 (b)	130°C	UL 510	UL
-(Alternative)	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	CT* (c)(g), CT* (b)(g)	130°C	UL 510	UL
X-capacitor (CX1) (Optional)	Europtronic (SuZhou) Co. Ltd.	MPX, MPX2	Max. 0.68uF, Min. 275VAC, 105°C, X2 type	IEC/EN/UL 60384-14	VDE UL
(Alternative)	Shantou High-New Technology Dev. Zone Songtian Enterprise Co., Ltd.	MPX	Max. 0.68uF, Min. 275VAC, 110°C, X2 type	IEC/EN/UL 60384-14	VDE UL
(Alternative)	Xiamen Faratronic Co. Ltd.	MKP62	Max. 0.68uF, Min. 275VAC, 110°C, X2 type	IEC/EN/UL 60384-14	VDE UL
(Alternative)	Dongguan City Jurcc Electronics Co Ltd	MPX	Max. 0.68uF, Min. 275VAC, 110°C, X2 type	IEC/EN/UL 60384-14	VDE UL
Bleed resistor (R1, R1A, R2, R2A)	Interchangeable	Interchangeable	1.0Mohm, Min. 1/4W for each	IEC/EN 60335-1, IEC/EN 60335-2-29	Tested with appliance
Current sensor resistor (R5)	Interchangeable	Interchangeable	0.1ohm, Min. 2W	C	Tested with appliance
Y-capacitor (CY1) (Optional)	Hsuan Tai Electronics Co Ltd	CY	Max. 2200pF, Min. 250VAC, 125°C, Y1 type	IEC/EN/UL 60384-14	VDE UL
(Alternative)	Shaanxi Huaxing Electronic Development Co. Ltd.	CT7Y1	Max. 2200pF, Min. 250VAC, 125°C, Y1 type	IEC/EN/UL 60384-14	VDE UL
(Alternative)	Dongguan City Dafu	CT7 Y1 Series	Max. 2200pF, Min. 250VAC,	IEC/EN/UL 60384-14	VDE UL

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	Electronics Co. Ltd.		125°C, Y1 type		
(Alternative)	Xiangtai Electronics (Shenzhen) Co., Ltd.	YO-series	Max. 2200pF, Min. 250VAC, 125°C, Y1 type	IEC/EN/UL 60384-14	VDE UL
(Alternative)	Shantou High-New Technology Developmnt Zone Songtian Enterprise Co Ltd	CD	Max. 2200pF, Min. 250VAC, 125°C, Y1 type	IEC/EN/UL 60384-14	VDE UL
(Alternative)	JYA-NAY CO., LTD	JN	Max. 2200pF, Min. 250VAC, 125°C, Y1 type	IEC/EN/UL 60384-14	VDE UL
Y-capacitor (CY2, CY3) (Optional)	SHAANXI HUAXING ELECTRONIC DEVELOPMENT CO LTD	CT7 Y1	Max. 2200pF, Min. 250VAC, 125°C, Y1 type	IEC/EN/UL 60384-14	VDE UL
(Alternative)	Dongguan City Dafu Electronics Co., Ltd.	CT7 Y1 Series	Max. 2200pF, Min. 250VAC, 125°C, Y1 type	IEC/EN/UL 60384-14	VDE UL
Alternative)	Shantou High-New Technology Dev. Zone Songtian Enterprise Co., Ltd.	CD	Max. 2200pF, Min. 250VAC, 125°C, Y1 type	IEC/EN/UL 60384-14	VDE UL
Alternative)	XIANGTAI ELECTRONIC (SHENZHEN) CO LTD(E319473)	YOF	Max. 2200pF, Min. 250VAC, 125°C, Y1 type	IEC/EN/UL 60384-14	VDE UL
(Alternative)	Hsuan Tai Electronic Co., Ltd.	CY	Max. 2200pF, Min. 250VAC, 125°C, Y1 type	IEC/EN/UL 60384-14	VDE UL
(Alternative)	JYA-NAY CO., LTD.	JN	Max. 2200pF, Min. 250VAC, 125°C, Y1 type	IEC/EN/UL 60384-14	VDE UL
Y-capacitor (CY4, CY5, CY6, CY7) (Optional)	Hsuan Tai Electronics Co Ltd	CY	Max. 1000pF, Min. 250VAC, 125°C, Y1 type	IEC/EN/UL 60384-14	VDE UL
(Alternative)	Shaanxi Huaxing Electronic Development Co. Ltd.	CT7Y1	Max. 1000pF, Min. 250VAC, 125°C, Y1 type	IEC/EN/UL 60384-14	VDE UL
(Alternative)	Dongguan City Dafu Electronics Co. Ltd.	CT7 Y1 Series	Max. 1000pF, Min. 250VAC, 125°C, Y1 type	IEC/EN/UL 60384-14	VDE UL
(Alternative)	Xiangtai Electronics (Shenzhen)	YO-series	Max. 1000pF, Min. 250VAC, 125°C, Y1 type	IEC/EN/UL 60384-14	VDE UL

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Clause	Requirement + Test		Result - Remark		Verdict

	Co., Ltd.				
(Alternative)	Shantou High-New Technology Developmnt Zone Songtian Enterprise Co Ltd	CD	Max. 1000pF, Min. 250VAC, 125°C, Y1 type	IEC/EN/UL 60384-14	VDE UL
(Alternative)	JYA-NAY CO., LTD	JN	Max. 1000pF, Min. 250VAC, 125°C, Y1 type	IEC/EN/UL 60384-14	VDE UL
Opto-coupler (U2)	Cosmo Electronics Corp	KP1010, K1010, KPC817	Reinforced insulation, Dti. ≥0.4mm, Ext. Cl ≥6.5mm, Ext. Cr≥6.5mm, 115°C	IEC/EN 60747-5-5, UL 1577	VDE UL
(Alternative)	Lite-On Technology Corp	LTV-817	Reinforced insulation, Dti. ≥0.4mm, Ext. Cl ≥7.0mm, Ext. Cr≥7.0mm, 115°C	IEC/EN 60747-5-5, UL 1577	VDE UL
(Alternative)	Everlight Electronics Co Ltd	EL817	Reinforced insulation, Dti. ≥0.5mm, Ext. Cl ≥7.6mm, Ext. Cr≥7.6mm, 110°C	IEC/EN 60747-5-5, UL 1577	VDE UL
(Alternative)	Bright Led Electronics Corp	BPC-817 (A; B; C; D; L), BPC-817S, BPC-817M	Reinforced insulation, Dti. ≥0.5mm, Ext. Cl ≥7.6mm, Ext. Cr≥7.6mm, 100°C	IEC/EN 60747-5-5, UL 1577	VDE UL
Transformer (T1) (For models with rated output voltage range 4.2-17.0VDC)	1. SHENZHEN XINDAHUI ELECTRONICS CO., LTD 2. HANG SING INDUSTRIAL CO., LTD 3. SHENZHEN NEO TECHNOLOGY CO., LTD 4. DONGGUAN CITY LINENG ELECTRONIC CO., LTD	TR-200-T1 XDH-E50-7575 E50 EE-50	Class B	IEC/EN 60335-1, IEC/EN 60335-2-29	Tested with appliance
Transformer (T1) (For models with rated output voltage range 17.1-32.0VDC)	1. SHENZHEN XINDAHUI ELECTRONICS CO., LTD 2. HANG SING INDUSTRIAL CO., LTD	TR-200-T2 XDH-E50-7575 E50 EE-50	Class B	IEC/EN 60335-1, IEC/EN 60335-2-29	Tested with appliance

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Clause	Requirement + Test		Result - Remark		Verdict
	3. SHENZHEN NEO TECHNOLOGY CO., LTD 4. DONGGUAN CITY LINENG ELECTRONIC CO., LTD				
Transformer (T1) (For models with rated output voltage range 32.1-58.8VDC)	1. SHENZHEN XINDAHUI ELECTRONICS CO., LTD 2. HANG SING INDUSTRIAL CO., LTD 3. SHENZHEN NEO TECHNOLOGY CO., LTD 4. DONGGUAN CITY LINENG ELECTRONIC CO., LTD	TR-200-T3 XDH-E50-7575 E50 EE-50	Class B	IEC/EN 60335-1, IEC/EN 60335-2-29	Tested with appliance
Transformer (T1) (For models with rated output voltage range 58.9-73.0VDC)	1. SHENZHEN XINDAHUI ELECTRONICS CO., LTD 2. HANG SING INDUSTRIAL CO., LTD 3. SHENZHEN NEO TECHNOLOGY CO., LTD 4. DONGGUAN CITY LINENG ELECTRONIC CO., LTD	TR-200-T4 XDH-E50-7575 E50 EE-50	Class B	IEC/EN 60335-1, IEC/EN 60335-2-29	Tested with appliance
-Bobbin of T1	SUMITOMO BAKELITE CO., LTD.	PM-9820	Phenolic, V-0, 150°C, min. 0.51mm thickness	UL 94, UL746	UL
-(Alternative)	CHANG CHUN PLASTICS CO., LTD.	T375J, T200NA	Phenolic, V-0, 150°C, min. 0.45mm thickness	UL 94, UL 746C	UL
-Magnet wire	TA YA ELECTRIC WIRE & CABLE CO LTD	LZ-UEWB	130°C	UL 1446	UL
-(Alternative)	DONG GUAN YIDA INDUSTRIAL CO LTD	xUEW/130, QA-x/130	130°C	UL 1446	UL
-Triple insulation wire of T1	Furukawa Electric Co., Ltd	TEX-E	Reinforced insulation, 130°C	IEC/EN 61558-1, IEC/EN 61558-2-16	VDE UL

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Clause	Requirement + Test	Result - Remark	Verdict

-(Alternative)	Totoku Electric Co. Ltd	TIW-2	Reinforced insulation, 130°C	IEC/EN 61558-1, IEC/EN 61558-2-16	VDE UL
-(Alternative)	GREAT LEOFLON INDUSTRIAL CO LTD	TRW(B)*	Reinforced insulation, 130°C	IEC/EN 61558-1, IEC/EN 61558-2-16	VDE UL
-(Alternative)	TOTOKU ELECTRIC CO LTD	TIW-2X$+, TIW-2XY$+	Reinforced insulation, 130°C	IEC/EN 61558-1, IEC/EN 61558-2-16	VDE UL
-Insulation tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO., LTD.	CT* (c)(g) , PZ* (b)	130°C	UL 510	UL
-(Alternative)	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	1350T-1 (b)	130°C	UL 510	UL
-Insulation tubing	GREAT HOLDING INDUSTRIAL CO LTD	TFT	Min.300V, Min.200°C. VW-1	UL 224	UL
-(Alternative)	CHANGYUAN ELECTRONICS GROUP CO LTD	CB-TT-T	Min.300V, Min.200°C.VW-1	UL 224	UL
-(Alternative)	ZEUS INDUSTRIAL PRODUCTS INC	TFE-HW-600, TFE-SW-600	VW-1, 200°C, 600V	UL 224	UL
Output wire (Only for models with rated output voltage ≤ 60VDC)	DONGGUAN MAGIC ELECTRICAL PRODUCTS CO LTD	1185, 2464	300V, 80°C, VW-1 or FT-1, Min. 20AWG	UL 224	UL
(Alternative)	SHENZHEN HONGYA ELECTRONICS CO LTD	2468, 1185, 2464	300V, 80°C, VW-1 or FT-1, Min. 20AWG	UL 758	UL
(Alternative)	DONGGUAN QIANGHUA ELECTRONIC TECHNOLOGY CO LTD	1185, 2464, 2468	300V, 80°C, VW-1 or FT-1, Min. 20AWG	UL 758	UL
(Alternative)	SHEN ZHEN HENG LI DE ELECTRICITY CO LTD	1185, 2464, 2468	300V, 80°C, VW-1 or FT-1, Min. 20AWG	UL 758	UL
(Alternative)	SHENZHEN DIANZHIZHOU ELECTRIC PRODUCTS CO LTD	1185, 2464, 2468	300V, 80°C, VW-1 or FT-1, Min. 20AWG	UL 758	UL
(Alternative)	HERWELL ELECTRIC WIRE CO LTD	SPT-1, SPT-2	300V, 105°C, VW-1 or FT-1, Min. 20AWG	UL 62	UL

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(Alternative)	NEW SQUARE CO LTD	SPT-1, SPT-2	300V, 105°C, VW-1 or FT-1, Min. 20AWG	UL 62	UL
Output wire (Only for models with rated output voltage 60.1V-73.0VDC)	Zhongshan Hongyun Electrical Appliance Co., Ltd.	H03VV-F, H03VVH2-F, H05VV-F, H05VVH2-F	Rated 300V, Min. 2 x 0.75mm²	EN 50525-2-11	VDE
(Alternative)	Ching Cheng Wire Material Co., Ltd.	H03VV-F, H03VVH2-F, H05VV-F, H05VVH2-F	Rated 300V, Min. 2 x 0.75mm²	EN 50525-2-11	VDE
(Alternative)	Dongguan Yuxin Wire & Cable Co., Ltd.	H03VV-F, H03VVH2-F, H05VV-F, H05VVH2-F	Rated 300V, Min. 2 x 0.75mm²	EN 50525-2-11	VDE
(Alternative)	Awin Wire & Cable Co., Ltd.	H03VV-F, H03VVH2-F, H05VV-F, H05VVH2-F	Rated 300V, Min. 2 x 0.75mm²	EN 50525-2-11	VDE
(Alternative)	Chao Hui Electrical Appliance Co., Ltd.	H03VV-F, H03VVH2-F, H05VV-F, H05VVH2-F	Rated 300V, Min. 2 x 0.75mm²	EN 50525-2-11	VDE
(Alternative)	Interchangeable	H03VV-F, H03VVH2-F, H05VV-F, H05VVH2-F	Rated 300V, Min. 2 x 0.7mm²	EN 50525-2-11	VDE
Plastic of output terminal	SABIC INNOVATIVE PLASTICS US L L C	940(f1)	PC, V-0, 120°C, Min. thickness 1.5mm	UL 94	UL Tested with appliance

Supplementary information:
1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.

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

29.1/29.2	TABLE: Clearance And Creepage Distance Measurements					P
clearance cl and creepage distance dcr at/of:	**Up (V)**	**U r.m.s. (V)**	**Required cl (mm)**	**cl (mm)**	**required dcr (mm)**	**dcr (mm)**
L to N before F1 (F)	<420	240	2.0	2.7	2.0	2.7
Across fuse F1 (F)	<420	240	2.0	2.7	2.0	2.7
L to middle trace (B)	<420	240	2.0	3.5	2.6	3.5
N to middle trace (B)	<420	240	2.0	2.7	2.6	2.7
CY4 two terminals (B)	<420	240	2.0	3.0	2.6	3.0

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Clause	Requirement + Test			Result - Remark		Verdict
CY5 two terminals (B)	<420	240	2.0	3.0	2.6	3.0
CY6 two terminals (B)	<420	240	2.0	2.6	2.6	2.6
CY7 two terminals (B)	<420	240	2.0	2.6	2.6	2.6
CY2 two terminals (B) (When CY2+CY3 used)	<420	240	2.0	3.9	2.6	3.9
CY3 two terminals (B) (When CY2+CY3 used)	<420	240	2.0	3.9	2.6	3.9
Live parts (HS1) in primary circuit to outer surface (R)	<420	240	3.5	5.6	5.0	5.6
Primary heat sink to secondary heat sink (R)	<420	240	3.5	8.0	5.0	8.0
CY1 two terminals (R) (When CY1 used)	596	247	3.5	5.6	5.0	5.6
U2 pri. pin and sec. pin (R)	596	247	3.5	6.6	5.0	6.6
Primary winding & primary pin of T1 and secondary pin of T1 (R)	596	247	3.5	5.5	5.0	5.5
Core of T1 and secondary pin of T1 (R)	596	247	3.5	5.5	5.0	5.5
Core of T1 and sec. components (CY3 sec. pin) (R)	596	247	3.5	6.0	5.0	6.0
Pri. and sec. tracks except CY1 and U2 (R) (When CY1 used)	596	247	3.5	8.2	5.0	8.2
Primary winding to secondary components C13(R)	596	247	3.5	8.5	5.0	8.5
Output terminal contact to accessible surface (For models with rated output voltage 42.0-73.0VDC)	210	73.2	3.5	5.5	2.6	5.5
Supplementary information: RI: Reinforced insulation; BI: Basic insulation; SI: Supplementary Insulation. The equipment was evaluated for a maximum operating altitude of 5000m. Therefore the requirements of IEC 60664-1 table A.2 for clearances were considered and the required clearance was multiplied with an altitude correction factor of 1.48. #: means all types of tranformer listed in table 24.1 were considered.						

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Clause	Requirement + Test	Result - Remark	Verdict

29.3	TABLE: Distance Through Insulation Measurements				P
Distance through insulation di at/of:		**U r.m.s. (V)**	**Test voltage (V)**	**Required di (mm)**	**di (mm)**
Enclosure		247	3000	2.0	Min. 2.0
Supplementary information:					

30.1	TABLE: Ball Pressure Test of Thermoplastics			P
Allowed impression diameter (mm) .....:		< 2mm		—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
Enclosure/LN-1250G(#)(*)	TEIJIN LIMITED RESIN AND PLASTIC	125	1.2	
Enclosure/940(f1)	SABIC INNOVATIVE PLASTICS US L L C	125	1.2	
Enclosure/LTA6020(f1)	SABIC INNOVATIVE PLASTICS B V	125	1.2	
Enclosure/ EMERGE PC 8600(a)	TRINSEO (HONG KONG) LTD	125	1.2	
Transformer bobbin/ PM-9820	SUMITOMO BAKELITE CO LTD	125	1.0	
Transformer bobbin/ T375J	CHANG CHUN PLASTICS CO LTD	125	1.0	
Transformer bobbin/ T200NA	CHANG CHUN PLASTICS CO LTD	125	1.0	
Supplementary information:				

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Clause	Requirement + Test	Result - Remark	Verdict

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**	
			t_e (s)	**t_i (s)**	**t_e (s)**	**t_i (s)**		
Enclosure	See table 24.1	Pass	--	--	No flame	No flame	Pass	Pass
T1 bobbin	See table 24.1	--	--	--	No flame	No flame	Pass	Pass
Material of output connector	See table 24.1	--	--	--	0	0	Pass	Pass

Object/ Part No./ Material	**Manufacturer / trademark**	**Glow-wire flammability index (GWFI), °C**				**GW ignition temp. (GWIT), °C**		**Verdict**
		550	**650**	**750**	**850**	**675**	**775**	
--	--	--	--	--	--	--	--	--

The test specimen passed the glow wire test (GWT) with no ignition [(t_e – t_i) ≤ 2s] (Yes/No) :	Yes
If no, then surrounding parts passed the needle-flame test of annex E (Yes/No)..... :	No
The test specimen passed the test by virtue of most of the flaming material being withdrawn with the glow-wire (Yes/No)?.....:	Yes
Ignition of the specified layer placed underneath the test specimen (Yes/No).....:	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.

30.2/30.2.4	TABLE: Needle- flame test (NFT)				P
Object/ Part No./ Material	**Manufacturer/ trademark**	**Duration of application of test flame (t_a); (s)**	**Ignition of specified layer Yes/No**	**Duration of burning (t_b); (s)**	**Verdict**
PCB / PT-D	See table 24.1	30	No	0	Pass
PCB / ZD-95(G)F	See table 24.1	30	No	0	Pass

Supplementary information:

NFT not relevant (or applicable) for Parts of material classified as V-0 or V-1
NFT not relevant (or applicable) for Base material of PCBs classified as V-0 or if relevant VTM-0

---END---

Model No.	Rated output voltage (VDC)	Rated output current (A)	Max. Rated output power (W)	Transformer
XSEC042yyyy, XSG042yyyy, XSE042yyyy, XSEC042yyyyzz, XSE042yyyyzz, XSG042yyyyzz, XSEC042yyyyy, XSG042yyyyy, XSE042yyyyy, XSEC042yyyyyzz, XSE042yyyyyzz, XSG042yyyyyzz	4.2	0.3-10A	42.0	TR-200-T1
XSEC050yyyy, XSG050yyyy, XSE050yyyy, XSEC050yyyyzz, XSE050yyyyzz, XSG050yyyyzz XSEC050yyyyy, XSG050yyyyy, XSE050yyyyy, XSEC050yyyyyzz, XSE050yyyyyzz, XSG050yyyyyzz	5.0	0.3-10A	50.0	
XSEC073yyyy, XSG073yyyy, XSE073yyyy, XSEC073yyyyzz, XSE073yyyyzz, XSG073yyyyzz, XSEC073yyyyy, XSG073yyyyy, XSE073yyyyy, XSEC073yyyyyzz, XSE073yyyyyzz, XSG073yyyyyzz	7.3	0.3-10A	73.0	
XSEC084yyyy, XSG084yyyy, XSE084yyyy, XSEC084yyyyzz, XSE084yyyyzz, XSG084yyyyzz XSEC084yyyyy, XSG084yyyyy, XSE084yyyyy, XSEC084yyyyyzz, XSE084yyyyyzz, XSG084yyyyyzz	8.4	0.3-10A	84.0	
XSEC110yyyy, XSG110yyyy, XSE110yyyy, XSEC110yyyyzz, XSE110yyyyzz, XSG110yyyyzz XSEC110yyyyy, XSG110yyyyy, XSE110yyyyy, XSEC110yyyyyzz, XSE110yyyyyzz, XSG110yyyyyzz	11.0	0.3-11A	121.0	
XSEC126yyyy, XSG126yyyy, XSE126yyyy, XSEC126yyyyzz, XSE126yyyyzz, XSG126yyyyzz XSEC126yyyyy, XSG126yyyyy, XSE126yyyyy, XSEC126yyyyyzz, XSE126yyyyyzz, XSG126yyyyyzz	12.6	0.3-11A	138.6	
XSEC138yyyy, XSG138yyyy, XSE138yyyy, XSEC138yyyyzz, XSE138yyyyzz, XSG138yyyyzz XSEC138yyyyy, XSG138yyyyy, XSE138yyyyy, XSEC138yyyyyzz, XSE138yyyyyzz, XSG138yyyyyzz	13.8	0.3-11A	151.8	
XSEC146yyyy, XSG146yyyy, XSE146yyyy, XSEC146yyyyzz, XSE146yyyyzz, XSG146yyyyzz XSEC146yyyyy, XSG146yyyyy, XSE146yyyyy, XSEC146yyyyyzz, XSE146yyyyyzz, XSG146yyyyyzz	14.6	0.3-11A	160.6	
XSEC150yyyy, XSG150yyyy, XSE150yyyy, XSEC150yyyyzz, XSE150yyyyzz, XSG150yyyyzz XSEC150yyyyy, XSG150yyyyy, XSE150yyyyy, XSEC150yyyyyzz, XSE150yyyyyzz, XSG150yyyyyzz	15.0	0.3-10A	150.0	

XSEC168yyyyy, XSG168yyyyy, XSE168yyyyy, XSEC168yyyyyzz, XSE168yyyyyzz, XSG168yyyyyzz XSEC168yyyyy, XSG168yyyyy, XSE168yyyyy, XSEC168yyyyyzz, XSE168yyyyyzz, XSG168yyyyyzz	16.8	0.3-10A	168.0	
XSEC170yyyy, XSG170yyyy, XSE170yyyy, XSEC170yyyyzz, XSE170yyyyzz, XSG170yyyyzz XSEC170yyyyy, XSG170yyyyy, XSE170yyyyy, XSEC170yyyyyzz, XSE170yyyyyzz, XSG170yyyyyzz	17.0	0.3-10A	170.0	
XSEC183yyyy, XSG183yyyy, XSE183yyyy, XSEC183yyyyzz, XSE183yyyyzz, XSG183yyyyzz XSEC183yyyyy, XSG183yyyyy, XSE183yyyyy, XSEC183yyyyyzz, XSE183yyyyyzz, XSG183yyyyyzz	18.3	0.3-10A	183.0	TR-200-T2
XSEC210yyyy, XSG210yyyy, XSE210yyyy, XSEC210yyyyzz, XSE210yyyyzz, XSG210yyyyzz	21.0	0.3-9.5A	199.5	
XSEC220yyyy, XSG220yyyy, XSE220yyyy, XSEC220yyyyzz, XSE220yyyyzz, XSG220yyyyzz	22.0	0.3-9.0A	198.0	
XSEC225yyyy, XSG225yyyy, XSE225yyyy, XSEC225yyyyzz, XSE225yyyyzz, XSG225yyyyzz	22.5	0.3-9.0A	202.5	
XSEC252yyyy, XSG252yyyy, XSE252yyyy, XSEC252yyyyzz, XSE252yyyyzz, XSG252yyyyzz	25.2	0.3-8.5A	214.2	
XSEC255yyyy, XSG255yyyy, XSE255yyyy, XSEC255yyyyzz, XSE255yyyyzz, XSG255yyyyzz	25.5	0.3-8.0A	204.0	
XSEC280yyyy, XSG280yyyy, XSE280yyyy, XSEC280yyyyzz, XSE280yyyyzz, XSG280yyyyzz	28.0	0.3-7.4A	207.2	
XSEC290yyyy, XSG290yyyy, XSE290yyyy, XSEC290yyyyzz, XSE290yyyyzz, XSG290yyyyzz	29.0	0.3-7.0A	203.0	
XSEC292yyyy, XSG292yyyy, XSE292yyyy, XSEC292yyyyzz, XSE292yyyyzz, XSG292yyyyzz	29.2	0.3-7.0A	204.4	
XSEC294yyyy, XSG294yyyy, XSE294yyyy, XSEC294yyyyzz, XSE294yyyyzz, XSG294yyyyzz	29.4	0.3-7.0A	205.8	
XSEC300yyyy, XSG300yyyy, XSE300yyyy, XSEC300yyyyzz, XSE300yyyyzz, XSG300yyyyzz	30.0	0.3-7.0A	210.0	
XSEC328yyyy, XSG328yyyy, XSE328yyyy, XSEC328yyyyzz, XSE328yyyyzz, XSG328yyyyzz	32.8	0.3-6.4A	209.9	TR-200-T3
XSEC336yyyy, XSG336yyyy, XSE336yyyy, XSEC336yyyyzz, XSE336yyyyzz, XSG336yyyyzz	33.6	0.3-6.2A	208.3	
XSEC365yyyy, XSG365yyyy, XSE365yyyy, XSEC365yyyyzz,	36.5	0.3-6.0A	219.0	

XSE365yyyyzz, XSG365yyyyzz				
XSEC378yyyy, XSG378yyyy, XSE378yyyy, XSEC378yyyyzz, XSE378yyyyzz, XSG378yyyyzz	37.8	0.3-5.5A	207.9	
XSEC402yyyy, XSG402yyyy, XSE402yyyy, XSEC402yyyyzz, XSE402yyyyzz, XSG402yyyyzz	40.2	0.3-5.0A	202.5	
XSEC420yyyy, XSG420yyyy, XSE420yyyy, XSEC420yyyyzz, XSE420yyyyzz, XSG420yyyyzz	42.0	0.3-5.0A	210.0	
XSEC438yyyy, XSG438yyyy, XSE438yyyy, XSEC438yyyyzz, XSE438yyyyzz, XSG438yyyyzz	43.8	0.3-4.7A	205.9	
XSEC462yyyy, XSG462yyyy, XSE462yyyy, XSEC462yyyyzz, XSE462yyyyzz, XSG462yyyyzz	46.2	0.3-4.5A	207.9	
XSEC475yyyy, XSG475yyyy, XSE475yyyy, XSEC475yyyyzz, XSE475yyyyzz, XSG475yyyyzz	47.5	0.3-4.3A	204.3	
XSEC504yyyy, XSG504yyyy, XSE504yyyy, XSEC504yyyyzz, XSE504yyyyzz, XSG504yyyyzz	50.4	0.3-4.0A	201.6	
XSEC510yyyy, XSG510yyyy, XSE510yyyy, XSEC510yyyyzz, XSE510yyyyzz, XSG510yyyyzz	51.0	0.3-4.0A	204.0	
XSEC511yyyy, XSG511yyyy, XSE511yyyy, XSEC511yyyyzz, XSE511yyyyzz, XSG511yyyyzz	51.1	0.3-4.0A	204.0	
XSEC522yyyy, XSG522yyyy, XSE522yyyy, XSEC522yyyyzz, XSE522yyyyzz, XSG522yyyyzz	52.2	0.3-3.9A	203.6	
XSEC546yyyy, XSG546yyyy, XSE546yyyy, XSEC546yyyyzz, XSE546yyyyzz, XSG546yyyyzz	54.6	0.3-3.8A	207.5	
XSEC548yyyy, XSG548yyyy, XSE548yyyy, XSEC548yyyyzz, XSE548yyyyzz, XSG548yyyyzz	54.8	0.3-3.75A	205.5	
XSEC584yyyy, XSG584yyyy, XSE584yyyy, XSEC584yyyyzz, XSE584yyyyzz, XSG584yyyyzz	58.4	0.3-3.6A	210.2	
XSEC588yyyy, XSG588yyyy, XSE588yyyy, XSEC588yyyyzz, XSE588yyyyzz, XSG588yyyyzz	58.8	0.3-3.5A	205.8	
XSEC620yyyy, XSG620yyyy, XSE620yyyy, XSEC620yyyyzz, XSE620yyyyzz, XSG620yyyyzz	62.0	0.3-3.3A	204.6	TR-200-T4
XSEC630yyyy, XSG630yyyy, XSE630yyyy, XSEC630yyyyzz, XSE630yyyyzz, XSG630yyyyzz	63.0	0.3-3.2A	201.6	
XSEC657yyyy, XSG657yyyy, XSE657yyyy, XSEC657yyyyzz, XSE657yyyyzz, XSG657yyyyzz	65.7	0.3-3.1A	203.7	
XSEC672yyyy, XSG672yyyy, XSE672yyyy, XSEC672yyyyzz, XSE672yyyyzz, XSG672yyyyzz	67.2	0.3-3.0A	201.6	
XSEC694yyyy, XSG694yyyy,	69.4	0.3-2.9A	201.3	

XSE694yyyy, XSEC694yyyyzz, XSE694yyyyzz, XSG694yyyyzz				
XSEC714yyyy, XSG714yyyy, XSE714yyyy, XSEC714yyyyzz, XSE714yyyyzz, XSG714yyyyzz	71.4	0.3-2.75A	196.35	
XSEC730yyyy, XSG730yyyy, XSE730yyyy, XSEC730yyyyzz, XSE730yyyyzz, XSG730yyyyzz	73.0	0.3-2.75A	200.75	

Note:

yyyy=0300-9999, which denotes the rated output current from 300mA to 9999mA;

yyyyy=10000-11000, which denotes the rated output current from 10000mA to 11000mA;

zz=AA-ZZ, It can be two uppercase English letters, which denotes for marketing purpose and not affect safety.

Model	Category of rechargeable battery	Number of cells in series and parallel	Max. Battery pack capacity
XSEC042yyyy, XSG042yyyy, XSE042yyyy, XSEC042yyyyzz, XSE042yyyyzz, XSG042yyyyzz XSEC042yyyyy, XSG042yyyyy, XSE042yyyyy, XSEC042yyyyyzz, XSE042yyyyyzz, XSG042yyyyyzz	3.7V Li-ion battery pack	1S30P	3.7V,78Ah
XSEC050yyyy, XSG050yyyy, XSE050yyyy, XSEC050yyyyzz, XSE050yyyyzz, XSG050yyyyzz XSEC050yyyyy, XSG050yyyyy, XSE050yyyyy, XSEC050yyyyyzz, XSE050yyyyyzz, XSG050yyyyyzz	3.7V Li-ion battery pack	1S30P	3.7V,78Ah
XSEC073yyyy, XSG073yyyy, XSE073yyyy, XSEC073yyyyzz, XSE073yyyyzz, XSG073yyyyzz XSEC073yyyyy, XSG073yyyyy, XSE073yyyyy, XSEC073yyyyyzz, XSE073yyyyyzz, XSG073yyyyyzz	6.4V LifePO4 battery pack	2S25P	6.4V,70Ah
	6V Lead-acid battery pack	1S4P	6V,88Ah
XSEC084yyyy, XSG084yyyy, XSE084yyyy, XSEC084yyyyzz, XSE084yyyyzz, XSG084yyyyzz XSEC084yyyyy, XSG084yyyyy, XSE084yyyyy, XSEC084yyyyyzz, XSE084yyyyyzz, XSG084yyyyyzz	7.4V Li-ion battery pack	2S25P	7.4V,65Ah
XSEC110yyyy, XSG110yyyy, XSE110yyyy, XSEC110yyyyzz, XSE110yyyyzz, XSG110yyyyzz XSEC110yyyyy, XSG110yyyyy, XSE110yyyyy, XSEC110yyyyyzz, XSE110yyyyyzz, XSG110yyyyyzz	9.6V LifePO4 battery pack	3S25P	9.6V,70Ah
XSEC126yyyy, XSG126yyyy, XSE126yyyy, XSEC126yyyyzz, XSE126yyyyzz, XSG126yyyyzz XSEC126yyyyy, XSG126yyyyy, XSE126yyyyy, XSEC126yyyyyzz, XSE126yyyyyzz, XSG126yyyyyzz	11.1V Li-ion battery pack	3S30P	11.1V,78Ah
XSEC138yyyy, XSG138yyyy, XSE138yyyy, XSEC138yyyyzz, XSE138yyyyzz, XSG138yyyyzz XSEC138yyyyy, XSG138yyyyy, XSE138yyyyy, XSEC138yyyyyzz, XSE138yyyyyzz, XSG138yyyyyzz	12V Lead-Acid battery pack	2S4P	12V,88Ah
XSEC146yyyy, XSG146yyyy, XSE146yyyy, XSEC146yyyyzz, XSE146yyyyzz, XSG146yyyyzz XSEC146yyyyy, XSG146yyyyy, XSE146yyyyy, XSEC146yyyyyzz, XSE146yyyyyzz, XSG146yyyyyzz	12V Lead-Acid battery pack	2S4P	12V,88Ah
	12.8V LifePO4 battery pack	4S30P	12.8V84Ah
XSEC150yyyy, XSG150yyyy, XSE150yyyy, XSEC150yyyyzz, XSE150yyyyzz, XSG150yyyyzz XSEC150yyyyy, XSG150yyyyy, XSE150yyyyy, XSEC150yyyyyzz, XSE150yyyyyzz, XSG150yyyyyzz	12V Lead-Acid battery pack	2S4P	12V,88Ah

XSEC168yyyyy, XSG168yyyyy, XSE168yyyyy, XSEC168yyyyyzz, XSE168yyyyyzz, XSG168yyyyyzz XSEC168yyyyy, XSG168yyyyy, XSE168yyyyy, XSEC168yyyyyzz, XSE168yyyyyzz, XSG168yyyyyzz	14.8V Li-ion battery pack	4S30P	14.8V,78Ah
XSEC170yyyy, XSG170yyyy, XSE170yyyy, XSEC170yyyyzz, XSE170yyyyzz, XSG170yyyyzz XSEC170yyyyy, XSG170yyyyy, XSE170yyyyy, XSEC170yyyyyzz, XSE170yyyyyzz, XSG170yyyyyzz	14.8V Li-ion battery pack	4S30P	14.8V,78Ah
XSEC183yyyy, XSG183yyyy, XSE183yyyy, XSEC183yyyyzz, XSE183yyyyzz, XSG183yyyyzz XSEC183yyyyy, XSG183yyyyy, XSE183yyyyy, XSEC183yyyyyzz, XSE183yyyyyzz, XSG183yyyyyzz	16V LifePO4 battery pack	5S25P	16V , 70Ah
XSEC210yyyy, XSG210yyyy, XSE210yyyy, XSEC210yyyyzz, XSE210yyyyzz, XSG210yyyyzz	18.5V Li-ion battery pack	5S25P	18.5V, 65Ah
XSEC220yyyy, XSG220yyyy, XSE220yyyy, XSEC220yyyyzz, XSE220yyyyzz, XSG220yyyyzz	19.2V LifePO4 battery pack	6S25P	19.2V, 70Ah
XSEC225yyyy, XSG225yyyy, XSE225yyyy, XSEC225yyyyzz, XSE225yyyyzz, XSG225yyyyzz	19.2V LifePO4 battery pack	6S25P	19.2V, 70Ah
XSEC252yyyy, XSG252yyyy, XSE252yyyy, XSEC252yyyyzz, XSE252yyyyzz, XSG252yyyyzz	22.2V Li-ion battery pack	6S25P	22.2V, 65Ah
XSEC255yyyy, XSG255yyyy, XSE255yyyy, XSEC255yyyyzz, XSE255yyyyzz, XSG255yyyyzz	22.4V LifePO4 battery pack	7S25P	22.4V70Ah
XSEC280yyyy, XSG280yyyy, XSE280yyyy, XSEC280yyyyzz, XSE280yyyyzz, XSG280yyyyzz	24V Lead-acid battery pack	4S3P	24V 66Ah
XSEC290yyyy, XSG290yyyy, XSE290yyyy, XSEC290yyyyzz, XSE290yyyyzz, XSG290yyyyzz	24V Lead-acid battery pack	4S3P	24V 66Ah
XSEC292yyyy, XSG292yyyy, XSE292yyyy, XSEC292yyyyzz, XSE292yyyyzz, XSG292yyyyzz	25.6V LifePO4 battery pack	8S23P	25.6V 64.4Ah
	24V Lead-acid battery pack	4S3P	24V 66Ah
	25.9V Li-ion battery pack	7S21P	25.9V 54.6Ah
XSEC294yyyy, XSG294yyyy, XSE294yyyy, XSEC294yyyyzz, XSE294yyyyzz, XSG294yyyyzz	25.9V Li-ion battery pack	7S25P	25.9V 65Ah
XSEC300yyyy, XSG300yyyy, XSE300yyyy, XSEC300yyyyzz, XSE300yyyyzz, XSG300yyyyzz	25.9V Li-ion battery pack	7S25P	25.9V 65Ah
XSEC328yyyy, XSG328yyyy, XSE328yyyy, XSEC328yyyyzz, XSE328yyyyzz, XSG328yyyyzz	28.8V LifePO4 battery pack	9S21P	28.8V 58.8Ah
XSEC336yyyy, XSG336yyyy, XSE336yyyy, XSEC336yyyyzz, XSE336yyyyzz, XSG336yyyyzz	29.6V Li-ion battery pack	8S21P	29.6V 54.6Ah
XSEC365yyyy, XSG365yyyy, XSE365yyyy, XSEC365yyyyzz,	32V LifePO4 battery pack	10S20P	32V56Ah

XSE365yyyyzz, XSG365yyyyzz			
XSEC378yyyy, XSG378yyyy, XSE378yyyy, XSEC378yyyyzz, XSE378yyyyzz, XSG378yyyyzz	33.3V Li-ion battery pack	9S20P	33.3V 52Ah
XSEC402yyyy, XSG402yyyy, XSE402yyyy, XSEC402yyyyzz, XSE402yyyyzz, XSG402yyyyzz	35.2V LifePO4 battery pack	11S16P	35.2V44.8Ah
XSEC420yyyy, XSG420yyyy, XSE420yyyy, XSEC420yyyyzz, XSE420yyyyzz, XSG420yyyyzz	37V Li-ion battery pack	10S16P	37V41.6Ah
XSEC438yyyy, XSG438yyyy, XSE438yyyy, XSEC438yyyyzz, XSE438yyyyzz, XSG438yyyyzz	38.4V LifePO4 battery pack	12S15P	38.4V42Ah
	36V Lead-acid battery pack	6S2P	36V 44Ah
XSEC462yyyy, XSG462yyyy, XSE462yyyy, XSEC462yyyyzz, XSE462yyyyzz, XSG462yyyyzz	40.7V Li-ion battery pack	11S13P	40.7V33.8Ah
XSEC475yyyy, XSG475yyyy, XSE475yyyy, XSEC475yyyyzz, XSE475yyyyzz, XSG475yyyyzz	41.6V LifePO4 battery pack	13S12P	41.6V33.6Ah
XSEC504yyyy, XSG504yyyy, XSE504yyyy, XSEC504yyyyzz, XSE504yyyyzz, XSG504yyyyzz	44.4V Li-ion battery pack	12S12P	44.4V31.2Ah
XSEC510yyyy, XSG510yyyy, XSE510yyyy, XSEC510yyyyzz, XSE510yyyyzz, XSG510yyyyzz	44.8V LifePO4 battery pack	14S10P	44.8V28Ah
XSEC511yyyy, XSG511yyyy, XSE511yyyy, XSEC511yyyyzz, XSE511yyyyzz, XSG511yyyyzz	44.8V LifePO4 battery pack	14S10P	44.8V28Ah
XSEC522yyyy, XSG522yyyy, XSE522yyyy, XSEC522yyyyzz, XSE522yyyyzz, XSG522yyyyzz	44.4V Li-ion battery pack	12S12P	44.4V31.2Ah
XSEC546yyyy, XSG546yyyy, XSE546yyyy, XSEC546yyyyzz, XSE546yyyyzz, XSG546yyyyzz	48.1V Li-ion battery pack	13S12P	48.1V31.2Ah
XSEC548yyyy, XSG548yyyy, XSE548yyyy, XSEC548yyyyzz, XSE548yyyyzz, XSG548yyyyzz	48V LifePO4 battery pack	15S10P	48V28Ah
XSEC584yyyy, XSG584yyyy, XSE584yyyy, XSEC584yyyyzz, XSE584yyyyzz, XSG584yyyyzz	48V Lead-acid battery pack	8S2P	48V 44Ah
	51.2V LifePO4 battery pack	16S8P	51.2V22.4Ah
XSEC588yyyy, XSG588yyyy, XSE588yyyy, XSEC588yyyyzz, XSE588yyyyzz, XSG588yyyyzz	51.8V Li-ion battery pack	14S10P	51.8V26Ah
XSEC620yyyy, XSG620yyyy, XSE620yyyy, XSEC620yyyyzz, XSE620yyyyzz, XSG620yyyyzz	54.4V LifePO4 battery pack	17S8P	54.4V22.4Ah
XSEC630yyyy, XSG630yyyy, XSE630yyyy, XSEC630yyyyzz, XSE630yyyyzz, XSG630yyyyzz	55.5V Li-ion battery pack	15S8P	55.5V20.8Ah
XSEC657yyyy, XSG657yyyy, XSE657yyyy, XSEC657yyyyzz, XSE657yyyyzz, XSG657yyyyzz	57.6V LifePO4 battery pack	18S8P	57.6V22.4Ah
	54V Lead-acid battery pack	9S2P	54V 44Ah
XSEC672yyyy, XSG672yyyy, XSE672yyyy, XSEC672yyyyzz, XSE672yyyyzz, XSG672yyyyzz	59.2V Li-ion battery pack	16S8P	59.2V20.8Ah
XSEC694yyyy, XSG694yyyy,	60.8V LifePO4 battery pack	19S8P	60.8V22.4Ah

XSE694yyyy, XSEC694yyyyzz, XSE694yyyyzz, XSG694yyyyzz			
XSEC714yyyy, XSG714yyyy, XSE714yyyy, XSEC714yyyyzz, XSE714yyyyzz, XSG714yyyyzz	62.9V Li-ion battery pack	17S8P	62.9V20.8Ah
XSEC730yyyy, XSG730yyyy, XSE730yyyy, XSEC730yyyyzz, XSE730yyyyzz, XSG730yyyyzz	60V Lead-acid battery pack	10S2P	60V 44Ah
	64V LifePO4 battery pack	20S8P	64V22.4Ah

Note:

yyyy=0300-9999, which denotes the rated output current from 300mA to 9999mA;

yyyyy=10000-11000, which denotes the rated output current from 10000mA to 11000mA;

zz=AA-ZZ, It can be two uppercase English letters, which denotes for marketing purpose and not affect safety.

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

ATTACHMENT TO TEST REPORT
IEC 60335-2-29
(AUSTRALIA/NEW ZEALAND) NATIONAL DIFFERENCES
(Household and similar electrical appliances – Safety –
Part 2-29: Particular requirements for battery chargers)

Differences according to.....:	AS/NZS 60335.2.29:2017+ A1:2020 AS/NZS 60335.1:2020 AS/NZS 60335.1:2011+ A1:2012 + A2:2014 + A3:2015 + A4:2017
TRF template used:.....:	IECEE OD-2020-F3, Ed. 1.1
Attachment Form No..... :	AU_NZ_ND_IEC60335_2_29M
Attachment Originator.....:	NZ Electrotechnical Committee/Standards New Zealand
Master Attachment..... :	Date 2021-03-31

	National Differences		-
3	**TERMS AND DEFINITIONS**		-
	Insert the following definition:		N/A
AZ.3.1.201	Outlet load (AS/NZS 60335.1:2020)		N/A
	maximum allowed load that may be connected to appliance outlets and socket outlets accessible to the user (AS/NZS 60335.1:2020)		N/A
	Note to entry 1 A USB outlet is not considered to be an appliance outlet (AS/NZS 60335.1:2020)		N/A
5	**GENERAL CONDITIONS FOR THE TESTS**		-
5.2	Insert the following variation:		N/A
	If the tests of AZ.22.201 need to be performed they are carried out on separate appliances, the number of appliances is that required by AS/NZS 3112. (AS/NZS 60335.1:2020)		N/A
5.8.1	Replace the test condition by the following variation:		P
	Appliances for a.c. only are tested with a.c. at 50 Hz, and those for a.c. and d.c. are tested at a.c. 50 Hz or d.c., whichever is the more unfavourable supply. (AS/NZS 60335.1:2020)		P
7	**MARKING AND INSTRUCTIONS**		P
7.1	After the first paragraph of the requirement insert the following variation:		N/A
	Battery chargers shall be marked with the types of battery that are intended to be charged by the battery charger. (AS/NZS 60335.2.29:2017/A1:2020)		P
	For appliance outlets and socket outlets accessible to the user that are incorporated in appliances connected to the supply mains; and		N/A
	- that operate at rated voltage;		N/A
	the appliances shall be marked with their maximum outlet load in Watts. (AS/NZS 60335.1:2020)		N/A
	Max. Outlet load (W)……:		N/A
7.13	Replace the requirement with the following variation:		P
	Instructions and other text required by this standard are written in English. (AS/NZS 60335.1:2020)		P
7.14	Insert the following variation:		N/A

IEC 60335-2-29 ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	The marking concerning the types of battery that are intended to be charged by the battery charger shall be visible when the battery charger is being used, as in normal use. The lettering shall have a height of not less than 3 mm. (AS/NZS 60335.2.29:2017/A1:2020)		P
	Height of lettering (mm)……:		N/A
7.15	After the last paragraph of the requirement insert the following variation:		N/A
	The marking of the maximum outlet load shall be close to the appliance outlet or socket outlet. (AS/NZS 60335.1:2020)		N/A
10	**POWER INPUT AND CURRENT**		N/A
10.1	After the last paragraph of the test specification insert the following variation:		N/A
	Appliance outlets and socket outlets accessible to the user that are incorporated in appliances connected to the supply mains; and		N/A
	that operate at rated voltage;		N/A
	are not loaded during the test, however their contribution to the power input is considered to be the marked outlet load per appliance outlet or socket-outlet. (AS/NZS 60335.1:2020)		N/A
11	**HEATING**		N/A
11.7	After the first paragraph of the test specification insert the following variation:		N/A
	Appliance outlets and socket outlets accessible to the user are loaded with a resistive load that gives the marked outlet load in watts. (AS/NZS 60335.1:2020)		N/A
11.8	After the first paragraph of the test specification insert the following variation:		N/A
	The pins of plug connectors inserted into appliance outlets accessible to the user and plugs inserted into socket outlets accessible to the user shall have a temperature rise not exceeding 45 K. (AS/NZS 60335.1:2020)		N/A
	Temperature rise (K)……..……:		N/A
19	**ABNORMAL OPERATION**		P
19.13	After the seventh paragraph of the test specification insert the following variation:		P
	During and after the tests the no-load output voltage of an accessible safety extra-low voltage outlet or connector shall not have increased by more than 3 V or 10% of its no-load output voltage in normal use, whichever is higher. (AS/NZS 60335.1:2020)	For models with rated output voltage≤ 42.4VDC: Max. 42.2Vd.c. (between '+' and '-' of output connector) for XSG4205000 under no load; For models with rated output voltage> 40.2VDC: The output terminal is not accessible	P
	Voltage normal use (V)……...:	Max. 42.2Vd.c.	P
	Voltage abnormal operation (V)……:	Max. 42.2Vd.c.	P
	Deviation (%)……:	0%	P
	During and after the tests the no-load output voltage of a USB outlet shall not increase by more than 3 V or 10% of its no-load output voltage in normal use, whichever is higher. (AS/NZS 60335.1:2020)		P
	Voltage normal use (V)……...:		N/A
	Voltage abnormal operation (V)……:		N/A
	Deviation (%)……:		N/A

IEC 60335-2-29 ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
22	**CONSTRUCTION**		N/A
22.2	After the first paragraph of the requirement insert the following variation:		N/A
	For stationary appliances permanently connected to the fixed wiring, compliance with this requirement is considered to be met if the instruction concerning disconnection incorporated in the fixed wiring is in accordance with AS/NZS 3000. (AS/NZS 60335.1:2020)		N/A
22.3	Replace the text with the following variation:		N/A
	VOID (AS/NZS 60335.1:2020)		N/A
22.33	Delete the last sentence of the first paragraph of the requirement and introduce it as a new first paragraph of the requirement. (AS/NZS 60335.1:2020)		N/A
AZ.22.201	Appliances having integral pins for insertion into socket outlets shall comply with the appropriate requirements of AS/NZS 3112. (AS/NZS 60335.1:2020)		N/A
	Compliance is checked as specified in Annex J of AS/NZS 3112 (AS/NZS 60335.1:2020)		N/A
AZ.22.202	Appliance outlets and socket outlets accessible to the user that are incorporated in appliances connected to the supply mains; and		N/A
	that operate at rated voltage		N/A
	shall be single-phase and have a current rating not exceeding 16 A. (AS/NZS 60335.1:2020)		N/A
	The socket outlets shall comply with AS/NZS 3112; (AS/NZS 60335.1:2020)		N/A
	accept a 3-pin, flat-pin plug as described in figure 2.1(a1) of AS/NZS 3112. (AS/NZS 60335.1:2020)		N/A
	The appliance outlets and socket outlets shall be protected by one of the following protection devices that has a current rating not exceeding the current rating of the appliance outlet or socket-outlet: (AS/NZS 60335.1:2020)		N/A
	- a circuit breaker for equipment complying with IEC 60934; (AS/NZS 60335.1:2020)		N/A
	- a manually resettable trip-free or cycling trip-free overcurrent protection device; (AS/NZS 60335.1:2020)		N/A
	- a non-user replaceable fuse-link. (AS/NZS 60335.1:2020)		N/A
	Current of outlet (A)……:		N/A
	Current of protection device (A)……:		N/A
	The protection device shall be placed behind a non-detachable cover. The actuating member of the circuit breaker and the manually resettable protection device may be accessible. (AS/NZS 60335.1:2020)		N/A
	The current rating of the appliance outlets and socket outlets is obtained from the marked outlet load in watts divided by the rated voltage. (AS/NZS 60335.1:2020)		N/A

IEC 60335-2-29 ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Load of outlet (W)……..……: Rated voltage (V)……..: Current of outlet (A)……..: Compliance is checked by inspection and for a manually resettable trip-free or cycling trip-free overcurrent protection device by the following tests: (AS/NZS 60335.1:2020) The device shall be operated at rated voltage at 136% of its current rating, in an ambient temperature of 23°C ± 2°C in a draught-free environment. (AS/NZS 60335.1:2020) Rated voltage (V)……..: Current of outlet (A)……..: Test current (A)……..……..: Ambient temperature (°C)…..…..……..: The device shall operate to interrupt the current within 2 h. (AS/NZS 60335.1:2020) Overload condition existed for (_h,_min, _sec)…..: The device shall be operated at rated voltage at 600% of its current rating in an ambient temperature of 23°C ± 2°C in a draught-free environment (AS/NZS 60335.1:2020) Rated voltage (V)……..: Current of outlet (A)……..: Test current (A)……..……..: Ambient temperature (°C)…..…..……..: The device shall operate to interrupt the current within 5 s. (AS/NZS 60335.1:2020) Overload condition existed for (sec)……....: Immediately following the overcurrent tests, the test of clause 16.3 shall be applied, and the device shall comply with the specified requirements of the test. (AS/NZS 60335.1:2020) The device shall comply with the ball pressure test of 30.1 carried out at 160 °C. (AS/NZS 60335.1:2020) Plastic material type……: Impression diameter (mm)…….: The device shall comply with the glow-wire test of 30.2.3.1 with a test severity of 960 °C. (AS/NZS 60335.1:2020) Plastic material type……: Time of ignition (sec)……..: Time of extinguish (sec)……..: Specified layer placed underneath the test specimen does not ignite. ……..:		N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
24	**COMPONENTS**		P
24.1	Insert the following variation before NOTE 1:		P
	NOTE 201 The relevant IEC standard can be replaced with the relevant Australia/New Zealand standard where applicable. (AS/NZS 60335.1:2020)		P
25	**SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS**		P
25.1	Insert the following variation:		P

IEC 60335-2-29 ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Supply cords for single-phase portable appliances intended for direct connection to the supply mains, shall be fitted with an appropriate plug complying with AS/NZS 3112. (AS/NZS 60335.1:2020)		P
Table 11	In footnote *a insert* the following variation		N/A
	However, they cannot be used in class I appliances. (AS/NZS 60335.1:2020)		N/A
32	**RADIATION, TOXICITY AND SIMILAR HAZARDS**		N/A
32.101	Insert the following to the test specification:		N/A
	The spectral irradiance for appliances for wavelengths in the range 200 nm ≤ λ ≤ 280 nm shall not exceed 1,0 x 10^{-5} W/m^2/nm (AS/NZS 60335.2.27:2020)		N/A
	The ratio (R) of the total irradiance in the range 280 nm ≤ λ ≤ 320 nm to the total irradiance in the range 280 nm ≤ λ ≤ 400 nm shall fall within the limits 0,007 < R < 0,03. (AS/NZS 60335.2.27:2020)		N/A
	Spectral irradiance (W/m^2/nm).....:		N/A
	Ratio value.....		N/A
Annex BB	**DETAILED CLASSIFICATION OF UV APPLIANCES**		N/A
BB.2	At the end of the Note *insert* the following variation:		N/A
	UV Type 1 appliances, UV Type 4 appliances and UV Type 5 appliances are not allowed for household use or commercial use (AS/NZS 60335.2.27:2020)		N/A
	Special national conditions (if any)		P
	Australia		P
5	**GENERAL CONDITIONS FOR THE TESTS**		P
AZ.5.201	For appliances, other than class III appliances, that are intended for connections to the supply mains and that are not marked with: (AS/NZS 60335.1:2020)		P
	- a rated voltage of at least 240 V for single-phase appliances and at least 415 V for three-phase appliances, or (AS/NZS 60335.1:2020)		N/A
	- a rated voltage range that includes 240 V for single-phase appliances and 415 V for three-phase appliances, (AS/NZS 60335.1:2020)		P
	the rated voltage is equal to 240 V for single-phase appliances and 415 V for three phase appliances, (AS/NZS 60335.1:2020)		N/A
	and the upper limit of the rated voltage range is equal to 240 V for single-phase appliances and 415 V for three-phase appliances. (AS/NZS 60335.1:2020)		P
	In addition, the rated current or rated power input is equal to the calculated value corresponding to 240 V for single-phase appliances and 415 V for three-phase appliances as appropriate (AS/NZS 60335.1:2020)		P
7.1	After the first paragraph of the requirement insert the following variation:		P

IEC 60335-2-29 ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	Appliances intended for connection to the supply mains, other than class III appliances, shall be marked with:		P
	- a rated voltage of at least: .....230 V for single-phase appliances; ..... 400 V for poly-phase appliances; or (AS/NZS 60335.1:2020)		P
	- a rated voltage range that includes: .....230 V for single-phase appliances; .....400 V for poly-phase appliances. (AS/NZS 60335.1:2020)		N/A
24	**COMPONENTS**		P
24.1.7	Telecommunication interface circuitry must comply with the Telecom Labeling Notice issued under the Telecommunications Act instead of IEC 62151 (AS/NZS 60335.1:2020)		N/A
	New Zealand		P
7.1	After the first paragraph of the requirement insert the following variation:		P
	Appliances intended for connection to the supply mains, other than class III appliances, shall be marked with:		P
	- a rated voltage of: .....230 V for single-phase appliances; ..... 400 V for poly-phase appliances; or (AS/NZS 60335.1:2020)		P
	- a rated voltage range that includes: .....230 V for single-phase appliances; .....400 V for poly-phase appliances. (AS/NZS 60335.1:2020)		N/A

Figure 1. Overall view of unit

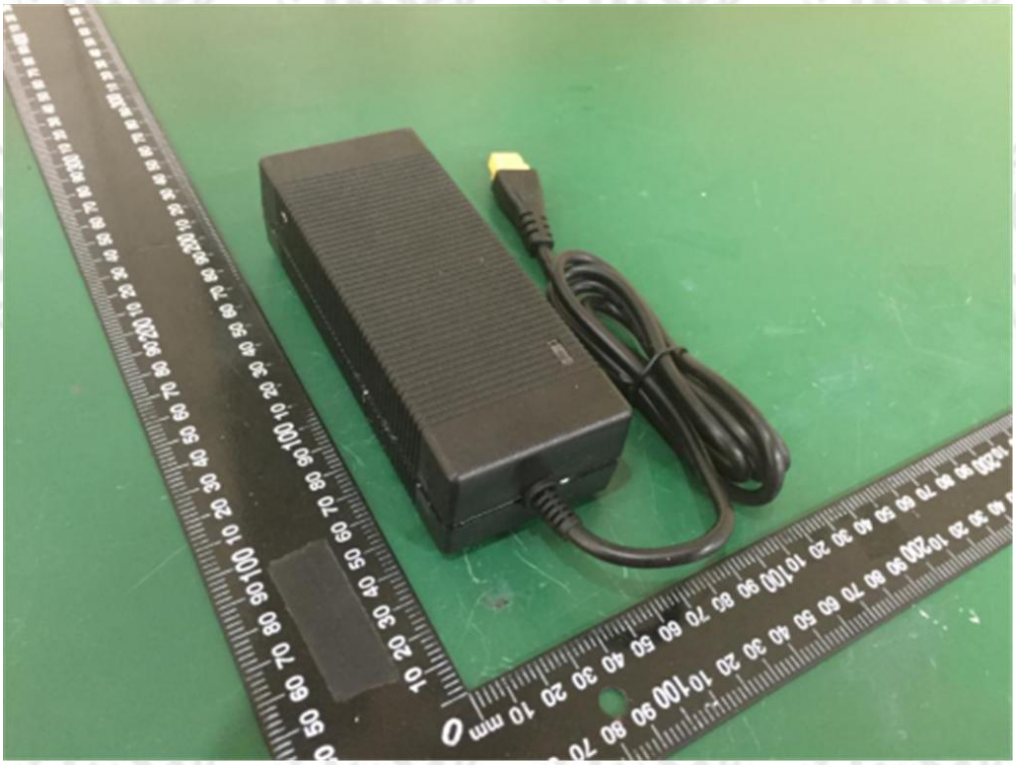

Figure 2. Overall view of unit

Figure 3. Overall view of unit

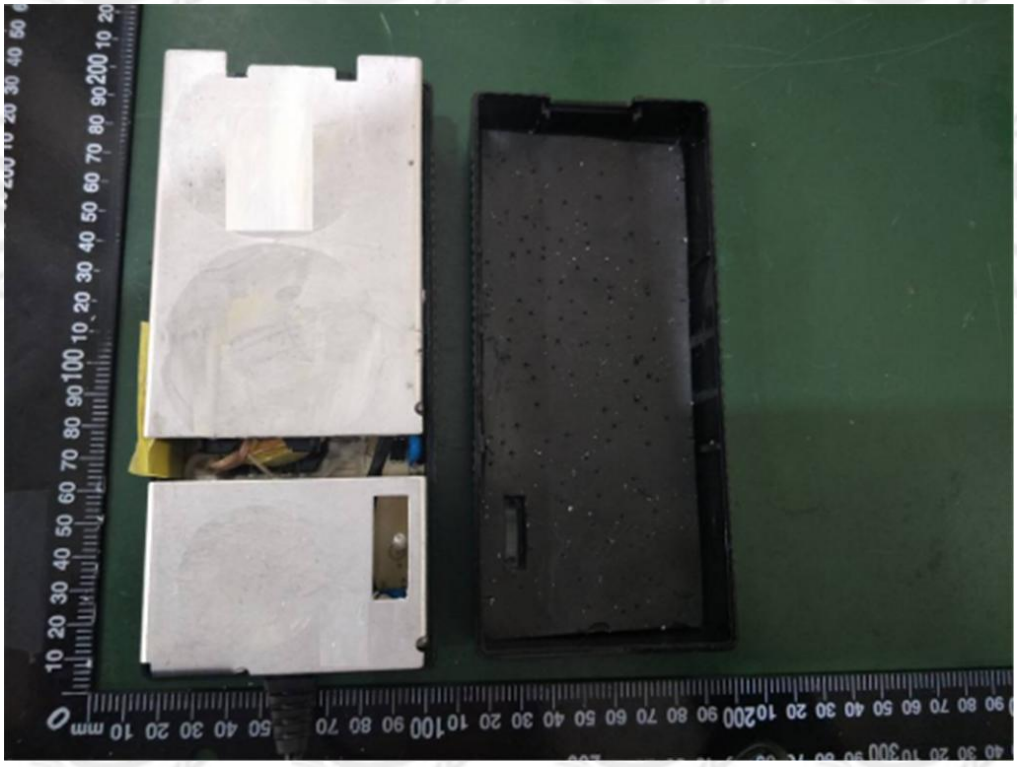

Figure 4. Internal view

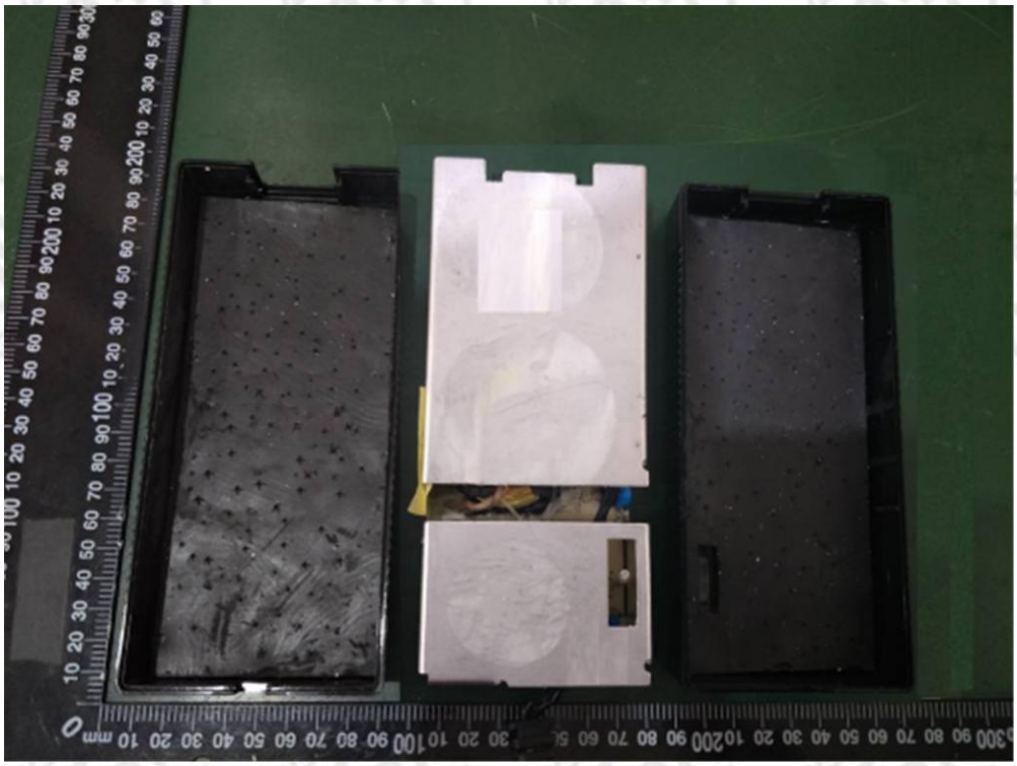

Figure 5. Internal view

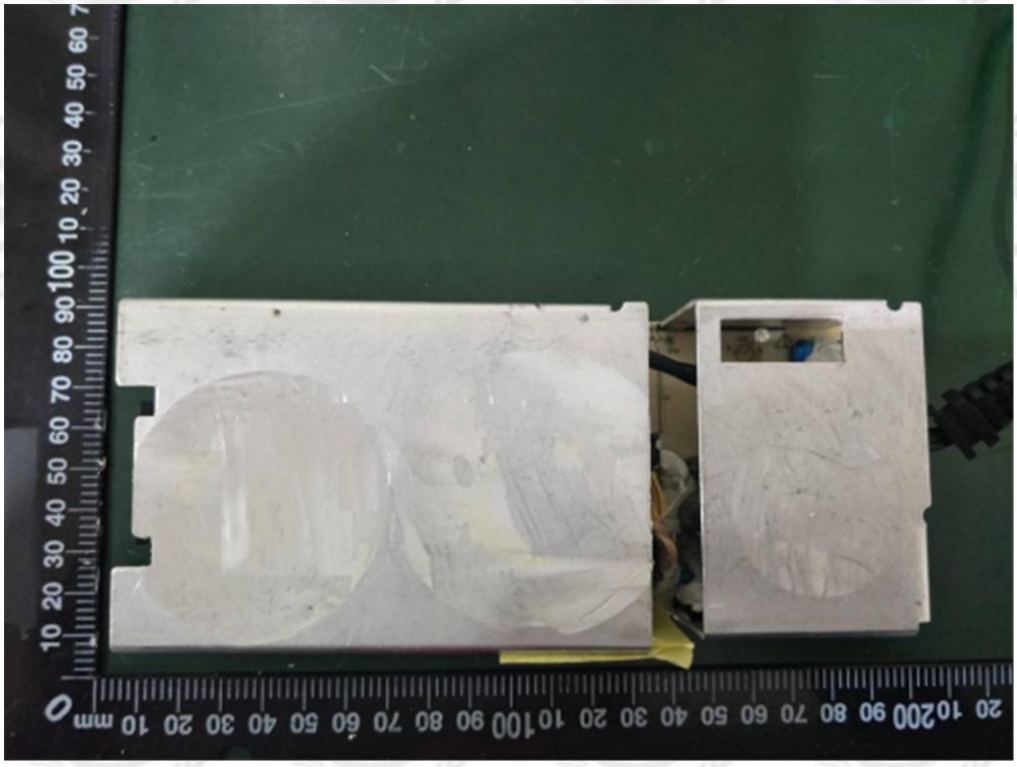

Figure 6. Top view of PCB

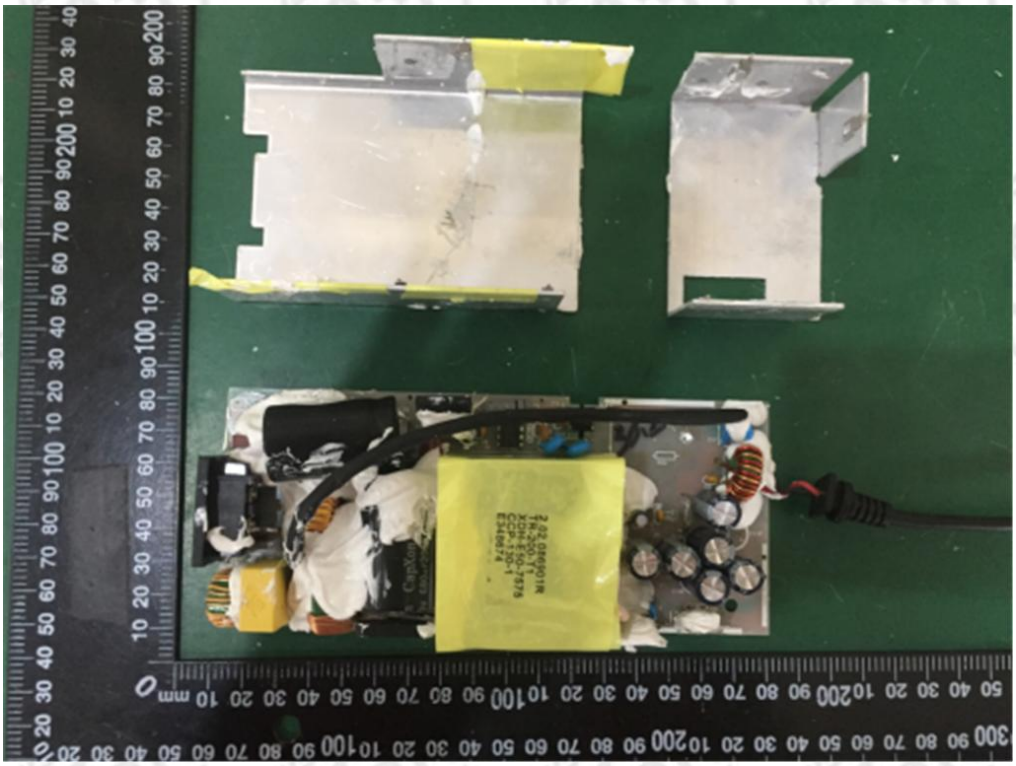

Figure 7. Top view of PCB

Figure 8. Top view of PCB

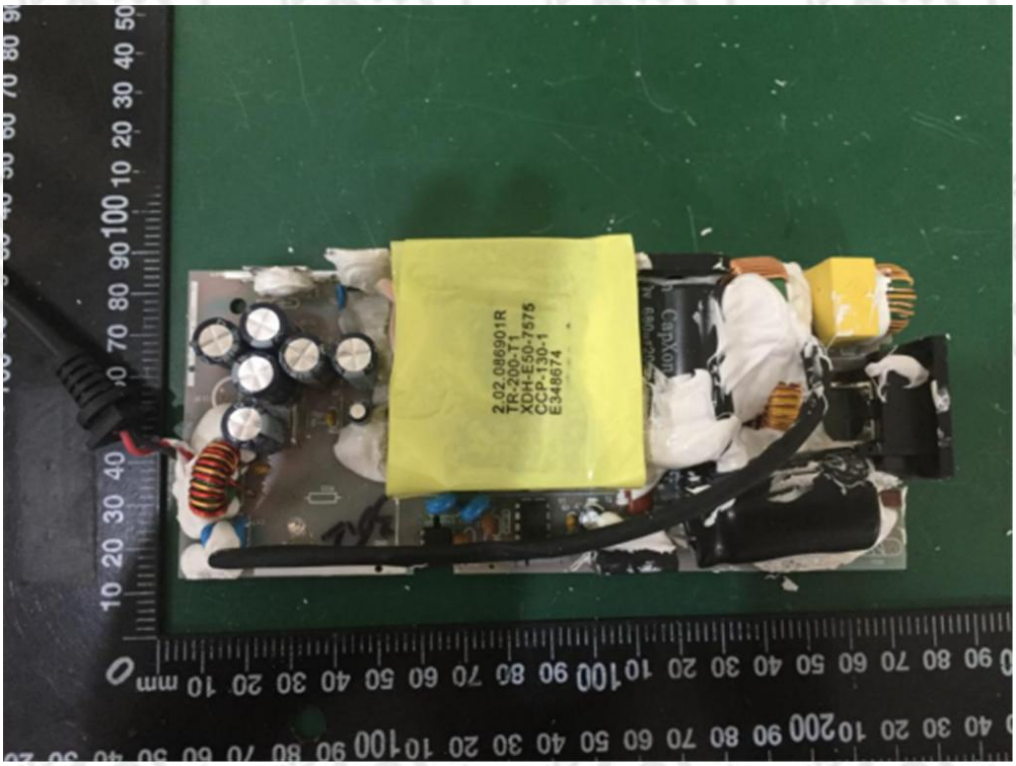

Figure 9. Top view of PCB

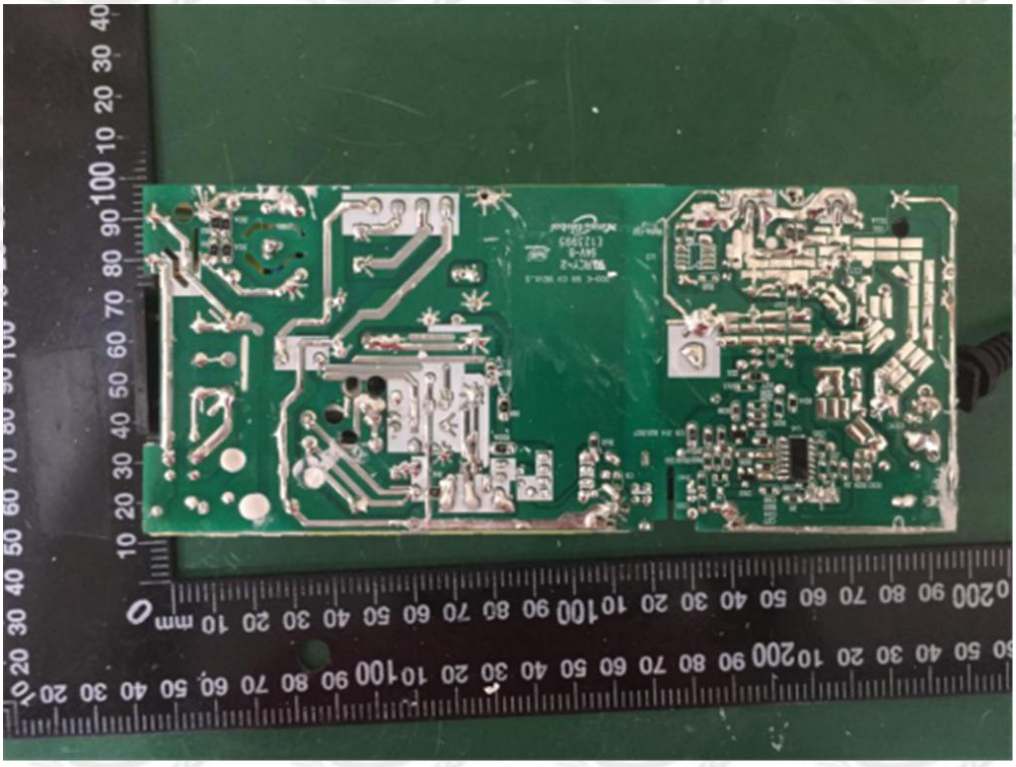

Figure 10. Bottom view of PCB

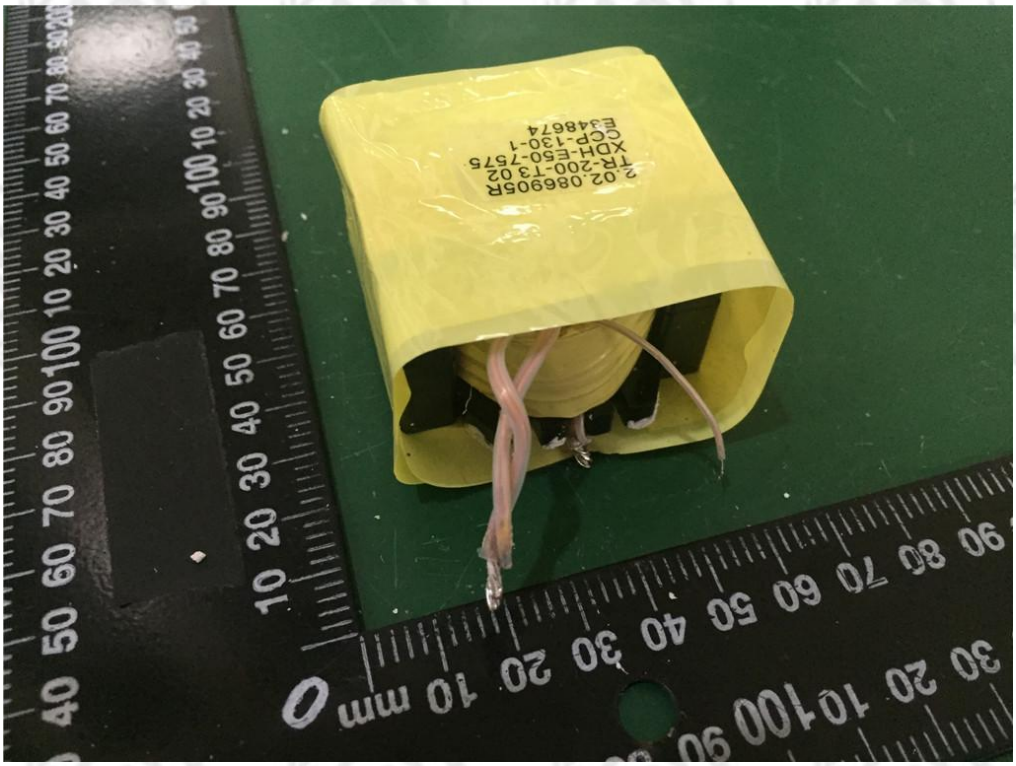

Figure 11. Top view of transformer (T1, T2)

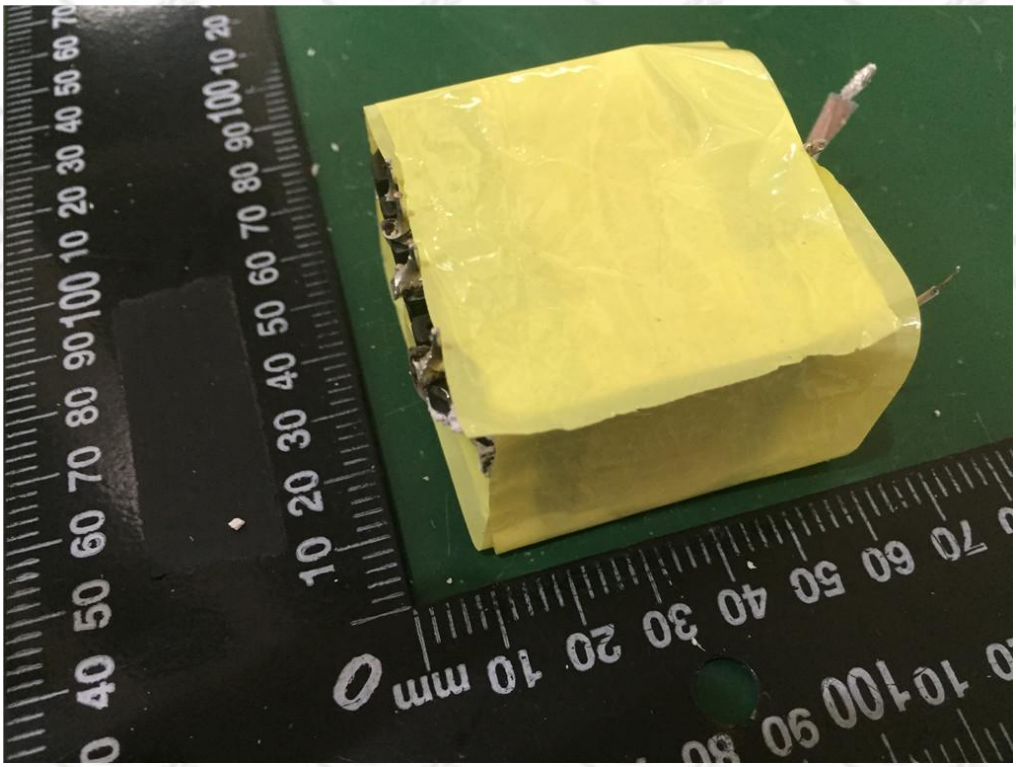

Figure 12. Bottom view of transformer (T1, T2)

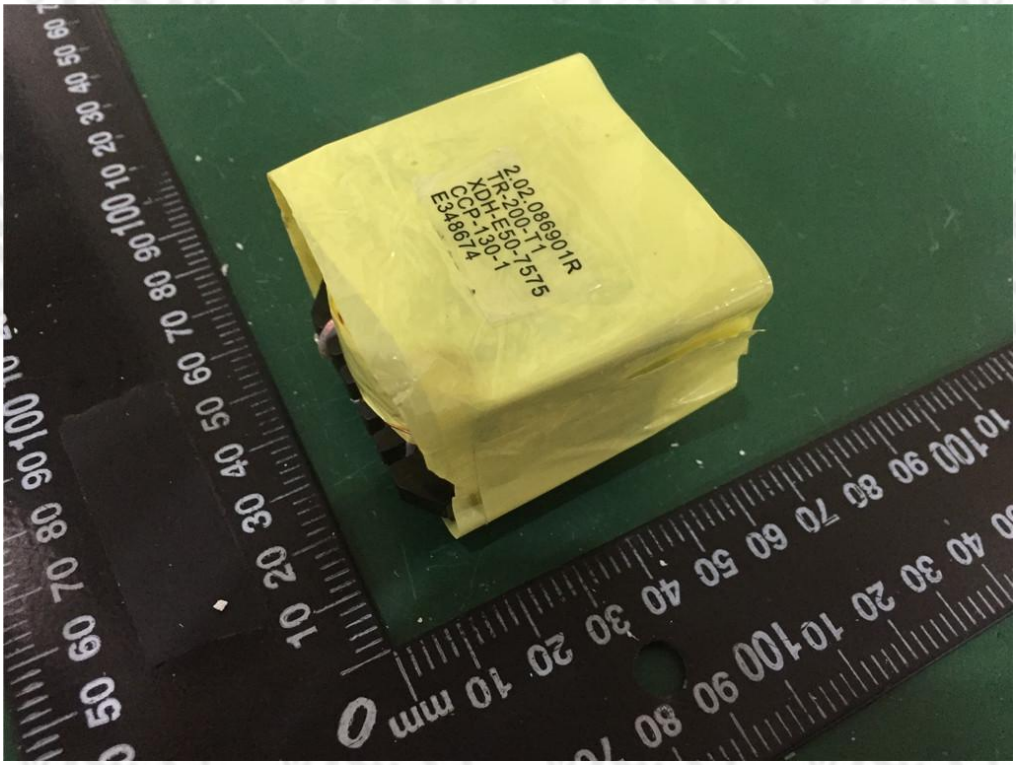

Figure 13. Top view of transformer (T3, T4)

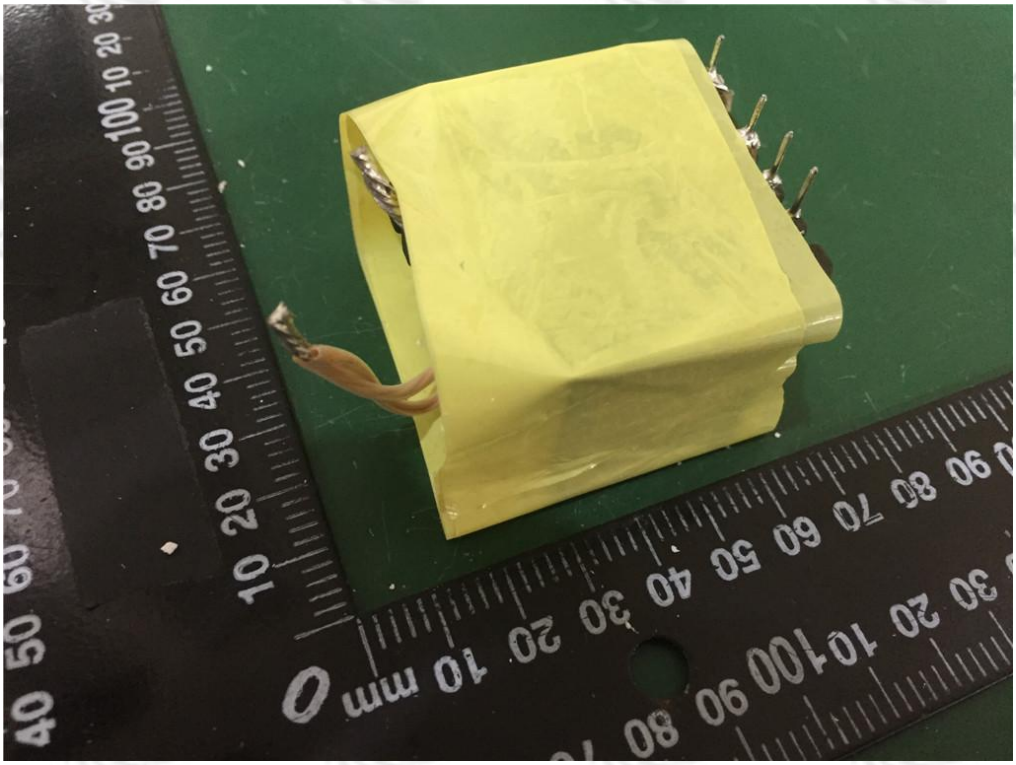

Figure 14. Bottom view of transformer (T3, T4)