	Test Report issued under the responsibility of: NCB TÜV SÜD PSB Pte. Ltd. 15 International Business Park TÜV SÜD @ IBP Singapore 609937	

TEST REPORT
IEC 60335-2-30
Safety of household and similar electrical appliances
Part 2: Particular requirements for room heaters

Report Number. ..... :	083-2300838-100
Date of issue ..... :	2024-12-10
Total number of pages ..... :	134 + 11
Name of Testing Laboratory preparing the Report ..... :	TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch No. 151, Heng Tong Road, Shanghai 200070, P.R.China
Applicant's name ..... :	Stiebel Eltron (Tianjin) Electric Appliance Co., Ltd.
Address ..... :	C3, XEDA International Industry City, Xiqing District, 300385 Tianjin, PEOPLE'S REPUBLIC OF CHINA.
Test specification:	
Standard ..... :	IEC 60335-2-30:2009, IEC 60335-2-30:2009/COR1:2014, IEC 60335-2-30:2009/AMD1:2016, IEC 60335-2-30:2009/AMD2:2021 for used in conjunction with IEC 60335-1:2010, IEC 60335-1:2010/COR1:2010, IEC 60335-1:2010/COR2:2011, IEC 60335-1:2010/AMD1:2013, IEC 60335-1:2010/AMD1:2013/COR1:2014, IEC 60335-1:2010/AMD2:2016, IEC 60335-1:2010/AMD2:2016, COR1:2016
Test procedure ..... :	CB Scheme
Non-standard test method ..... :	N/A
TRF template used ..... :	IECEE OD-2020-F1:2020, Ed.1.3
Test Report Form No. ..... :	IEC60335_2_30S
Test Report Form(s) Originator .... :	VDE Testing and Certification Institute
Master TRF ..... :	Dated 2021-06-17

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

This report is not valid as a CB Test Report unless signed by an approved IECEE Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:

The test results presented in this report relate only to the object tested.
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Test item description ..... :	Room Heater (Convector heaters)
Trade Mark(s) ..... :	STIEBEL ELTRON
Manufacturer ..... :	Stiebel Eltron GmbH & Co. KG Dr.-Stiebel-Strasse 37603 Holzminden GERMANY
Model/Type reference ..... :	CNS 500 Plus LCD, CNS 750 Plus LCD, CNS 1000 Plus LCD, CNS 1500 Plus LCD, CNS 2000 Plus LCD, CNS 2500 Plus LCD, CNS 3000 Plus LCD, CNS-U 500 Plus LCD (UK), CNS-U 750 Plus LCD (UK), CNS-U 1000 Plus LCD (UK), CNS-U 1500 Plus LCD (UK), CNS-U 2000 Plus LCD (UK), CNS-U 2500 Plus LCD (UK), CNS-U 3000 Plus LCD (UK), CNS 500 Plus LCD (CH), CNS 750 Plus LCD (CH), CNS 1000 Plus LCD (CH), CNS 1500 Plus LCD (CH), CNS 2000 Plus LCD (CH), CNS 1000 Plus LCD (AU), CNS 1500 Plus LCD (AU), CNS 2000 Plus LCD (AU)
Ratings ..... :	IP24, Class I Other details refer below table

Model	Rated input
CNS 500 Plus LCD, CNS 500 Plus LCD (CH)	230V~, 50Hz, 500W, 2,2A
CNS 750 Plus LCD, CNS 750 Plus LCD (CH)	230V~, 50Hz, 750W, 3,3A
CNS 1000 Plus LCD, CNS 1000 Plus LCD (CH)	230V~, 50Hz, 1000W, 4,3A
CNS 1500 Plus LCD, CNS 1500 Plus LCD (CH)	230V~, 50Hz, 1500W, 6,5A
CNS 2000 Plus LCD, CNS 2000 Plus LCD (CH)	230V~, 50Hz, 2000W, 8,7A
CNS 2500 Plus LCD	230V~, 50Hz, 2500W, 10,9A
CNS 3000 Plus LCD	230V~, 50Hz, 3000W, 13,0A
CNS-U 500 Plus LCD (UK)	230V~, 50Hz, 460W, 2,0A 240V~, 50Hz, 500W, 2,1A
CNS-U 750 Plus LCD (UK)	230V~, 50Hz, 690W, 3,0A 240V~, 50Hz, 750W, 3,1A
CNS-U 1000 Plus LCD (UK), CNS 1000 Plus LCD (AU)	230V~, 50Hz, 920W, 4,0A 240V~, 50Hz, 1000W, 4,2A
CNS-U 1500 Plus LCD (UK), CNS 1500 Plus LCD (AU)	230V~, 50Hz, 1380W, 6,0A 240V~, 50Hz, 1500W, 6,3A
CNS-U 2000 Plus LCD (UK), CNS 2000 Plus LCD (AU)	230V~, 50Hz, 1840W, 8,0A 240V~, 50Hz, 2000W, 8,3A
CNS-U 2500 Plus LCD (UK)	230V~, 50Hz, 2300W, 10,0A 240V~, 50Hz, 2500W, 10,4A
CNS-U 3000 Plus LCD (UK)	230V~, 50Hz, 2760W, 12,0A 240V~, 50Hz, 3000W, 12,5A

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):			
☒	**CB Testing Laboratory:**	TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch No.151, Heng Tong Road, Shanghai 200070, P. R. China	
Testing location/ address.....:		No. 1999, Duhui Road, Shanghai, 201108, P. R. China	
Tested by (name, function, signature).....:		Juchao WANG Project Handler	Juchao Wang
Approved by (name, function, signature)...:		Jie CHEN Designated reviewer	
☐	**Testing procedure: CTF Stage 1:**	N/A	
Testing location/ address.....:		N/A	
Tested by (name, function, signature).....:		N/A	
Approved by (name, function, signature)...:		N/A	
☐	**Testing procedure: CTF Stage 2:**	N/A	
Testing location/ address.....:		N/A	
Tested by (name + signature).....:		N/A	
Witnessed by (name, function, signature) .:		N/A	
Approved by (name, function, signature)...:		N/A	
☐	**Testing procedure: CTF Stage 3:**	N/A	
☐	**Testing procedure: CTF Stage 4:**	N/A	
Testing location/ address.....:		N/A	
Tested by (name, function, signature).....:		N/A	
Witnessed by (name, function, signature) .:		N/A	
Approved by (name, function, signature)...:		N/A	
Supervised by (name, function, signature) :		N/A	

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

Attachment No.1: AUSTRALIA/NEW ZEALAND NATIONAL DIFFERENCES AS/NZS 60335.2.30:2023 & AS/NZS 60335.1:2020 + A1:2021 (11 pages)

Appendix No.1: Photo Documentation (48 pages)

Summary of testing:

The sample's mentioned in this report is/are submitted/ supplied/ manufactured by client. The laboratory therefore assumes no responsibility for accuracy of information on the brand name, model number, origin of manufacture, consignment or any information supplied.

Tests performed (name of test and test clause):	**Testing location:**
-- Complete tests were performed on CNS-U 500 Plus LCD (UK), CNS-U 1000 Plus LCD (UK), CNS-U 1500 Plus LCD (UK), CNS-U 2000 Plus LCD (UK), CNS-U 2500 Plus LCD (UK) and CNS-U 3000 Plus LCD (UK); -- Clause 10, 11, 19,101, 19.103 was performed on all CNS 500 Plus LCD, CNS 1000 Plus LCD, CNS 1500 Plus LCD, CNS 2000 Plus LCD, CNS 2500 Plus LCD and CNS 3000 Plus LCD. -- Construction and data check was performed on other models after evaluation. The test results comply with the requirements.	TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch No. 1999, Duhui Road, Shanghai, 201108, P. R. China

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

AUSTRALIA/NEW ZEALAND NATIONAL DIFFERENCES for models CNS 1000 Plus LCD (AU), CNS 1500 Plus LCD (AU) and CNS 2000 Plus LCD (AU).

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

(may be required by the product standard or client)

☐ **Internal procedure used for type testing through which traceability of the measuring uncertainty has been established:**

Procedure number, issue date and title:

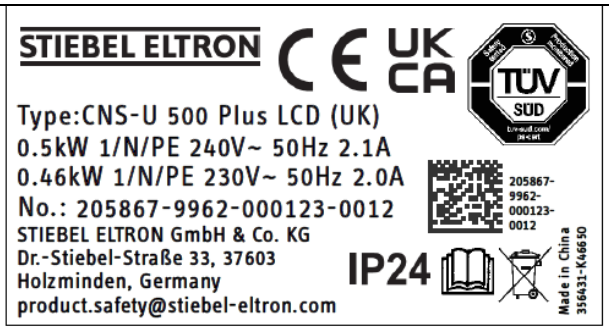
Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

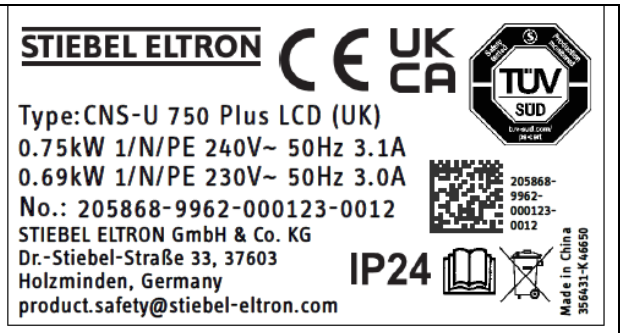
☒ **Statement not required by the standard used for type testing**

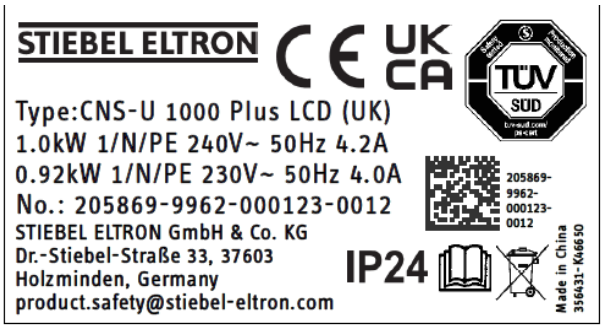
Copy of marking plate:

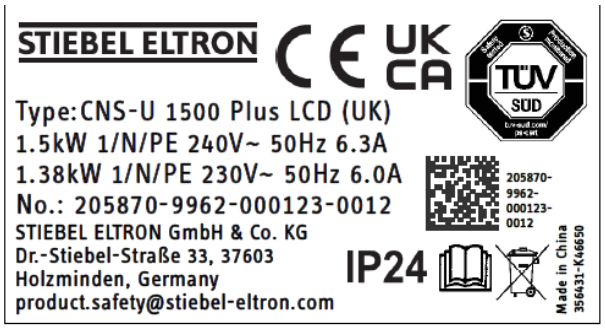
The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

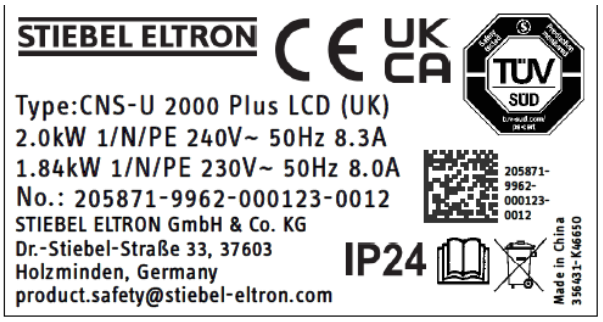
According to the EU directives which have been aligned with EU NLF (new legislative framework), both of manufacturer and importer's name and address shall be affixed on the product or, where that is not possible, on its packaging or in a document accompanying the product before the product is placed on the EU market.

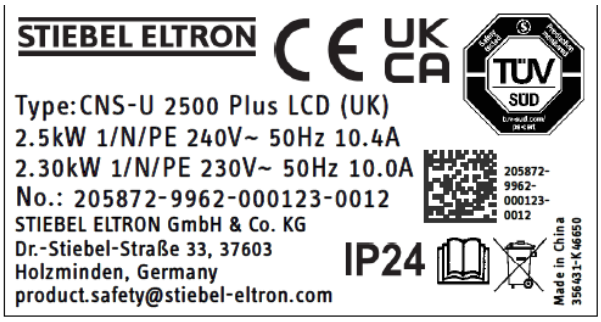


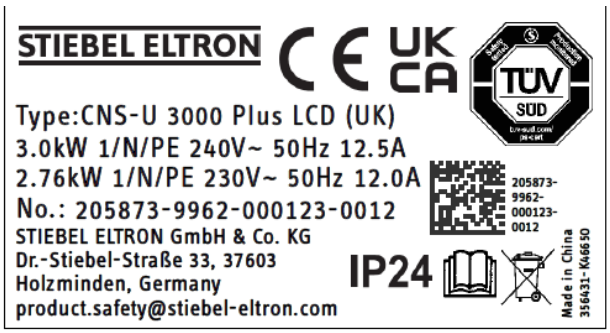


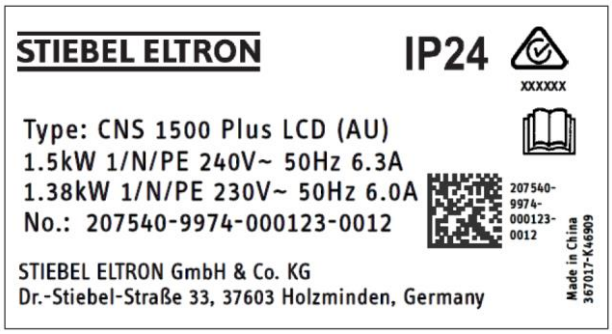












Remark:

Marking plate of CNS 500 Plus LCD (CH) / CNS 750 Plus LCD (CH) / CNS 1000 Plus LCD (CH) / CNS 1500 Plus LCD (CH) / CNS 2000 Plus LCD (CH) are identical with marking plate of CNS 500 Plus LCD / CNS 750 Plus LCD / CNS 1000 Plus LCD / CNS 1500 Plus LCD / CNS 2000 Plus LCD except for the model design.

Marking plate of CNS 1000 Plus LCD (AU) / CNS 1500 Plus LCD (AU) /CNS 2000 Plus LCD (AU) is identical with marking plate of CNS-U 1000 Plus LCD (UK) / CNS-U 1500 Plus LCD (UK) /CNS-U 2000 Plus LCD (UK) except for the model design and certificate marks.

Test item particulars.....:	
Classification of installation and use.....:	Fixed appliance for household use
Supply Connection.....:	Non-detachable cord with plug for CNS series, CNS(CH) series, CNS(AU) series models Non-detachable cord without plug for CNS-U series models
.....:	Type Y attachment
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 .....:	2023-03-23, 2024-12-03
Date (s) of performance of tests.....:	2023-03-23 to 2023-06-08, 2024-12-03 to 2024-12-10

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.

This modification report is to supplement the following CB Test report and CB certification:

- Test Report Ref. No.: 083-2300838-000, dated on 2023-06-08, (CB Ref. Cert. No. SG PSB-HS-13135, dated on 2023-06-15.)

- Add eight new models CNS 500 Plus LCD (CH), CNS 750 Plus LCD (CH), CNS 1000 Plus LCD (CH), CNS 1500 Plus LCD (CH), CNS 2000 Plus LCD (CH), CNS 1000 Plus LCD (AU), CNS 1500 Plus LCD (AU) and CNS 2000 Plus LCD (AU).

- Update Critical components information, add plugs and supply cords for CH and AU models, details see table 24.1.

- Construction and data check was performed on new additional model after evaluation.

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

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

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

Name and address of factory (ies).....:	Stiebel Eltron (Tianjin) Electric Appliance Co., Ltd. C3, XEDA International Industry City, Xiqing District, 300385 Tianjin, PEOPLE'S REPUBLIC OF CHINA.

General product information and other remarks:

The appliances are fixed convector heaters for household and similar indoor use only.

The convector heaters are divided into four series in this report: CNS series, CNS-U series, CNS(CH) series and CNS(AU) series.

CNS series includes CNS 500 Plus LCD, CNS 750 Plus LCD, CNS 1000 Plus LCD, CNS 1500 Plus LCD, CNS 2000 Plus LCD, CNS 2500 Plus LCD and CNS 3000 Plus LCD.

CNS-U series includes CNS-U 500 Plus LCD (UK), CNS-U 750 Plus LCD (UK), CNS-U 1000 Plus LCD (UK), CNS-U 1500 Plus LCD (UK), CNS-U 2000 Plus LCD (UK), CNS-U 2500 Plus LCD (UK) and CNS-U 3000 Plus LCD (UK).

CNS(CH) series includes CNS 500 Plus LCD (CH), CNS 750 Plus LCD (CH), CNS 1000 Plus LCD (CH), CNS 1500 Plus LCD (CH) and CNS 2000 Plus LCD (CH).

CNS(AU) series includes CNS 1000 Plus LCD (AU), CNS 1500 Plus LCD (AU) and CNS 2000 Plus LCD (AU).

CNS series is rating 230V~, equipped with non-detachable three cores cord with EU4 plug.

CNS(UK) series is rating 230V~ or 240V~, equipped with non-detachable four cores cord and without plug.

CNS(CH) series is rating 230V~, equipped with non-detachable three cores cord with Switzerland Type 12 plug.

CNS(AU) series is rating 230V~ or 240V~, equipped with non-detachable three cores cord with AU/NZS plug.

For models share the same power input, CNS-U model is identical CNS model except for the model design, rated input voltage, heating element, plug type, supply cord and main circuit board type; CNS(CH) model is identical with CNS model except for the model design and plug type; CNS(AU) model is identical CNS model except for the model design, rated input voltage, heating element, plug type and supply cord; and CNS(AU) model share the same heating element with CNS-U model.

Besides above model differences, all models share the similar construction, with different sizes and different heating element.

However, the 750W and 1000W models share the same size of the appliance and heating element.

Model differences also see below table:

Model	Appliance voltage	Heating element voltage	Plug type	Main Circuit Board Type	Plug type	Cores of supply cord
CNS series	230V~	230V~	EU4	321200	EU4	Three cores
CNS-U series	230V~, 240V~	240V~	Without plug	325509	Without plug	Four cores
CNS(CH) series	230V~	230V~	Switzerland Type 12	321200	Switzerland Type 12	Three cores
CNS(AU) series	230V~, 240V~	240V~	AU/NZS Plug	321200	AU/NZS Plug	Three cores

IEC 60335-2-30			
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	Heaters intended to be installed adjacent to each other, tests made with sufficient number. (IEC 60335-2-30)	No such heaters	N/A
	Three additional samples are needed for the test of 19.113. The test of 19.117 is carried out on one of these samples. (IEC 60335-2-30)	No fan heaters	N/A
	The test of 21.104 is carried out on a separate appliance (IEC 60335-2-30)	No fan heaters	N/A
	The test of 21.106 is carried out on a separate appliance (IEC 60335-2-30)	No cab heaters	N/A
5.3	Appliance used for tests of Cl. 19 also used for the test of Cl. 22.24 (IEC 60335-2-30)	No such appliance	N/A
	Test of Cl. 22.24 carried out after test of Cl. 29 (IEC 60335-2-30)		N/A
5.6	Thermostats short-circuited if sensible to room air temperature (IEC 60335-2-30)		P
	However, if the thermostat can be set so that it does not cycle, it is not short-circuited, unless otherwise specified (IEC 60335-2-30)		N/A
5.10	Heaters intended to be installed adjacent to each other, installed in accordance with instructions (IEC 60335-2-30)	No such heaters	N/A
5.101	Heaters intended to be used as both portable and fixed appliances are subjected to the tests applicable to both types (IEC 60335-2-30)		N/A
5.102	If the heater is a combination of two or more types, tests relevant for each type (IEC 60335-2-30)		N/A
	Heaters for wall-mounting are tested both as heaters for mounting high level and as heaters for mounting other than at high level (IEC 60335-2-30)		P
	Unless the installation instructions state that the heater has to be installed at least 1,8m above the floor. (IEC 60335-2-30)		N/A
6	**CLASSIFICATION**		
6.1	Protection against electric shock: Class 0, 0I, I, II, III ....:	Class I	P
	For a class III construction with a detachable power supply part the appliance is classified according to the detachable power supply part	No such appliances	N/A
6.2	Protection against harmful ingress of water	IP24	P

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Heaters intended for use in greenhouses or building sites shall be at least IPX4 (IEC 60335-2-30)	No such heaters	N/A
7	**MARKING AND INSTRUCTIONS**		
7.1	Rated voltage or voltage range (V) ....:	See marking plates	P
	Symbol for nature of supply, or ....:	~	P
	Rated frequency (Hz) ....:	See marking plates	P
	Rated power input (W), or ....:	See marking plates	P
	Rated current (A) ....:	See marking plates	P
	Manufacturer's or responsible vendor's name, trademark or identification mark..... .....:	See marking plates	P
	Model or type reference ....:	See marking plates	P
	Symbol IEC 60417-5172, for class II appliances		N/A
	IP number, other than IPX0..... .....:	IP24	P
	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
	Heaters intended to be filled with liquid by the user shall be marked with max. and min. levels (IEC 60335-2-30)		N/A
	Heaters shall be marked: WARNING ”Do not cover” - or with the symbol 5641 of IEC 60417-1 with or without colours (IEC 60335-2-30)	Symbol 5641 of IEC 60417-1 used	P
	This Marking is not required for (IEC 60335-2-30)		N/A
	- Heaters for mounting high level; (IEC 60335-2-30)		N/A
	- visible glowing radiant heaters (IEC 60335-2-30)		N/A
	- heaters constructed so that they cannot be covered: (IEC 60335-2-30)		N/A
	- heaters also intended to dry clothes and witch comply with IEC 60335-2-43 (IEC 60335-2-30)		N/A

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	-heaters for mounting under benches (IEC 60335-2-30)		N/A
	Heaters having a fireguard that is intended to be removed for transportation or storage shall be marked to state that the heater must not be operated without this guard in place (IEC 60335-2-30)		N/A
	For ceiling mounting heat lamp appliances, the maximum rated wattage and type of each lamp shall be marked (IEC 60335-2-30)		N/A
	Cab heaters shall be marked with the following: (IEC 60335-2-30) Cab heater		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		N/A
	Different rated values marked with the values separated by an oblique stroke		N/A
7.4	Appliances adjustable for different rated voltages or rated frequencies, the voltage or the frequency setting is clearly discernible		N/A
	Requirement met if frequent changes are not required and the rated voltage or rated frequency to which the appliance is to be adjusted is determined from a wiring diagram		N/A
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	For CNS-U models	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		N/A
7.6	Correct symbols used		P
	Symbol for nature of supply placed next to rated voltage		P
	Symbol for class II appliances placed unlikely to be confused with other marking		N/A
	Units of physical quantities and their symbols according to international standardized system		P
	Symbol 5641 of IEC 60417-1 (do not cover) is used except for colours (IEC 60335-2-30)		P

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply, unless		N/A
	correct mode of connection is obvious		N/A
7.8	Except for type Z attachment, terminals for connection to the supply mains indicated as follows:		P
	- marking of terminals exclusively for the neutral conductor (letter N)		N/A
	- marking of protective earthing terminals (symbol IEC 60417-5019)		P
	- marking of functional earthing terminals (symbol IEC 60417-5018)		N/A
	- marking not placed on removable parts		P
7.9	Marking or placing of switches which may cause a hazard		P
7.10	Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means ....:	By letter “O” and “I” on power switch	P
	This applies also to switches which are part of a control		P
	If figures are used, the off position indicated by the figure 0		P
	The figure 0 indicates only OFF position, unless no confusion with the OFF position		P
	The different positions of switches and controls on room heaters shall be indicated by figures, letters or other visual means. This requirement also applies to switches that are part of a control (IEC 60335-2-30)		P
	The on position shall be clearly visible to the user when the heater is in its intended position of use. (IEC 60335-2-30)		P
7.11	Indication for direction of adjustment of controls		P
7.12	Instructions for safe use provided		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

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	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
	Instructions for safe use provided: ..... (IEC 60335-2-30)		
	- If Symbol 5641 of IEC 60417-1 (do not cover) is marked on the appliance, its meaning is explained. (IEC 60335-2-30)		P
	-For heaters marked ”Do not cover” (or with symbol) contain the substance of: In order to avoid overheating, do not cover the heater (IEC 60335-2-30)		P
	-Statement: heater is not located immediately below a socket-outlet (IEC 60335-2-30)		P
	-Statement for heaters with heating elements in direct contact with accessible panel made of glass, ceramic or similar material, includes the following warning: The heater must not be used if the glass *(or ceramic or similar material*) panels are damaged (IEC 60335-2-30)		N/A
	-Statements for visibly glowing radiant heaters, other than heaters for mounting at high level, includes the substance of following: Do not use the heater with a programmer, timer or any other device that switches the heater on automatically (IEC 60335-2-30)		N/A
	-have a fireguard that can be partly removed without the aid of a tool includes the substance of following:..... (IEC 60335-2-30)		
	The fireguard of this heater is intended to prevent direct access to heating elements and must be in place when the heater is used.		N/A
	The fireguard does not give full protection for young people and infirm persons		N/A
	-Statements for portable heaters : (IEC 60335-2-30)		

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	• Do not use this heater in the immediate surroundings of a bath, a shower or a swimming pool		N/A
	• Do not use this heater if it has been dropped;		N/A
	• Do not use if there are visible signs of damage to the heater;		N/A
	• Use this heater on a horizontal and stable surface, or fix it to the wall, as applicable.		N/A
	-Statements for visibly glowing radiant heaters: shall be provided for cleaning the reflector, if appropriate (IEC 60335-2-30)		N/A
	-Statement: shall be provided for replacing the lamps of fuel-effect heaters (IEC 60335-2-30)		N/A
	-Statements for oil-filled radiators: ..... (IEC 60335-2-30)		
	- this heater is filled with a precise quantity of special oil. Repairs requiring opening of the oil container are only to be made by the manufacturer or his service agent who should be contacted if there is an oil leakage		N/A
	- regulations concerning the disposal of oil when scrapping the appliance have to be followed		N/A
	Instructions shall be provided for routine cleaning of ceiling mounted heat lamp appliances including removal of covers if applicable (IEC 60335-2-30)		N/A
	The instructions for portable heaters shall include the substance of the following. (IEC 60335-2-30)		
	WARNING: Do not use this heater in small rooms when they are occupied by persons not capable of leaving the room on their own, unless constant supervision is provided.		N/A
	WARNING: To reduce the risk of fire, keep textiles, curtains, or any other flammable material a minimum distance of 1 m from the air outlet.		N/A
7.12.1	Sufficient details for installation supplied		P
	For an appliance intended to be permanently connected to the water mains and not connected by a hose-set, this is stated	No such heaters	N/A
	If different rated voltages or different rated frequencies are marked, the instructions state what action to be taken to adjust the appliance	No need setting	N/A
	Instructions for heaters intended to be fixed by screws or other give details on the method of fixing (IEC 60335-2-30)		P

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Instructions for visibly glowing radiant heaters warn about the possible danger of installation close to curtains and other combustible materials (IEC 60335-2-30)		N/A
	Instructions for heaters for mounting at high level state that the heater must be installed at least 1,8 m above the floor (IEC 60335-2-30)		N/A
	Instructions for fixed heaters likely to be used in a bathroom: that the heater is to be installed so that switches and other controls cannot be touched by a person in the bath or shower (IEC 60335-2-30)		P
	Statement for heaters with rollers or feet delivered separately: how they have to be fixed (IEC 60335-2-30)		N/A
	Statement for heaters intended to be installed in wardrobes or ceiling: for proper installation in a wardrobe or in the ceiling (IEC 60335-2-30)		N/A
	The installation instructions for ceiling mounted heat lamp appliances, recessed into a ceiling place or cavity shall give details for proper installation in the ceiling and shall state the substance of the following: ..... (IEC 60335-2-30)		
	-The appliance shall, under no circumstances, be covered with insulating material or similar material.		N/A
	-Regulations concerning the discharge of air have to be fulfilled.		N/A
	-Joists, beams and rafters shall not be cut or notched to install the appliance		N/A
	The installation instructions for heaters for mounting under church benches shall state:..... (IEC 60335-2-30)		
	-The heater is intended for installation under benches that are fixed in position		N/A
	- The minimum distance between the underside of the installed heater and the floor		N/A
	-The minimum distances of the relevant surfaces of the heaters to the front and rear edge of the underside of the bench which shall be not less than 50 mm		N/A
	The installation instructions for heaters intended to be built into the floor and that incorporate a floor level grille shall state the substance of the following: (IEC 60335-2-30) After installation, ensure that any drain holes are free from obstruction.		N/A
	Ensure that any floor level grille has a mechanical strength consistent with the national building codes. (IEC 60335-2-30)		N/A
	The installation instructions for cab heaters shall state (IEC 60335-2-30)		N/A

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	– the shortest permissible distance between the heater outlet and the interior surfaces of the motor vehicle		N/A
	-that the installation shall be in accordance with any instructions issued by the vehicle manufacturer		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	With all-pole switch	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
	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		P
	Replacement cord instructions, type Z attachment		N/A
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		P
7.12.8	Instructions for appliances connected to the water mains:		
	- max. inlet water pressure (Pa) ....:		N/A
	- min. inlet water pressure, if necessary (Pa).....:		N/A
	Instructions concerning new and old hose-sets for appliances connected to the water mains by detachable hose-sets		N/A

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
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		N/A
	They may follow the description of the appliance that identifies parts, or follow the drawings/sketches		P
	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 ....:	On a website	P
7.13	Instructions and other texts in an official language	English	P
7.14	Marking clearly legible and durable, rubbing test as specified		P
	Signal words WARNING, CAUTION, DANGER in uppercase having a height as specified..... .....:	No such words	N/A
	Uppercase letter of the text explaining the signal word not smaller than 1,6 mm ....:		N/A
	Moulded in, engraved, or stamped markings either raised above or have a depth below the surface of at least 0,25 mm, unless	No such markings	N/A
	contrasting colours are used		N/A
	Markings checked by inspection, measurement and rubbing test as specified		P
	The height of the “Do not cover “ symbol shall be at least 15 mm (IEC 60335-2-30)		P
	The height of the words “Do not cover “ shall be at least 3 mm (IEC 60335-2-30)		N/A
	The height of the words relating to the maximum rated wattage and type of heat lamp shall be at last 6mm (IEC 60335-2-30)	No heat lamp	N/A
7.15	Markings on a main part		P
	Marking clearly discernible from the outside, if necessary after removal of a cover		P
	For portable appliances, cover can be removed or opened without a tool		N/A
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation		P

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions		P
	Indications for switches and controls placed on or near the components. Marking not on parts which can be positioned or repositioned in such a way that the marking is misleading		P
	The symbol IEC 60417-5018 placed next to the symbol IEC 60417-5172 or IEC 60417-5180		N/A
	Heaters for mounting at high level, indication of the different positions of switches visible from a distance of 1 m (IEC 60335-2-30)		N/A
	Marking concerning covering visible shall be visible after the heater has been installed. It shall not be placed on the bottom of, or on the back of, portable heaters. (IEC 60335-2-30)		P
	Marking not placed on the back of portable heaters (IEC 60335-2-30)		N/A
	Marking concerning removable fireguards visible before fitting the fireguard (IEC 60335-2-30)		N/A
	For ceiling mounted heat lamp appliances, the marking relating to the maximum rated wattage and type of heat lamp shall be visible when replacing a lamp in accordance with the instructions (IEC 60335-2-30)		N/A
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		N/A
8	**PROTECTION AGAINST ACCESS TO LIVE PARTS**		P
8.1	Adequate protection against accidental contact with live parts		P
	This requirement does not apply to live parts of screw-type or bayonet-type lampholders incorporated in ceiling mounted heat lamp appliances that are only accessible when the heat lamp is extracted (IEC 60335-2-30)		N/A
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

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Clause	Requirement + Test	Result - Remark	Verdict
	Use of test probe B of IEC 61032 through openings, with a force of 20N: no contact with live parts		P
	Detachable fireguards not removed if their removal requires the use of a tool, provided that (IEC 60335-2-30)		
	- the instructions state that the plug must be removed from the socket-outlet before cleaning the reflector, or		N/A
	- the heater incorporates a switch having contact separation all poles that provides full disconnection under overvoltage category III conditions		N/A
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
	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:		
	- safety extra-low a.c. voltage: peak value not exceeding 42.4 V		N/A
	- safety extra-low d.c. voltage: not exceeding 42.4 V		P
	- or separated from live parts by protective impedance		N/A
	If protective impedance: d.c. current not exceeding 2 mA, and		P
	a.c. peak value not exceeding 0.7 mA		N/A
	- for peak values over 42.4 V up to and including 450 V, capacitance not exceeding 0,1 μF		N/A
	- for peak values over 450 V up to and including 15 kV, discharge not exceeding 45 μC		N/A
	- for peak values over 15kV, the energy in the discharge not exceeding 350 mJ		N/A
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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	Class II construction.	P
	Only possible to touch parts separated from live parts by double or reinforced insulation		P
	During user maintenance and after the removal of detachable parts during replacement of heat lamp, the basic insulation of internal wiring may be touched provided electrically equivalent to the insulation of cords complying with IEC 60227 or IEC 60245 (IEC 60335-2-30)		N/A
9	**STARTING OF MOTOR-OPERATED APPLIANCES**		
	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 .:	(see appended table)	P
	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		P
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless	For CNS-U models	P
	the rated power input is related to the arithmetic mean value		P
10.2	Current at normal operating temperature, rated voltage and normal operation not deviating from rated current by more than shown in table 2.....:	(see appended table)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	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		P
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless	For CNS-U models	P
	the rated current is related to the arithmetic mean value of the range		N/A
11	**HEATING**		P
11.1	No excessive temperatures in normal use		P
11.2	Placing and mounting of appliance (IEC 60335-2-30)		
	-Portable fan heaters		N/A
	-Other heaters normaly placed on a floor		N/A
	-Fixed heater for mounting at high level		N/A
	-Other fixed heaters for wall mounting		P
	-Fixed heaters having a supply cord fitted with a plug	For CNS models, CNS(CH) models, CNS(AU) models	P
	-Heaters for ceiling mounting		N/A
	-Heaters for mounting under benches		N/A
	- Built-in heaters		N/A
	- Fixed heater with opening at floor level, felt pad pushed flat into the opening	No opening at floor level, at least 100mm from the floor.	N/A
	-Heaters having an air-outlet grille intended to be recessed in a floor, a window-sill or similar		N/A
	-Appliance provided with an automatic cord reel		N/A
	-Appliance with cord storage devices, other than automatic cord reel intended to accommodate supply cord partially while the appliance is in operation		N/A
	-Ceiling mounted heat lamp appliances		N/A
	-Recessed ceiling mounted heat lamp appliances are mounted as near as possible to the walls		N/A
	-Ceiling mounted heat lamp appliances, means for ventilation or ducting are provided in accordance with the installation instructions		N/A
	-Cab heaters		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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		N/A
	Temperature rise of the felt pad (IEC 60335-2-30)		N/A
	Additional test information (IEC 60335-2-30:2009/AMD2:2021)		N/A
11.4	Heating appliances operated under normal operation at 1.15 times rated power input (W) .....:	1,15 P	P
	If the temperature rise limits are exceeded in appliances incorporating motors, transformers or electronic circuits and the power input is lower than the rated power input, the test is repeated with the appliance supplied at 1.06 times rated voltage ..... (IEC 60335-2-30)		N/A
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage (V) .....:		N/A
11.6	Combined appliances are operated as heating appliances .... (IEC 60335-2-30)		N/A
11.7	Operation until steady conditions established (IEC 60335-2-30)		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 and table 101, or		N/A
	if there is doubt with regard to classification of insulation,		N/A
	tests of Annex C are carried out		N/A
	Sealing compound does not flow out		P
	Protective devices do not operate, except		P
	components in protective electronic circuits tested for the number of cycles specified in 24.1.4		N/A
	Modification of temperature rise in table 3 and table 101 (IEC 60335-2-30)		P
	Temperature rise limits of motors, transformers or components of electronic circuits and other parts may be exceed by 1.15 times rated power input (IEC 60335-2-30)		N/A

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Outer surface of liquid container of unvested liquid-filled radiators shall be at least 50 K less than the boiling point of liquid (IEC 60335-2-30)	Boiling-point: .. °C	N/A
	Temperature rise of surfaces shall not exceed the values in table 101 (IEC 60335-2-30)	(see appended table)	P
	-Heaters intended to be mounted under church benches, the temperature rise of surfaces accessible to the test rod shall not exceed 70K (IEC 60335-2-30)		N/A
	-For heaters intended to be mounted under other benches, temperature rises not exceeding values in table 3, for parts that are held for short periods only (IEC 60335-2-30)		N/A
	-For fixed heaters mounted in front of a socket-outlet, the temperature rise of the plug shall not exceed 45 K. (IEC 60335-2-30)		N/A
	-During the test for cab heaters, the temperature rise of the walls of the cab heater test box and the test corner shall not exceed 65 K. (IEC 60335-2-30)		N/A
	-The temperature rise of surfaces of cab heaters shall not exceed the values shown in Table 102 (IEC 60335-2-30)		N/A
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).....:		P
	Motor-operated appliances and combined appliances supplied at 1.06 times the rated voltage (V).....:		N/A
	Protective impedance and radio interference filters disconnected before carrying out the tests		N/A
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		P
	Leakage current measurements .....:	(see appended table)	P
13.3	The appliance is disconnected from the supply		P
	Electric strength tests according to table 4 .....:	(see appended table)	P
	No breakdown during the tests		P
14	**TRANSIENT OVERVOLTAGES**		
	Appliances withstand the transient over-voltages to which they may be subjected		N/A

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Clearances having a value less than specified in table 16 subjected to an impulse voltage test, the test voltage specified in table 6 .....:	(see appended table)	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	IP24	P
	Compliance checked as specified in 15.1.1, taking into account 15.1.2, followed by the electric strength test of 16.3		P
	No trace of water on insulation which can result in a reduction of clearances or creepage distances below values specified in clause 29		P
15.1.1	Appliances, other than IPX0, subjected to tests as specified in IEC 60529 .....:	IP24	P
	Water valves containing live parts in external hoses for connection of an appliance to the water mains tested as specified for IPX7 appliances		N/A
15.1.2	Hand-held appliance turned continuously through the most unfavourable positions during the test		N/A
	Built-in appliances installed according to the instructions		N/A
	Appliances placed or used on the floor or table placed on a horizontal unperforated support		N/A
	Appliances normally fixed to a wall and appliances with pins for insertion into socket-outlets are mounted on a wooden board		P
	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		P
	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		P

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	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		P
	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 an 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
	Heaters intended to be built into the floor and having a grille or opening at or near to the floor level shall be constructed so that such spillage does not affect their electrical insulation. ..... (IEC 60335-2-30)		
	The heater is installed as specified in 11.2, however the felt pad is not applied. The content of a container filled with approximately 10 l of water containing 1 % NaCl and 0,6 % rinsing agent as specified in Annex AA of IEC 60335-2-5 is poured steadily over the grille of the appliance at the most unfavourable place over a period of approximately 10 s.		N/A
	The appliance withstands the electric strength test of 16.3		N/A
	No trace of water on insulation that can result in a reduction of clearances or creepage distances below values specified in clause 29		N/A
15.3	Appliances proof against humid conditions		P
	Checked by test Cab: Damp heat steady state in IEC 60068-2-78		P

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Detachable parts removed and subjected, if necessary, to the humidity test with the main part		N/A
	Humidity test for 48 h in a humidity cabinet		P
	Reassembly of those parts that may have been removed		N/A
	The appliance withstands the tests of clause 16		P
16	**LEAKAGE CURRENT AND ELECTRIC STRENGTH**		
16.1	Leakage current not excessive and electric strength adequate		P
	Protective impedance disconnected from live parts before carrying out the tests		N/A
	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).....:	For CNS, CNS(CH) models: 243,8V For CNS-U, CNS(AU) models: 254,4V	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)	N/A
16.3	Electric strength tests according to table 7 .....:	(see appended table)	P
	Test voltage applied between the supply cord and inlet bushing and cord guard and cord anchorage as specified .....:	(see appended table)	P
	No breakdown during the tests		P
17	**OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS**		
	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) .....:	254,4V	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Basic insulation is not short-circuited		P
	Temperature rise of insulation of the conductors of safety extra-low voltage circuits not exceeding the relevant value specified in table 3 by more than 15 K		P
	Temperature of the winding not exceeding the value specified in table 8		P
	However, limits do not apply to fail-safe transformers complying with sub-clause 15.5 of IEC 61558-1		N/A
18	**ENDURANCE**		N/A
	Requirements and tests are specified in part 2 when necessary		N/A
19	**ABNORMAL OPERATION**		
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		P
	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, as applicable		P
	Appliances incorporating contactors or relays subjected to the test of 19.14, being carried out before the tests of 19.11		P
	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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Heaters compliance is checked by the tests of Cl. 19.5, 19.6, 19.11, 19.12, 19.101 to 19.115, as applicable (IEC 60335-2-30)		P
	Cab heaters are also subjected to the tests of 19.116 (IEC 60335-2-30)		N/A
19.2	Test of appliances with heating elements with restricted heat dissipation; test voltage (V), power input of 0.85 times rated power input (W) .....:		N/A
19.3	Test of 19.2 repeated; test voltage (V), power input of 1.24 times rated power input (W) .....:		N/A
19.4	Test conditions as in clause 11, any control limiting the temperature during tests of clause 11 short-circuited		N/A
19.5	Test of 19.4 repeated on Class 0I and I appliances with tubular sheathed or embedded heating elements. No short-circuiting, but one end of the element connected to the sheath		P
	The test repeated with reversed polarity and the other end of the heating element connected to the sheath		P
	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

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Clause	Requirement + Test	Result - Remark	Verdict
	An electronic timer or programmer that operates to ensure compliance with the test before the maximum period under the conditions of Clause 11 is reached, is a protective electronic circuit		N/A
	Other appliances supplied with rated voltage for a period as specified .....:		N/A
	Winding temperatures not exceeding values specified in table 8.....:	(see appended table)	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 .....:	(see appended table)	N/A
19.10	Series motor operated at 1.3 times rated voltage for 1 min (V) .....:		N/A
	During the test, parts not being ejected from the appliance		N/A
19.11	Electronic circuits, compliance checked by evaluation of the fault conditions specified in 19.11.2 for all circuits or parts of circuits, unless		P
	they comply with the conditions specified in 19.11.1		N/A
	Appliances incorporating an electronic circuit that relies upon a programmable component to function correctly, subjected to the test of 19.11.4.8, unless		P
	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		P
	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		N/A
	During and after each test the following is checked:		
	- 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

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	- any current flowing through protective impedance not exceeding the limits specified in 8.1.4		P
	If a conductor of a printed board becomes open-circuited, the appliance is considered to have withstood the particular test, provided both of the following conditions are met:		
	- the base material of the printed circuit board withstands the test of Annex E		N/A
	- any loosened conductor does not reduce clearance or creepage distances between live parts and accessible metal parts below the values specified in clause 29		N/A
19.11.1	Fault conditions a) to g) in 19.11.2 are not applied to circuits or parts of circuits meeting both of the following conditions:		
	- the electronic circuit is a low-power circuit, that is, the maximum power at low-power points does not exceed 15 W according to the tests specified		P
	- 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		P
19.11.2	Fault conditions applied one at a time, the appliance operating under conditions specified in clause 11, but supplied at rated voltage, duration of the tests as specified:		
	a) short circuit of functional insulation if clearances or creepage distances are less than the values specified in clause 29		P
	b) open circuit at the terminals of any component		P
	c) short circuit of capacitors, unless		P
	they comply with IEC 60384-14		P
	d) short circuit of any two terminals of an electronic component, other than integrated circuits		P
	This fault condition is not applied between the two circuits of an optocoupler		P
	e) failure of triacs in the diode mode		P
	f) failure of microprocessors and integrated circuits		P
	g) failure of an electronic power switching device		N/A
	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		P
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		N/A

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
19.11.4	Appliances having a device with an off position obtained by electronic disconnection, or		P
	a device that can be placed in the stand-by mode,		P
	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		P
	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		P
	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		P
19.11.4.2	The appliance is subjected to radiated fields in accordance with IEC 61000-4-3, at frequency ranges specified		P
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		P
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		P
	An open circuit test voltage of 2 kV is applicable for the line-to-line coupling mode		P
	An open circuit test voltage of 4 kV is applicable for the line-to-earth coupling		P
	Earthed heating elements in class I appliances disconnected		P
19.11.4.5	The appliance is subjected to injected currents in accordance with IEC 61000-4-6, test level 3		P
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		P
	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		P

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
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		P
	The appliance continues to operate normally, or		N/A
	requires a manual operation to restart		P
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).....:		N/A
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
	Compliance with clause 8 not impaired		P
	If the appliance can still be operated it complies with 20.2		N/A
	During Cl. 19.106, the temperature of motor windings shall not exceed the values in table 8 (IEC 60335-2-30)		N/A
	Insulation, other than of class III appliances or class III constructions that do not contain live parts, withstands the electric strength test of 16.3, the test voltage as specified in table 4:		
	- basic insulation (V).....:	1000V	P
	- supplementary insulation (V) .....:	1750V	P
	- reinforced insulation (V) .....:	3000V	P
	After operation or interruption of a control, clearances and creepage distances across the functional insulation withstand the electric strength test of 16.3, the test voltage being twice the working voltage		P
	The appliance does not undergo a dangerous malfunction, and		P
	no failure of protective electronic circuits, if the appliance is still operable		N/A
	Appliances tested with an electronic switch in the off position, or in the stand-by mode:		
	- do not become operational, or		P
	- if they become operational, do not result in a dangerous malfunction during or after the tests of 19.11.4		N/A

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	If the appliance contains lids or doors that are controlled by one or more interlocks, one of the interlocks may be released provided that:		
	- the lid or door does not move automatically to an open position when the interlock is released, and		N/A
	- the appliance does not start after the cycle in which the interlock was released		N/A
19.14	Appliances operated under the conditions of clause 11, any contactor or relay contact operating under the conditions of clause 11 being short-circuited		P
	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		P
	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	Heaters operated at 1.24 times rated power input, all thermal controls operated during the test of Cl. 11 short-circuited simultaneously (IEC 60335-2-30)		P
19.102	Circular and similar portable heaters which emit heat in several directions are placed as close as possible to one of the walls of the test corner at 1.24 times rated power input (IEC 60335-2-30)		N/A
19.103	Tests specified for heaters, other than (IEC 60335-2-30)		P
	- heaters for mounting at high level except those intended to be installed in wardrobes (IEC 60335-2-30)		N/A
	- visibly glowing radiant heaters (IEC 60335-2-30)		N/A
	- portable fan heaters (IEC 60335-2-30)		N/A
	Heaters operated as specified in Cl. 11 but covered with felt strips (IEC 60335-2-30)		P
	The temperature rise of the strips not exceeds 150 K. An over-shoot of 25K is allowed during the first hour.....(IEC 60335-2-30)	(see appended table)	P
	Heaters intended to be installed in wardrobes, including heaters for mounting at high level, comply with the test with any self-resetting thermal cut-out short-circuited ..... (IEC 60335-2-30)		N/A

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
19.104	Built-in heaters, having air outlet in the floor, window-sill or similar locations, special conditions as specified, thermal controls operated during the test of Cl. 11 short-circuited ..... (IEC 60335-2-30)		N/A
	The temperature rise of the strips not exceeds 150 K. An over-shoot of 25K is allowed during the first hour..... (IEC 60335-2-30)		N/A
19.105	Heaters having a liquid container to be filled by the user, tests specified in Cl. 11 but container empty (IEC 60335-2-30)		N/A
19.106	Fan heaters and other heaters, incorporating motors, tests specified in Cl. 11 but locked rotor and heaters supplied at rated voltage (IEC 60335-2-30)		N/A
19.107	Fan heaters operated at their working voltage as specified in Cl. 11 but the voltage at the terminal of the motor is supplied separately at its working voltage, thermal controls operated during the test of Cl. 11 short-circuited (IEC 60335-2-30)		N/A
19.108	Portable fan heaters, tests specified in Cl. 11. but a sheet of paper covered the air inlets for 4 h (IEC 60335-2-30)		N/A
19.109	Cab heaters and portable fan heaters, tests specified in Cl. 11 but air flow directed against a wall, thermal controls operated during the test of Cl. 11 short-circuited (IEC 60335-2-30)		N/A
	Maximum temperature rise (K) on the wall does not exceed 150 K (IEC 60335-2-30)		N/A
19.110	Portable visibly glowing radiant heaters, tests specified in Cl. 11 but radiation directed against a wall (IEC 60335-2-30)		N/A
	Maximum temperature rise (K) on the wall does not exceed 70 K (IEC 60335-2-30)		N/A
19.111	Visibly glowing radiant heaters, other than heaters for mounting at high level, tests specified in Cl. 11 but rated power input and a piece flannelette in contact with the fireguard. The flannelette shall not smoulder or ignite within 10 s (IEC 60335-2-30)		N/A
19.112	Portable heaters, tests specified in Cl. 11 but overturned position on a soft wood surface covered with felt having the same specific mass and thickness as specified in 19.103 but without any textile material.. The felt or the wood surface shall not smoulder or ignite (IEC 60335-2-30)		N/A
	The maximum temperature rise of the felt shall not exceed 150K but an over-shoot of 25 K is allowed during the first hour. (IEC 60335-2-30)		N/A

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	Surface of oil-filled radiators shall be at least 40 K lower than the boiling point (°C) of the oil, no deformation of container, leakage of oil or emission of flames (IEC 60335-2-30)	(see appended table) Boiling-point: .. °C	N/A
	Pressure in liquid-filled radiators (IEC 60335-2-30)	(see appended table)	N/A
	Fuel effect heaters intended to be placed in a fireplace not subjected to this test (IEC 60335-2-30)		N/A
19.113	Fan heaters, tests specified in Cl.11 but all self-resetting thermal cut-outs and controls which operated during the test of Cl. 11 short-circuited and the fan motor is stalled (IEC 60335-2-30)		N/A
	If compliance with 19.13 relies on the operation of a non-self-resetting protective device, the time from energising the heating elements to the time that the non-self-resetting protective device operates is recorded for the purposes of 19.117.		N/A
	After the test, all samples shall comply with 19.13 and the longest time recorded for the four samples is used for the purposes of 19.117		N/A
19.114	Oil filled radiators, tests specified in Cl. 11 but at rated power input, the oil level is approximately 10 mm above the heating element and the container resealed and with the appliance being supplied at 1,06 times rated voltage (IEC 60335-2-30)		N/A
	Surface of container shall be at least 40 K lower than the boiling point of the oil (IEC 60335-2-30)	(see appended table)	N/A
19.115	Ceiling mounted heat lamp appliances tests specified in Cl. 11 but at the highest rated wattage heat lamps fitted as allowed by the construction. (IEC 60335-2-30)		N/A
19.116	Cab heaters are positioned with the outlet air directed at a dull black-painted plywood wall. The heater is placed so that the distance between the test wall and the air outlet grille is 10 cm. (IEC 60335-2-30)		N/A
	cab heater is supplied at 1,15 times rated power input and is operated until steady conditions are reached		N/A
	or a non-self-resetting protective device operates, whichever occurs first.		N/A
	During the test, the temperature rise at the test wall shall not exceed 65 K.		N/A
19.117	Fan heaters are operated as specified in Clause 11, except that all thermal cut-outs and controls are short-circuited and the fan motor is stalled. The fan heater is energized for the longest time recorded during the test of 19.113 plus 5 s, and then it is de-energized. (IEC 60335-2-30)		N/A

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	During the test, 19.13 is not applicable, but the fan heater shall not emit flames.		N/A
20	**STABILITY AND MECHANICAL HAZARDS**		
20.1	Heaters shall have adequate stability. This requirement does not apply to fixed heaters. (IEC 60335-2-30)	Fixed appliances	N/A
	Appliances placed: (IEC 60335-2-30)		N/A
	- most unfavourable normal position of use on a inclined plane of 15 °. The heater shall not overturn (IEC 60335-2-30)		N/A
	- on a horizontal plane with 5 N applied to the top. The heater shall not overturn (IEC 60335-2-30)		N/A
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury		N/A
	Protective enclosures, guards and similar parts are non-detachable, and		N/A
	have adequate mechanical strength		N/A
	Enclosures that can be opened by overriding an interlock are considered to be detachable parts		N/A
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard by unexpected closure		N/A
	Not possible to touch dangerous moving parts with the test probe described		N/A
21	**MECHANICAL STRENGTH**		
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 0,5 J	(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		N/A
	Compliance also checked by the tests of 21.101 and 21.102 and 21.104. (IEC 60335-2-30)		N/A
	For appliances with heating elements that are in direct contact with accessible glass panels, the impact energy of the blows applied to the panel is 2 J (IEC 60335-2-30)		N/A

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	For cab heaters, the impact energy of the blows is increased to 1,0 J, the test being performed at –25 °C after the appliance has been stored at this temperature for 24 h. (IEC 60335-2-30)		N/A
	If necessary, repetition of groups of three blows on a new sample		N/A
21.2	Accessible parts of solid insulation having strength to prevent penetration by sharp implements		P
	Test not applicable if the thickness of supplementary insulation is at least 1 mm and reinforced insulation at least 2 mm		P
	The insulation is tested as specified, and does withstand the electric strength test of 16.3		P
21.101	Visibly glowing radiant heaters, other than heaters for mounting at high level, placed that the central part of the fireguard is horizontal - a mass of 5 kg having a flat base 100 mm placed for 1 min on the central part of the fireguard. The fireguard show no significant permanent deformation (IEC 60335-2-30)	No such heaters	N/A
	This test is also applied to the air inlet and air outlet grilles of cab heaters.		N/A
21.102	Heaters having a part fixed to the wall or ceiling and another part hinged to it, fixed in accordance with the instructions - the hinged part fall away under its own weight five times - after test the heater compliance with Cl. 8.1 and Cl. 29.1 and show no damage (IEC 60335-2-30)		N/A
21.103	Panel heaters for ceiling mounting, suspension means shall have adequate strength - a load equal four times the mass of appliance suspended from the centre for 1 h - if suspension means rigid, torque of 2.5 Nm applied for 1 min in each direction - after tests suspension means shall show no significant deformation (IEC 60335-2-30)		N/A
21.104	Portable fan heaters, other than those intended to be operated at maximum heat output with the fan switched off, test as described (IEC 60335-2-30)		N/A
	The portable fan heater shall not emit flames.		N/A
	After the test, the requirements of 8.1 and 16.3 shall be met.		N/A
21.105	Cab heaters shall withstand vibrations liable to occur during normal use. If the mounting instructions for the cab heater give several mounting options, the test shall be carried out in the most unfavourable mounting position (IEC 60335-2-30)		N/A

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	After the test, the appliance shall show no damage that could impair compliance with this standard; in particular, compliance with 8.1, 15.1, 16.3 and Clause 29 shall not be impaired.		N/A
	Screws shall not have changed position and connections shall not have worked loose.		N/A
	If the test item comes off its mounting, it shall be subject to the test of Clause 11 in all positions which the appliance can take when it comes off.		N/A
	During this test, the temperature rise of the supporting surface shall not exceed 150 K.		N/A
21.106	Cab heaters other than those intended to be permanently mounted shall withstand the effects of being dropped. (IEC 60335-2-30)		N/A
	After the test, compliance with 8.1, 16.3 and Clause 29 shall not be impaired.		N/A
21.107	Floor level grilles of heaters intended to be built into the floor shall have adequate mechanical strength. (IEC 60335-2-30)		N/A
	During the test, the maximum deflection of the grille shall not exceed 3 mm.		N/A
	After the test, the grille shall show no significant permanent deformation and shall not have fallen from its supporting structure. The creepage distances and clearances shall not be reduced below those specified in Clause 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	IP24	P
22.2	Stationary appliance: means to ensure all-pole disconnection from the supply being provided:		
	- a supply cord fitted with a plug, or	For CNS series, CNS(CH) series, CNS(AU) series only	P
	- a switch complying with 24.3, or	For all models	P
	- 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
	Fixed heaters that may be installed in front of a socket-outlet shall incorporate a switch complying with 24.3 or shall contain a statement in the instructions that a disconnecting switch incorporated in the fixed wiring shall be provided. (IEC 60335-2-30)		N/A

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
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 the pins of the plug, for appliances having a capacitor with rated capacitance equal to or greater than 0,1μF, the appliance being disconnected from the supply at the instant of voltage peak	No such capacitors	P
	Voltage not exceeding 34 V (V) .....:		N/A
	If compliance relies on the operation of an electronic circuit, the electromagnetic phenomena tests of 19.11.4.3 and 19.11.4.4 are applied		N/A
	The discharge test is then repeated three times, voltage not exceeding 34 V (V) .....:		N/A
22.6	Electrical insulation not affected by condensing water or leaking liquid		N/A
	Electrical insulation of Class II appliances not affected if a hose ruptures or seal leaks		N/A
	In case of doubt, test as described		N/A
22.7	Heaters containing liquid or gas shall be constructed that they withstand the pressure to occur during use -appliance subjected to twice the highest pressure during the tests of Cl. 19.101, 19.103 or 19.112 -after test there shall be no leakage of liquid or gas (IEC 60335-2-30)	Test pressure: ...Pa	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		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

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
22.10	Not possible to reset voltage-maintained non-self-resetting thermal cut-outs by the operation of an automatic switching device incorporated within the appliance, if:		N/A
	- a non-self-resetting thermal cut-out is required by the standard, and		N/A
	- a voltage maintained non-self-resetting thermal cut-out is used to meet it		N/A
	Non-self-resetting thermal motor protectors have a trip-free action, unless		N/A
	they are voltage maintained		N/A
	Reset buttons of non-self-resetting controls so located or protected that accidental resetting is unlikely		N/A
22.11	Reliable fixing of non-detachable parts that provide the necessary degree of protection against electric shock, moisture or contact with moving parts		P
	Obvious locked position of snap-in devices used for fixing such parts		P
	No deterioration of the fixing properties of snap-in devices used in parts that are likely to be removed during installation or servicing		P
	Tests as described		P
22.12	Handles, knobs etc. fixed in a reliable manner, if loosening result in a hazard		P
	Removing or fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible, if resulting in a hazard		P
	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	For the switch	P
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		P
	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

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
	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	No such device	N/A
	constructed to prevent inappropriate replacement		N/A
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless		P
	material used is non-corrosive, non-hygroscopic and non-combustible		N/A
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless	No such device	P
	impregnated		N/A
	This requirement does not apply to magnesium oxide and mineral ceramic fibres used for the electrical insulation of heating elements		N/A
22.22	Appliances not containing asbestos		P
22.23	Oils containing polychlorinated biphenyl (PCB) not used		P
22.24	Bare heating elements shall be supported to prevent excessive displacement occurring during normal use. The rupture of the heating element shall not give rise to a hazard. Compliance is checked by inspection, after the bare heating conductor has been cut in the most unfavourable place. The string shall not break (IEC 60335-2-30)		N/A
22.25	Sagging heating conductors, except in class III appliances or class III constructions that do not contain live parts, cannot come into contact with accessible metal parts		N/A

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict
22.26	For class III constructions the insulation between parts operating at safety extra-low voltage and other live parts complies with the requirements for double or reinforced insulation		N/A
22.27	Parts connected by protective impedance separated by double or reinforced insulation		N/A
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		P
	so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete		P
22.31	Neither clearances nor creepage distances over supplementary and reinforced insulation reduced below values specified in clause 29 as a result of wear		P
	Neither clearances nor creepage distances between live parts and accessible parts reduced below values for supplementary insulation if wires, screws etc. become loose		P
22.32	Supplementary and reinforced insulation constructed or protected against pollution so that clearances or creepage distances are not reduced below the values in clause 29		P
	Supplementary insulation of natural or synthetic rubber resistant to ageing, or arranged and dimensioned so that creepage distances are not reduced below values specified in 29.2		N/A
	Ceramic material not tightly sintered, similar materials or beads alone not used as supplementary or reinforced insulation		N/A
	Ceramic and similar porous material in which heating conductors are embedded is considered to be basic insulation, not reinforced insulation		N/A
	Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature		N/A
22.33	Conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed accessible metal parts are not in direct contact with live parts, or		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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		P
	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	Plastic button	P
	Such parts being of metal, and their shafts or fixings are likely to become live in the event of a failure of basic insulation, are either adequately covered by insulation material or their accessible parts are separated from their shafts or fixings by supplementary insulation		N/A
	This requirement does not apply to handles, levers and knobs on stationary appliances and cordless appliances, other than those of electrical components, provided they are reliably connected to an earthing terminal or earthing contact, or separated from live parts by earthed metal		N/A
	Insulating material covering metal handles, levers and knobs withstand the electric strength test of 16.3 for supplementary insulation		N/A
22.36	For appliances other than class III, handles continuously held in the hand in normal use so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts, unless	Not continuously held	N/A
	they are separated from live parts by double or reinforced insulation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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	No such Capacitor	N/A
	the capacitors comply with 22.42		P
22.38	Capacitors not connected between the contacts of a thermal cut-out	No such Capacitor	P
22.39	Lamp holders used only for the connection of lamps		N/A
	For ceiling mounted lam appliances, the insulating parts of lampholders used for the connection of replaceable heat lamp shall be ceramic (IEC 60335-2-30)		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		P
	Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited		P
	Resistors checked by the test of 14.1 a) in IEC 60065		N/A
	Capacitors checked by the tests for class Y capacitors in IEC 60384-14		P
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		N/A
22.44	Appliances not having an enclosure that is shaped or decorated like a toy		P
22.45	When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.3 due to deformation as a result of an external force applied to the enclosure		P

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Clause	Requirement + Test	Result - Remark	Verdict
22.46	For programmable protective electronic circuits used to ensure compliance with the standard, the software contains measures to control the fault/error conditions in table R.1		N/A
	Software that contains measures to control the fault/error conditions specified in table R.2 is to be specified in parts 2 for particular constructions or to address specific hazards		N/A
	These requirements are not applicable to software used for functional purpose or compliance with clause 11		N/A
22.47	Appliances connected to the water mains withstand the water pressure expected in normal use		N/A
	No leakage from any part, including any inlet water hose		N/A
22.48	Appliances connected to the water mains constructed to prevent backsiphonage of non-potable water		N/A
22.49	For remote operation, the duration of operation is to be set before the appliance can be started, unless		N/A
	the appliance switches off automatically or can operate continuously without hazard		N/A
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation		N/A
22.51	There is a control on the appliance manually adjusted to the setting for remote operation before the appliance can be operated in this mode		N/A
	There is a visual indication showing that the appliance is adjusted for remote operation		N/A
	These requirements not necessary on appliances that can operate as follows, without giving rise to a hazard:		
	- continuously, or		N/A
	- automatically, or		N/A
	- remotely		N/A
22.52	Socket-outlets on appliances accessible to the user in accordance with the socket-outlet system used in the country in which the appliance is sold		N/A
22.53	Class II appliances and class III appliances that incorporate functionally earthed parts have at least double insulation or reinforced insulation between live parts and the functionally earthed parts		N/A
22.54	Button cells and batteries designated R1 not accessible without the aid of a tool, unless		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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 .....:	By means of different position of switch	P
	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:		
	– tactile feedback from the actuator or from the appliance, or		P
	– reduction in heat output; or		P
	– audible and visible feedback		P
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	Heaters other than heaters for mounting at high level, shall be guarded in order to prevent contact with heating elements (IEC 60335-2-30)		
	Test probe 41 IEC 61032 applied with a force not exceeding 5N not touch the heating elements		P
	Fireguards shall have no openings which exceed	No such heaters	P
	- a major dimension of 126 mm and a corresponding minor dimension of 12 mm, or		N/A
	- a major dimension of 53 mm and a corresponding minor dimension of 20 mm		N/A
	These dimensions also apply to any gap between the fireguard and its immediate surround. However, any apertures having a minor dimension of less than 5 mm are ignored.		N/A
22.102	Fireguards shall have a total open area not less than 50% of the surface area of the fireguard (IEC 60335-2-30)		N/A
22.103	Fireguards not completely removable without use of a tool (IEC 60335-2-30)		N/A
22.104	Appliance for wall mounting so constructed That they can be securely fixed to a wall (IEC 60335-2-30)		P

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Clause	Requirement + Test	Result - Remark	Verdict
22.105	Accessible panels made of glass, ceramic or similar material in direct contact with heating elements shall withstand thermal shock (1 l water (15 ± 5)°C is directed onto the central part of the panel at a rate of 10 ml/s through a 5 mm diameter tube) The panel shall not be damaged (IEC 60335-2-30)		N/A
22.106	Portable appliances not have openings on the underside that would allow small items to penetrate and touch live parts (IEC 60335-2-30)		N/A
22.107	Visibly glowing radiant heaters, after fixing to a wall or ceiling direction of radiation cannot be changed without the aid of a tool (IEC 60335-2-30)		N/A
22.108	Visibly glowing radiant heaters other than heaters for mounting at high level, incorporates not thermostats, timers or similar means which switch on heating elements automatically, unless at least one heating element is already visibly glowing. (IEC 60335-2-30)		N/A
22.109	Disconnection of supply by a switch in the OFF position shall not rely on electronic components (IEC 60335-2-30)	Main power switch provided	P
	If the heater has a stand-by mode, it is considered to be on.		P
22.110	Heaters intended to be mounted under church benches: metal surfaces accessible to the 75mm diameter test rod shall have a non-metallic coating with a thickness of at least 50 microns (IEC 60335-2-30)		N/A
22.111	Normally open switches relying on contact with the floor to keep them in the closed position shall have moving contacts that come to rest in either the closed or open position even when the operating means is in an intermediate position (IEC 60335-2-30)	No such switch	N/A
	Compliance is checked by inspection and by the described test		N/A
22.112	Cab heaters shall not contain bare heating elements. (IEC 60335-2-30)		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		P

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Clause	Requirement + Test	Result - Remark	Verdict
	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	No moving parts	N/A
	Flexible metallic tubes not causing damage to insulation of conductors		N/A
	Open-coil springs not used		N/A
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N/A
	No damage after 10 000 flexings for conductors flexed during normal use, or		N/A
	100 flexings for conductors flexed during user maintenance		N/A
	Electric strength test of 16.3, 1000 V between live parts and accessible metal parts		N/A
	Not more than 10% of the strands of any conductor broken, and		N/A
	not more than 30% for wiring supplying circuits that consume no more than 15W		N/A
23.4	Bare internal wiring sufficiently rigid and fixed	No bare internal wiring	N/A
23.5	The insulation of internal wiring subjected to the supply mains voltage withstanding the electrical stress likely to occur in normal use		P
	Basic insulation electrically equivalent to the basic insulation of cords complying with IEC 60227 or IEC 60245, or		P
	no breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation		P
	For class II construction, the requirements for supplementary insulation and reinforced insulation apply,		P
	except that the sheath of a cord complying with IEC 60227 or IEC 60245 may provide supplementary insulation.		N/A
	A single layer of internal wiring insulation does not provide reinforced insulation		P

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Clause	Requirement + Test	Result - Remark	Verdict
23.6	Sleeving used as supplementary insulation on internal wiring retained in position by clamping at both ends, or		P
	be such that it can only be removed by breaking or cutting		P
23.7	The colour combination green/yellow only used for earthing conductors		P
23.8	Aluminium wires not used for internal wiring	No Aluminium wires	P
23.9	Stranded conductors not consolidated by soldering where they are subjected to contact pressure, unless		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		P
	The requirements of Clause 29 apply between live parts of components and accessible parts of the appliance		P
	Components can comply with the requirements for clearances and creepage distances for functional insulation in the relevant component standard		P
	30.2 of this standard apply to parts of non-metallic material in components including parts of non-metallic material supporting current-carrying connections		P
	Components that have not been previously tested to comply with the IEC standard for the relevant component are tested according to the requirements of 30.2		P
	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

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Clause	Requirement + Test	Result - Remark	Verdict
	If these conditions are not satisfied, the component is tested as part of the appliance.		P
	Power electronic converter circuits not required to comply with IEC 62477-1, they are tested as part of the appliance		N/A
	If components have not been tested and found to comply with relevant IEC standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9		P
	For components mentioned in 24.1.1 to 24.1.9 no additional tests specified in the relevant component standard are necessary other than those specified in 24.1.1 to 24.1.9		P
	Components not tested and found to comply with relevant IEC standard and components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance		P
	Lampholders and starterholders that have not being tested and found to comply with the relevant IEC standard, tested as a part of the appliance and additionally according to the gauging and interchangeability requirements of the relevant IEC standard		N/A
	No additional tests specified for nationally standardized plugs such as those detailed in IEC/TR 60083 or connectors complying with the standard sheets of IEC 60320-1 and IEC 60309		P
24.1.1	Capacitors likely to be permanently subjected to the supply voltage and used for radio interference suppression or for voltage dividing, comply with IEC 60384-14		N/A
	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	Certificated transformer	P
	Safety isolating transformers comply with IEC 61558-2-6		P
	If they have to be tested, they are tested according to Annex G		N/A
24.1.3	Switches comply with IEC 61058-1, the number of cycles of operation being at least 10 000		P
	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

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Clause	Requirement + Test		Result - Remark	Verdict
	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
	Switches operating during the test of Cl. 19.112:300 (IEC 60335-2-30)			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:			
	- thermostats:	10 000		N/A
	- temperature limiters:	1 000		N/A
	- self-resetting thermal cut-outs (IEC 60335-2-30)	10 000		P
	-non-self-resetting thermal cut-outs operating during 19.112(IEC 60335-2-30)	300		N/A
	-for other non-self-resetting thermal cut-outs (IEC 60335-2-30)	1 000		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
	thermostats of liquid-filled radiators which operate during Cl. 11 to limit the surface temperature rise to 85 K: (IEC 60335-2-30)	100.000		N/A
	thermostats of cab heaters (IEC 60335-2-30)	10 000		N/A
	self-resetting thermal motor protectors for motors in cab heaters (IEC 60335-2-30)	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			P
	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		Not capillary type	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
24.1.5	Appliance couplers comply with IEC 60320-1		N/A
	However, for class II appliances classified higher than IPX0, the appliance couplers comply with IEC 60320-2-3		N/A
	Interconnection couplers 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 lampholders being applicable		N/A
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		P
	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.....:		P
24.2	Appliances not fitted with:		
	- 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		P
	- thermal cut-outs that can be reset by soldering, unless		P
	the solder has a melding point of at least 230 ˚C		N/A
24.3	Switches intended for all-pole disconnection of stationary appliances are directly connected to the supply terminals and have a contact separation in all poles, providing full disconnection under overvoltage category III conditions		P
24.4	Plugs and socket-outlets for extra-low voltage circuits and heating elements, not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1		P

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Clause	Requirement + Test	Result - Remark	Verdict
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
24.7	Detachable hose-sets for connection of appliances to the water mains comply with IEC 61770		N/A
	They are supplied with the appliance		N/A
	Appliances intended to be permanently connected to the water mains not connected by a detachable hose-set		N/A
24.8	Motor running capacitors in appliances for which 30.2.3 is applicable and that are permanently connected in series with a motor winding, not causing a hazard in event of a failure		N/A
	One or more of the following conditions are to be met:		
	- the capacitors are of class 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
24.101	Oil-filled radiators, devices incorporated to comply with Cl. 19.114 shall be non-self-resetting (IEC 60335-2-30)		N/A
	Protective devices other than thermal motor protectors, incorporated in cab heaters in order to comply with Clause 19, shall not be self-resetting.		N/A
	Non-self-resetting thermal cut-outs, incorporated in cab heaters that are reset by disconnection of the supply mains are considered to be self-resetting.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
24.102	Protective devices other than thermal motor protectors, incorporated in cab heaters in order to comply with Clause 19, shall not close automatically when subjected to low temperatures. (IEC 60335-2-30)		N/A
25	**SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS**		
25.1	Appliance not intended for permanent connection to fixed wiring, means for connection to the supply:		
	- supply cord fitted with a plug, the current rating and voltage rating of the plug being not less than the corresponding ratings of its associated appliance	For CNS models, CNS(CH) models, CNS(AU) models	P
	- 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		N/A
25.2	Appliance not provided with more than one means of connection to the supply mains		P
	Stationary appliance for multiple supply may be provided with more than one means of connection, provided electric strength test of 1250 V for 1 min between each means of connection causes no breakdown		N/A
25.3	Appliance intended to be permanently connected to fixed wiring provided with one of the following means for connection to the supply mains:		
	- a set of terminals allowing the connection of a flexible cord		N/A
	- a fitted supply cord	For CNS-U models	P
	- a set of supply leads accommodated in a suitable compartment		N/A
	- a set of terminals for the connection of cables of fixed wiring, cross-sectional areas specified in 26.6, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support		N/A
	- a set of terminals and cable entries, conduit entries, knock-outs or glands, allowing connection of appropriate types of cable or conduit, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support		N/A
	For a fixed appliance constructed so that parts can be removed to facilitate easy installation, this requirement is met if it is possible to connect the fixed wiring without difficulty after a part of the appliance has been fixed to its support		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimension according to table 10 (mm) .....:		N/A
	Introduction of conduit or cable does not reduce clearances or creepage distances below values specified in clause 29		N/A
25.5	Method for assembling the supply cord to the appliance:		
	- type X attachment		N/A
	- type Y attachment		P
	- type Z attachment, if allowed in relevant part 2		N/A
	Type X attachment, other than those with a specially prepared cord, not used for flat twin tinsel cords		N/A
	For multi-phase appliances supplied with a supply cord and that are intended to be permanently connected to fixed wiring, the supply cord is assembled to the appliance by type Y attachment		N/A
25.6	Plugs fitted with only one flexible cord		
25.7	Supply cords, other than for class III appliances, being one of the following types:		P
	- rubber sheathed (at least 60245 IEC 53)	H05RR-F	P
	- polychloroprene sheathed (at least 60245 IEC 57)	H07RN-F H05RN-F	P
	- 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		N/A
	• ordinary polyvinyl chloride sheathed cord (60227 IEC 53), for other appliances	H05VV-F	P
	- heat resistant polyvinyl chloride sheathed. Not used for type X attachment other than specially prepared cords		
	• heat-resistant light polyvinyl chloride sheathed cord (60227 IEC 56), for appliances not exceeding 3 kg		N/A
	• heat-resistant polyvinyl chloride sheathed cord (60227 IEC 57), for other appliances		N/A
	- halogen-free, low smoke, thermoplastic insulated and sheathed		
	• 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

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Clause	Requirement + Test	Result - Remark	Verdict
	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
	Supply cords of portable heaters intended to be used in greenhouses and for cab heaters shall be polychloroprene sheathed flexible cord. (IEC 60335-2-30)		N/A
	Supply cords of heaters intended to be used on building sites shall not be lighter than heavy ordinary polychloroprene sheathed flexible cord (60245 IEC 66) (IEC 60335-2-30)		N/A
	For portable oil-filled radiators fitted with polyvinyl chloride sheathed cords (code designation 60227 IEC 52 or code designation 60227 IEC 53), metal parts likely to touch the supply cord in normal use include those parts that are inaccessible to the 75 mm diameter test rod specified in Table 101 but that may come into contact with the cord when it is wrapped around the heater. This does not apply if storage means for the cord are provided. (IEC 60335-2-30)		N/A
	Supply cords of heaters intended to be used outdoors shall be polychloroprene sheathed or equivalent synthetic elastomer and shall not be lighter than polychloroprene sheathed flexible cord (IEC 60335-2-30:2009/AMD2:2021)		N/A
25.8	Nominal cross-sectional area of supply cords not less than table 11; rated current (A); cross-sectional area (mm²).....:	For 500W to 2000W models: Max. 8,7A, 1,0mm² cord used; For 2500W & 3000W models: Max. 13A, 1,5mm² cord used	P
25.9	Supply cords not in contact with sharp points or edges		P
25.10	Supply cord of class I appliances have a green/yellow core for earthing		P
	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:		
	– 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

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Clause	Requirement + Test	Result - Remark	Verdict
25.11	Conductors of supply cords not consolidated by soldering where they are subject to contact pressure, unless		P
	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		P
	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		P
	If unsheathed supply cord, a similar additional bushing or lining is required, unless the appliance is		N/A
	class 0, or		N/A
	a class III appliance not containing live parts		N/A
25.14	Supply cords moved while in operation adequately protected against excessive flexing		N/A
	Flexing test, as described:		
	- applied force (N).....:		N/A
	- number of flexings.....:		N/A
	The test does not result in:		
	- short-circuit between the conductors, such that the current exceeds a value of twice the rated current		N/A
	- breakage of more than 10% of the strands of any conductor		N/A
	- separation of the conductor from its terminal		N/A
	- loosening of any cord guard		N/A
	- damage to the cord or the cord guard		N/A
	- broken strands piercing the insulation and becoming accessible		N/A
25.15	For appliances with supply cord and appliances to be permanently connected to fixed wiring by a flexible cord, conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorage		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 supply cord:		
	- fixed appliances: pull 100 N; torque (not on automatic cord reel) (Nm).....:	Pull 100N, torque 0,35Nm	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- other appliances: values shown in table 12: mass (kg); pull (N); torque (not on automatic cord reel) (Nm).....:		N/A
	Pull and torque test of supply cord, values shown in table 12: mass (kg); pull (N); torque (not on automatic cord reel) (Nm).....:		N/A
	Cord not damaged and max. 2 mm displacement of the cord	0,4mm	P
25.16	Cord anchorages for type X attachments constructed and located so that:		
	- 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 bears directly on the cord		N/A
	- at least one part of the cord anchorage securely fixed to the appliance, unless		N/A
	it is part of a specially prepared cord		N/A
	- screws which have to be operated when replacing the cord do not fix any other component, unless		N/A
	the appliance becomes inoperative or incomplete or the parts cannot be removed without a tool		N/A
	- if labyrinths can be bypassed the test of 25.15 is nevertheless withstood		N/A
	- for class 0, 0I and I appliances they are of insulating material or are provided with an insulating lining, unless		N/A
	failure of the insulation of the cord does not make accessible metal parts live		N/A
	- for class II appliances they are of insulating material, or		N/A
	if of metal, they are insulated from accessible metal parts by supplementary insulation		N/A
	After the test of 25.15, under the conditions specified, the conductors have not moved by more than 1 mm in the terminals		N/A
25.17	Adequate cord anchorages for type Y and Z attachment, test with the cord supplied with the appliance	Type Y	P

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Clause	Requirement + Test	Result - Remark	Verdict
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		P
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	Type Y	P
25.21	Space for supply cord for type X attachment or for connection of fixed wiring constructed:		
	- to permit checking of conductors with respect to correct positioning and connection before fitting any cover		N/A
	- so there is no risk of damage to the conductors or their insulation when fitting the cover		N/A
	- for portable appliances, so that the uninsulated end of a conductor, if it becomes free from the terminal, prevented from contact with accessible metal parts		N/A
	2 N test to the conductor for portable appliances; no contact with accessible metal parts		N/A
25.22	Appliance inlets:		
	- live parts not accessible during insertion or removal		N/A
	Requirement not applicable to appliance inlets complying with IEC 60320-1		N/A
	- connector can be inserted without difficulty		N/A
	- the appliance is not supported by the connector		N/A
	- not for cold conditions if temp. rise of external metal parts exceeds 75 K during clause 11, unless		N/A
	the supply cord is unlikely to touch such metal parts		N/A
25.23	Interconnection cords comply with the requirements for the supply cord, except that:		N/A
	- the cross-sectional area of the conductors is determined on the basis of the maximum current during clause 11		N/A
	- the thickness of the insulation may be reduced		N/A
	- 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		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	If necessary, electric strength test of 16.3		N/A
25.24	Interconnection cords not detachable without the aid of a tool if compliance with this standard is impaired when they are disconnected		N/A
25.25	Dimensions of pins that are inserted into socket-outlets compatible with the dimensions of the relevant socket-outlet.		N/A
	Dimensions of pins and engagement face in accordance with the dimensions of the relevant plug in IEC/TR 60083		N/A
26	**TERMINALS FOR EXTERNAL CONDUCTORS**		
26.1	Appliances provided with terminals or equally effective devices for connection of external conductors		P
	Terminals only accessible after removal of a non-detachable cover, except		P
	for class III appliances that do not contain live parts		N/A
	Earthing terminals may be accessible if a tool is required to make the connections and means are provided to clamp the wire independently from its connection		N/A
26.2	Appliances with type X attachment and appliances for the connection of cables to fixed wiring provided with terminals in which connections are made by means of screws, nuts or similar devices, unless		N/A
	the connections are soldered		N/A
	Screws and nuts not used to fix any other component, except		N/A
	internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N/A
	If soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone, unless		N/A
	barriers provided so that neither clearances nor creepage distances between live parts and other metal parts reduced below the values for supplementary insulation if the conductor becomes free at the soldered joint		N/A
26.3	Terminals for type X attachment and for connection of cables of fixed wiring so constructed that the conductor is clamped between metal surfaces with sufficient contact pressure but without damaging the conductor		N/A
	Terminals fixed so that when the clamping means is tightened or loosened:		

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Clause	Requirement + Test	Result - Remark	Verdict
	- 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		
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
26.6	Terminals for type X attachment and for connection of cables of fixed wiring suitable for connection of conductors with cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm^2).....:		N/A
	If a specially prepared cord is used, terminals need only be suitable for that cord		N/A
26.7	Terminals for type X attachment, except in class III appliances not containing live parts, accessible after removal of a cover or part of the enclosure		N/A
26.8	Terminals for the connection of fixed wiring, including the earthing terminal, located close to each other		N/A
26.9	Terminals of the pillar type constructed and located as specified		N/A
26.10	Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless		P

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Clause	Requirement + Test	Result - Remark	Verdict
	conductors ends fitted with means suitable for screw terminals		P
	Pull test of 5 N to the connection		P
26.11	For type Y and Z attachment, soldered, welded, crimped or similar connections may be used	Type Y	P
	For Class II appliances, the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone		N/A
	If soldering, welding or crimping alone used, barriers provided so that clearances and creepage distances between live parts and other metal parts are not reduced below the values for supplementary insulation if the conductor becomes free		P
27	**PROVISION FOR EARTHING**		
27.1	Accessible metal parts of Class 0I and I appliances permanently and reliably connected to an earthing terminal or earthing contact of the appliance inlet		P
	Earthing terminals and earthing contacts not connected to the neutral terminal		P
	Class 0, II and III appliances have no provision for protective earthing		N/A
	Class II appliances and class III appliances can incorporate an earth for functional purposes		N/A
	Safety extra-low voltage circuits not earthed, unless		N/A
	protective extra-low voltage circuits		N/A
27.2	Clamping means of earthing terminals adequately secured against accidental loosening		P
	Terminals for the connection of external equipotential bonding conductors allow connection of conductors of 2.5 to 6 mm², and		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
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

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Clause	Requirement + Test	Result - Remark	Verdict
	For appliances with supply cords, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		P
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
27.4	No risk of corrosion resulting from contact between parts of the earthing terminal and the copper of the earthing conductor or other metal		P
	Parts providing earthing continuity, other than parts of a metal frame or enclosure, have adequate resistance to corrosion		P
	If of steel, these parts provided with an electroplated coating with a thickness at least 5 µm		P
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		P
	In the body of the earthing terminal is a part of a frame or enclosure of aluminium or aluminium alloys, precautions taken to avoid risk of corrosion		N/A
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
27.5	Low resistance of connection between earthing terminal and earthed metal parts		P
	This requirement does not apply to connections providing earthing continuity in the protective extra-low voltage circuit, provided the clearances of basic insulation are based on the rated voltage of the appliance		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) .....:	0,035 Ω	P
27.6	The printed conductors of printed circuit boards not used to provide earthing continuity in hand-held appliances.		N/A
	They may be used to provide earthing continuity in other appliances if at least two tracks are used with independent soldering points and the appliance complies with 27.5 for each circuit		N/A
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
28.1	**SCREWS AND CONNECTIONS**		

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Clause	Requirement + Test	Result - Remark	Verdict
	Fixings, electrical connections and connections providing earthing continuity withstand mechanical stresses		P
	Screws not of soft metal liable to creep, such as zinc or aluminium		P
	Diameter of screws of insulating material min. 3 mm		N/A
	Screws of insulating material not used for any electrical connections or connections providing earthing continuity		P
	Screws used for electrical connections or connections providing earthing continuity screwed into metal		P
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		P
	For type X attachment, screws to be removed for replacement of supply cord or for user maintenance, not of insulating material if their replacement by a metal screw impairs basic insulation		N/A
	For screws and nuts; torque-test as specified in table 14.....:	(see appended table)	P
28.2	Electrical connections and connections providing earthing continuity constructed so that contact pressure is not transmitted through non-ceramic insulating material liable to shrink or distort, unless		P
	there is resiliency in the metallic parts to compensate for shrinkage or distortion of the insulating material		N/A
	This requirement does not apply to electrical connections in circuits of appliances for which:		
	• 30.2.2 is applicable and that carry a current not exceeding 0,5 A		N/A
	• 30.2.3 is applicable and that carry a current not exceeding 0,2 A		N/A
28.3	Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together		N/A
	Thread-cutting (self-tapping) screws and thread rolling screws only used for electrical connections if they generate a full form standard machine screw thread		N/A
	Thread-cutting (self-tapping) screws not used if they are likely to be operated by the user or installer		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Thread-cutting, thread rolling and space threaded screws may be used in connections providing earthing continuity provided it is not necessary to disturb the connection:		
	- in normal use,		N/A
	- during user maintenance,		N/A
	- when replacing a supply cord having a type X attachment, or		N/A
	- during installation		N/A
	At least two screws being used for each connection providing earthing continuity, unless		N/A
	the screw forms a thread having a length of at least half the diameter of the screw		N/A
28.4	Screws and nuts that make mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity		P
	This requirement does not apply to screws in the earthing circuit if at least two screws are used, or		P
	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**		
	Clearances, creepage distances and solid insulation withstand electrical stress		P
	For coatings used on printed circuits boards to protect the microenvironment (Type 1) or to provide basic insulation (Type 2), Annex J applies.....:		N/A
	The microenvironment is pollution degree 1 under type 1 protection		N/A
	For type 2 protection, the spacing between the conductors before the protection is applied is not less than the values specified in Table 1 of IEC 60664-3		N/A
	These values apply to functional, basic, supplementary and reinforced insulation .....:		N/A
29.1	Clearances not less than the values specified in table 16, taking into account the rated impulse voltage for the overvoltage categories of table 15, unless .....:	(see appended table)	P
	for basic insulation and functional insulation they comply with the impulse voltage test of clause 14		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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:		
	- 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
	A force of 2 N is applied to bare conductors, other than heating elements		P
	A force of 30 N is applied to accessible surfaces		P
29.1.1	Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage		P
	The values of table 16 or the impulse voltage test of clause 14 are applicable.....:	(see appended table)	P
	Clearance at the terminals of tubular sheathed heating elements may be reduced to 1,0 mm if the microenvironment is pollution degree 1		N/A
	Lacquered conductors of windings considered to be bare conductors		P
29.1.2	Clearances of supplementary insulation not less than those specified for basic insulation in table 16 .....:	(see appended table)	P
29.1.3	Clearances of reinforced insulation not less than those specified for basic insulation in table 16, using the next higher step for rated impulse voltage .....:	(see appended table)	P
	For double insulation, with no intermediate conductive part between basic and supplementary insulation, clearances are measured between live parts and the accessible surface, and the insulation system is treated as reinforced insulation		P
29.1.4	Clearances for functional insulation are the largest values determined from:		
	- table 16 based on the rated impulse voltage .....:	(see appended table)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		P
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N/A
	If values of table 16 are largest, the impulse voltage test of clause 14 may be applied instead, unless		N/A
	the microenvironment is pollution degree 3, or		N/A
	the distances can be affected by wear, distortion, movement of the parts or during assembly		N/A
	However, clearances are not specified if the appliance complies with clause 19 with the functional insulation short-circuited		P
	Lacquered conductors of windings considered to be bare conductors		N/A
	However, clearances at crossover points are not measured		N/A
	Clearance between surfaces of PTC heating elements may be reduced to 1mm		N/A
29.1.5	Appliances having higher working voltages than rated voltage, clearances for basic insulation are the largest values determined from:		
	- table 16 based on the rated impulse voltage .....:		N/A
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N/A
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N/A
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1 or Clause 4 of IEC 60664-4, the clearances of supplementary insulation are not less than those specified for basic insulation		N/A
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1, the clearances of reinforced insulation dimensioned as specified in Table F.7a are to withstand 160% of the withstand voltage required for basic insulation		N/A
	If clearances for basic insulation are selected from Clause 4 of IEC 60664-4, the clearances of reinforced insulation are twice the value required for basic insulation		N/A
	If the secondary winding of a step-down transformer is earthed, or if there is an earthed screen between the primary and secondary windings, clearances of basic insulation on the secondary side not less than those specified in table 16, but using the next lower step for rated impulse voltage		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
29.2	Creepage distances not less than those appropriate for the working voltage, taking into account the material group and the pollution degree.....:	(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
	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
	For fan heaters and cab heaters, 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 60335-2-30)		N/A
29.2.1	Creepage distances of basic insulation not less than specified in table 17.....:	(see appended table)	P
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 17 .....:		N/A
	Except for pollution degree 1, corresponding creepage distance not less than the minimum specified for the clearance in table 16, if the clearance has been checked according to the test of clause 14 .....:		N/A
29.2.2	Creepage distances of supplementary insulation at least those specified for basic insulation in table 17, or .....:	(see appended table)	P
	Table 2 of IEC 60664-4, as applicable .....:		N/A
29.2.3	Creepage distances of reinforced insulation at least double those specified for basic insulation in table 17, or .....:	(see appended table)	P
	Table 2 of IEC 60664-4, as applicable .....:		N/A
29.2.4	Creepage distances of functional insulation not less than specified in table 18.....:	(see appended table)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 18 .....:		N/A
	Creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited		P
29.3	Supplementary and reinforced insulation have adequate thickness, or a sufficient number of layers, to withstand the electrical stresses		P
	Compliance checked:		
	- by measurement, in accordance with 29.3.1, or		P
	- by an electric strength test in accordance with 29.3.2, or		P
	- for insulation, other than single layer internal wiring insulation, by an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3, and		N/A
	for accessible parts of reinforced insulation consisting of a single layer, by measurement in accordance with 29.3.4, or		N/A
	- by an assessment of the thermal quality of the material according to 29.3.3 combined with an electric strength test in accordance with 23.5, for each single layer internal wiring insulation touching each other, or		N/A
	- as specified in subclause 6.3 of IEC 60664-4 for insulation that is subjected to any periodic voltage having a frequency exceeding 30 kHz		N/A
29.3.1	Supplementary insulation have a thickness of at least 1 mm		P
	Reinforced insulation have a thickness of at least 2 mm		P
29.3.2	Each layer of material withstand the electric strength test of 16.3 for supplementary insulation		P
	Supplementary insulation consist of at least 2 layers		P
	Reinforced insulation consist of at least 3 layers		P
29.3.3	The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by		N/A
	the electric strength test of 16.3		N/A
	If the temperature rise during the tests of clause 19 does not exceed the value specified in table 3, the test of IEC 60068-2-2 is not carried out		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
29.3.4	Thickness of accessible parts of reinforced insulation consisting of a single layer not less than specified in table 19.....:		N/A
30	**RESISTANCE TO HEAT AND FIRE**		
30.1	External parts of non-metallic material,		P
	parts supporting live parts, and		P
	parts of thermoplastic material providing supplementary or reinforced insulation		P
	sufficiently resistant to heat		P
	Ball-pressure test according to IEC 60695-10-2		P
	External parts tested at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 75 °C, whichever is the higher; temperature (°C).....:	(see appended table 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
	For portable fan heaters, other than cab heaters, the temperature rises determined during the tests of clause 19 are only taken into account for non-metallic parts that are supporting or are in direct contact with non-self-resetting thermal cut-outs and heating elements. (IEC 60335-2-30)		N/A
30.2	Parts of non-metallic material resistant to ignition and spread of fire		P
	This requirement does not apply to:		
	parts having a mass not exceeding 0,5 g, provided the cumulative effect is unlikely to propagate flames that originate inside the appliance by propagating flames from one part to another, or		P
	decorative trims, knobs and other parts unlikely to be ignited or to propagate flames that originate inside the appliance		P
	Compliance checked by the test of 30.2.1, and in addition:		P
	- for attended appliances, 30.2.2 applies		N/A
	- for unattended appliances, 30.2.3 applies		P
	For appliances for remote operation, 30.2.3 applies		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	For base material of printed circuit boards, 30.2.4 applies		P
30.2.1	The Glow-wire test is carried out on enclosures at a temperature of 650°C (IEC 60335-2-30)		P
	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
	The glow-wire test is also not carried out on small parts. These parts are to:		
	- comprise material having a glow-wire flammability index of at least 750 °C, or 650 °C as appropriate, or		N/A
	- comply with the needle-flame test of Annex E, or	(see appended table 30.2/30.4)	N/A
30.2.3	Appliances operated while unattended, tested as specified in 30.2.3.1 and 30.2.3.2		P
	The tests are not applicable to conditions as specified .....:		N/A
30.2.3.1	Parts of non-metallic material supporting connections carrying a current exceeding 0,2 A during normal operation, and		P
	parts of non-metallic material, other than small parts, within a distance of 3 mm,		P
	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		P
	parts of non-metallic material within a distance of 3mm,		P
	subjected to the glow-wire test of IEC 60695-2-11 with appropriate severity level:	(see appended table 30.2)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		P
	- 650 °C, for other connections		P
	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:		
	- comprise material having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N/A
	- comprise material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- comply with the needle-flame test of Annex E, or		N/A
	- comprise material classified as V-0 or V-1 according to IEC 60695-11-10		N/A
	The consequential needle-flame test of Annex E applied to non-metallic parts that encroach within the vertical cylinder placed above the centre of the connection zone and on top of the non-metallic parts supporting current-carrying connections, and parts of non-metallic material within a distance of 3 mm of such connections if these parts are those:		
	- parts that withstood the glow-wire test of IEC 60695-2-11 of 750 °C or 650 °C as appropriate, but produce a flame that persist longer than 2 s, or		P
	- parts that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- small parts, that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- small parts for which the needle-flame test of Annex E was applied, or		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- small parts for which a material classification of V-0 or V-1 was applied		N/A
	However, the consequential needle-flame test is not carried out on non-metallic parts, including small parts, within the cylinder that are:		
	- parts having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N/A
	- parts comprising material classified as V-0 or V-1 according to IEC 60695-11-10, or		N/A
	- parts shielded by a flame barrier that meets the needle-flame test of Annex E or that comprises material classified as V-0 or V-1 according to IEC 60695-11-10		N/A
30.2.4	Base material of printed circuit boards subjected to the needle-flame test of Annex E	(see appended table 30.2/30.4)	P
	Test not applicable to conditions as specified.....:		N/A
30.101	Fan heaters shall be resistant to fire. The needle test flame of Annex E is carried out on the enclosure of the appliance. This test is not carried out on fan heaters that are also intended to be operated at maximum heat output with the fan switched off. (IEC 60335-2-30)		N/A
31	**RESISTANCE TO RUSTING**		
	Relevant ferrous parts adequately protected against rusting		P
	Tests specified in part 2 when necessary		N/A
32	**RADIATION, TOXICITY AND SIMILAR HAZARDS**		
	Appliance does not emit harmful radiation or present a toxic or similar hazard due to their operation in normal use		P
	Compliance is checked by the limits or tests specified in part 2, if relevant		N/A
A	**ANNEX A (INFORMATIVE) ROUTINE TESTS**		
	Description of routine tests to be carried out by the manufacturer		P
B	**ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES THAT ARE RECHARGED IN THE APPLIANCE**		
	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

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Clause	Requirement + Test	Result - Remark	Verdict
	a) Appliance supplied directly from the supply mains or a renewable energy source, the battery charging circuitry and other supply unit circuitry incorporated within the appliance		N/A
	b) The part of the appliance incorporating the battery is supplied from the supply mains or a renewable energy source, via a detachable supply unit. The battery charging circuitry is incorporated within the part of the appliance containing the battery		N/A
	c) The part of the appliance incorporating the battery is supplied from the supply mains or a renewable energy source, via a detachable supply unit. The battery charging circuitry is incorporated within the detachable supply unit		N/A
3.1.9	Appliance operated under the following conditions:		
	- the appliance, supplied by its fully charged battery, operated as specified in relevant part 2		N/A
	- the battery is charged, the battery being initially discharged to such an extent that the appliance cannot operate		N/A
	-if possible, the appliance is supplied from the supply mains through its battery charger, the battery being initially discharged to such an extent that the appliance cannot operate. The appliance is operated as specified in relevant part 2		N/A
	- 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

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Clause	Requirement + Test	Result - Remark	Verdict
7.12	The instructions give information regarding charging		N/A
	The instructions for appliances incorporating batteries intended to be replaced by the user includes required information		N/A
	Details about how to remove batteries containing materials hazardous to the environment given		N/A
	Instructions for appliances containing non-user-replaceable batteries state the substance of the following:		
	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:		
	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:		
	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

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Clause	Requirement + Test	Result - Remark	Verdict
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
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:		
	- 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**		
	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**		
	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**		
	Needle-flame test carried out in accordance with IEC 60695-11-5, with the following modifications:		
7	Severities		P

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Clause	Requirement + Test	Result - Remark	Verdict
	The duration of application of the test flame is 30 s ± 1 s		P
9	Test procedure		
9.1	The specimen so arranged that the flame can be applied to a vertical or horizontal edge as shown in the examples of Figure 1		P
9.2	The first paragraph does not apply		P
	If possible, the flame is applied at least 10 mm from a corner		P
9.3	The test is carried out on one specimen		N/A
	If the specimen does not withstand the test, the test may be repeated on two additional specimens, both withstanding the test		P
11	Evaluation of test results		
	The duration of burning not exceeding 30 s		P
	However, for printed circuit boards, the duration of burning not exceeding 15 s		P
F	**ANNEX F (NORMATIVE) CAPACITORS**		
	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:		
1.5	Terms and definitions		
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		
	Items a) and b) are applicable		N/A
3.4	Approval testing		
3.4.3.2	Table 3 is applicable as described		N/A
4.1	Visual examination and check of dimensions		
	This subclause is applicable		N/A
4.2	Electrical tests		
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		

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Clause	Requirement + Test	Result - Remark	Verdict
	This subclause is applicable		N/A
	Only insulation resistance and voltage proof are checked		N/A
4.13	Impulse voltage		
	This subclause is applicable		N/A
4.14	Endurance		
	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		
	This subclause is applicable		N/A
4.18	Active flammability test		N/A
	This subclause is applicable		N/A
G	**ANNEX G (NORMATIVE)** **SAFETY ISOLATING TRANSFORMERS**		
	The following modifications to this standard are applicable for safety isolating transformers:		
7	Marking and instructions		
7.1	Transformers for specific use marked with:		
	-name, trademark or identification mark of the manufacturer or responsible vendor .....:		N/A
	-model or type reference .....:		N/A
17	Overload protection of transformers and associated circuits		
	Fail-safe transformers comply with subclause 15.5 of IEC 61558-1		N/A
22	Construction		
	Subclauses 19.1 and 19.1.2 of IEC 61558-2-6 are applicable		N/A
29	Clearances, creepage distances and solid insulation		
29.1, 29.2, 29.3	The distances specified in items 2a, 2c and 3 in table 13 of IEC 61558-1 apply		N/A
	For insulated winding wires complying with subclause 19.12.3 of IEC 61558-1 there are no requirements for clearances or creepage distances		N/A
	For windings providing reinforced insulation, the distance specified in item 2c of table 13 of IEC 61558-1 is not assessed		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	For safety isolating transformers subjected to periodic voltages with a frequency exceeding 30 kHz, the clearances, creepage distances and solid insulation values specified in IEC 60664-4 are applicable, if greater than the values specified in items 2a, 2c and 3 in table 13 of IEC 61558-1		N/A
H	**ANNEX H (NORMATIVE) SWITCHES**		
	Switches comply with the following clauses of IEC 61058-1, as modified below:		
	The tests of IEC 61058-1 carried out under the conditions occurring in the appliance		N/A
	Before being tested, switches are operated 20 times without load		N/A
8	Marking and documentation		
	Switches are not required to be marked		
	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		
	The tests may be carried out on a separate sample		N/A
15	Insulation resistance and dielectric strength		N/A
15.1	Not applicable		N/A
15.2	Not applicable		N/A
15.3	Applicable for full disconnection and micro-disconnection		N/A
17	Endurance		
	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

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Clause	Requirement + Test	Result - Remark	Verdict
	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		
	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**		
	The following modifications to this standard are applicable for motors having basic insulation that is inadequate for the rated voltage of the appliance:		
8	Protection against access to live parts		
8.1	Metal parts of the motor are considered to be bare live parts		N/A
11	Heating		
11.3	The temperature rise of the body of the motor is determined instead of the temperature rise of the windings		N/A
11.8	The temperature rise of the body of the motor, where in contact with insulating material, not exceeding values in table 3 for the relevant insulating material		N/A
16	Leakage current and electric strength		
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		
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:		
	- 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

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Clause	Requirement + Test	Result - Remark	Verdict
	Only one fault simulated at a time, the tests carried out consecutively		N/A
22	Construction		
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**		
	Testing of protective coatings of printed circuit boards carried out in accordance with IEC 60664-3 with the following modifications:		
5.7	Conditioning of the test specimens		
	When production samples are used, three samples of the printed circuit board are tested		N/A
5.7.1	Cold		
	The test is carried out at -25 °C		N/A
5.7.3	Rapid change of temperature		
	Severity 1 is specified		N/A
5.9	Additional tests		
	This subclause is not applicable		N/A
K	**ANNEX K (NORMATIVE)** **OVERVOLTAGE CATEGORIES**		P
	The information on overvoltage categories is extracted from IEC 60664-1		P
	Overvoltage category is a numeral defining a transient overvoltage condition		P
	Equipment of overvoltage category IV is for use at the origin of the installation		N/A
	Equipment of overvoltage category III is equipment in fixed installations and for cases where the reliability and the availability of the equipment is subject to special requirements		N/A
	Equipment of overvoltage category II is energy consuming equipment to be supplied from the fixed installation		P
	If such equipment is subjected to special requirements with regard to reliability and availability, overvoltage category III applies		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	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**		
	Information for the determination of clearances and creepage distances		P
M	**ANNEX M (NORMATIVE) POLLUTION DEGREE**		
	The information on pollution degrees is extracted from IEC 60664-1		P
	Pollution		
	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		
	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**		
	The proof tracking test is carried out in accordance with IEC 60112 with the following modifications:		
7	Test apparatus		
7.3	Test solutions		

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Clause	Requirement + Test	Result - Remark	Verdict
	Test solution A is used		P
10	Determination of proof tracking index (PTI)		
10.1	Procedure		
	The proof voltage is 100V, 175V, 400V or 600V...:	175V	P
	The test is carried out on five specimens		P
	In case of doubt, additional test with proof voltage reduced by 25V, the number of drops increased to 100		N/A
10.2	Report		
	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**		
	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**		
	Modifications applicable for class 0 and 01 appliances having a rated voltage exceeding 150V, intended to be used in countries having a warm damp equable climate and that are marked WDaE		
	Modifications may also be applied to class 1 appliances having a rated voltage exceeding 150V, intended to be used in countries having a warm damp equable climate and that are marked WdaE, if liable to be connected to a supply mains that excludes the protective earthing conductor		
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 warm damp equable 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

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Clause	Requirement + Test	Result - Remark	Verdict
16.2	The leakage current for class I appliances not exceeding 0,5 mA (mA):		N/A
19.13	The leakage current test of 16.2 is applied in addition to the electric strength test of 16.3		N/A
Q	**ANNEX Q (INFORMATIVE) SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS**		
	Description of tests for appliances incorporating electronic circuits		P
R	**ANNEX R (NORMATIVE) SOFTWARE EVALUATION**		
	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		
	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		
	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:		
	- 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:		
	- 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		
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

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Clause	Requirement + Test	Result - Remark	Verdict
R.2.2.2	Programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.2 and that use dual channel structures with comparison, have additional fault/error detection means for any fault/errors not detected by the comparison		N/A
R.2.2.3	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, means are provided for the recognition and control of errors in transmissions to external safety-related data paths		N/A
R.2.2.4	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the programmable electronic circuits incorporate measures to address the fault/errors in safety-related segments and data indicated in table R.1 and R.2 as appropriate		N/A
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		
R.3.1	General		
	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		
R.3.2.1	Software safety requirements:	Software Id:	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The specification of the software safety requirements includes the descriptions listed		N/A
R.3.2.2	Software architecture		
R.3.2.2.1	The specification of the software architecture includes the aspects listed - techniques and measures to control software faults/errors (refer to R.2.2); - interactions between hardware and software; - partitioning into modules and their allocation to the specified safety functions; - hierarchy and call structure of the modules (control flow); - interrupt handling; - data flow and restrictions on data access; - architecture and storage of data; - time-based dependencies of sequences and data	Document ref. No:	N/A
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		
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		
	The software is validated with reference to the requirements of the software safety requirements specification		N/A
	Compliance is checked by simulation of:		
	- input signals present during normal operation		N/A
	- anticipated occurrences		N/A
	- undesired conditions requiring system action		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

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

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4.3 Addressing (relevant to variable and invariable memory)	Stuck at	Word protection with single bit redundancy including the address	H.2.19.8.2			N/A
5 Internal data path	Stuck at	Word protection with single bit redundancy	H.2.19.8.2			N/A
5.1 VOID						N/A
5.2 Addressing	Wrong address	Word protection with single bit redundancy including the address	H.2.19.8.2			N/A
6 External communication	Hamming distance 3	Word protection with multi-bit redundancy, or CRC – single work, or Transfer redundancy, or Protocol test	H.2.19.8.1 H.2.19.4.1 H.2.18.2.2 H.2.18.14			N/A
6.1 VOID						N/A
6.2 VOID						N/A
6.3 Timing	Wrong point in time Wrong sequence	Time-slot monitoring, or 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.2.18.10.4 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			N/A
7 Input/output periphery	Fault conditions specified in 19.11.2	Plausibility check	H.2.18.13			N/A
7.1 VOID						N/A

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

S	**ANNEX S (NORMATIVE)** **BATTERY OPERATED APPLIANCES POWERED BY BATTERIES THAT ARE NON-RECHARGEABLE OR NOT RECHARGED IN THE APPLIANCE**		
	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:		

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

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Clause	Requirement + Test	Result - Remark	Verdict
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
T	**ANNEX T (NORMATIVE)** **UV-C RADIATION EFFECT ON NON-METALLIC MATERIALS**		
	Requirements for non-metallic materials subject to direct or reflected UV-C radiation exposure and whose mechanical and electrical properties are relied upon for compliance with the		N/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:		
	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

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Clause	Requirement + Test	Result - Remark	Verdict
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

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Clause	Requirement + Test	Result - Remark	Verdict

10.1-1	**TABLE: Power Input Deviation**					P
Input deviation of/at:	**P rated (W)**	**P measured (W)**	**Δ P**	**Required Δ P**	**Remark**	
230V, 50Hz	500	503,1W	+0,6%	-10%, +5%	CNS 500 Plus LCD with heating element A*	
230V, 50Hz	500	516,4W	+3,3%	-10%, +5%	CNS 500 Plus LCD with heating element B*	
230V, 50Hz	750	749,2	-0,2%	-10%, +5%	CNS 750 Plus LCD with heating element A*	
230V, 50Hz	750	756,1	+0,8%	-10%, +5%	CNS 750 Plus LCD with heating element B*	
230V, 50Hz	1000	992,8	-0,7%	-10%, +5%	CNS 1000 Plus LCD with heating element A*	
230V, 50Hz	1000	1003,6	+0,4%	-10%, +5%	CNS 1000 Plus LCD with heating element B*	
230V, 50Hz	1500	1514,2	+0,9%	-10%, +5%	CNS 1500 Plus LCD with heating element A*	
230V, 50Hz	1500	1518,5	+1,2%	10%, +5%	CNS 1500 Plus LCD with heating element B*	
230V, 50Hz	2000	1968,7	-1,6%	10%, +5%	CNS 2000 Plus LCD with heating element A*	
230V, 50Hz	2000	2050,3	+2,5%	10%, +5%	CNS 2000 Plus LCD with heating element B*	
230V, 50Hz	2500	2512,6	+0,5%	10%, +5%	CNS 2500 Plus LCD with heating element A*	
230V, 50Hz	2500	2534,1	+1,4%	10%, +5%	CNS 2500 Plus LCD with heating element B*	
230V, 50Hz	3000	2992,6	-0,2%	10%, +5%	CNS 3000 Plus LCD with heating element A*	
230V, 50Hz	3000	3004,2	+0,1%	10%, +5%	CNS 3000 Plus LCD with heating element B*	

Supplementary information:

Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd.

Heating element B*: Stiebel Eltron GmbH & Co. KG

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict

10.1-2	**TABLE: Power Input Deviation**	P

Input deviation of/at:	**P rated (W)**	**P measured (W)**	**Δ P**	**Required Δ P**	**Remark**
230V, 50Hz	460	470,5W	+2,3%	-10%, +5%	CNS-U 500 Plus LCD (UK) with heating element A*
240V, 50Hz	500	507,7W	+1,5%	-10%, +5%	CNS-U 500 Plus LCD (UK) with heating element A*
230V, 50Hz	460	477,4W	+3,8%	-10%, +5%	CNS-U 500 Plus LCD (UK) with heating element B*
240V, 50Hz	500	519,2W	+3,8%	-10%, +5%	CNS-U 500 Plus LCD (UK) with heating element B*
230V, 50Hz	690	718,6	+4,1%	-10%, +5%	CNS-U 750 Plus LCD (UK) with heating element A*
240V, 50Hz	750	779,4	+3,9%	-10%, +5%	CNS-U 750 Plus LCD (UK) with heating element A*
230V, 50Hz	690	721,3	+4,5%	-10%, +5%	CNS-U 750 Plus LCD (UK) with heating element B*
240V, 50Hz	750	782,2	+4,3%	-10%, +5%	CNS-U 750 Plus LCD (UK) with heating element B*
230V, 50Hz	920	903,1	-1,8%	-10%, +5%	CNS-U 1000 Plus LCD (UK) with heating element A*
240V, 50Hz	1000	977,2	-2,3%	-10%, +5%	CNS-U 1000 Plus LCD (UK) with heating element A*
230V, 50Hz	920	906,3	-1,5%	-10%, +5%	CNS-U 1000 Plus LCD (UK) with heating element B*
240V, 50Hz	1000	980,2	-2,0%	-10%, +5%	CNS-U 1000 Plus LCD (UK) with heating element B*
230V, 50Hz	1380	1367,1	-0,9%	-10%, +5%	CNS-U 1500 Plus LCD (UK) with heating element A*
240V, 50Hz	1500	1478,1	-1,5%	-10%, +5%	CNS-U 1500 Plus LCD (UK) with heating element A*
230V, 50Hz	1380	1445,8	+4,8%	-10%, +5%	CNS-U 1500 Plus LCD (UK) with heating element B*
240V, 50Hz	1500	1568,6	+4,6%	-10%, +5%	CNS-U 1500 Plus LCD (UK) with heating element B*
230V, 50Hz	1840	1822,5	-1,0%	-10%, +5%	CNS-U 2000 Plus LCD (UK) with heating element A*
240V, 50Hz	2000	2007,2	+0,4%	-10%, +5%	CNS-U 2000 Plus LCD (UK) with heating element A*
230V, 50Hz	1840	1881,3	+2,2%	-10%, +5%	CNS-U 2000 Plus LCD (UK) with heating element B*
240V, 50Hz	2000	2055,2	+2,8%	-10%, +5%	CNS-U 2000 Plus LCD (UK) with heating element B*

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Clause	Requirement + Test	Result - Remark	Verdict

230V, 50Hz	2300	2266,7	-1,4%	-10%, +5%	CNS-U 2500 Plus LCD (UK) with heating element A*
240V, 50Hz	2500	2444,2	-2,2%	-10%, +5%	CNS-U 2500 Plus LCD (UK) with heating element A*
230V, 50Hz	2300	2249,3	-2,2%	-10%, +5%	CNS-U 2500 Plus LCD (UK) with heating element B*
240V, 50Hz	2500	2448,6	-2,1%	-10%, +5%	CNS-U 2500 Plus LCD (UK) with heating element B*
230V, 50Hz	2760	2860,2	+3,6%	-10%, +5%	CNS-U 3000 Plus LCD (UK) with heating element A*
240V, 50Hz	3000	3086,6	+2,9%	-10%, +5%	CNS-U 3000 Plus LCD (UK) with heating element A*
230V, 50Hz	2760	2865,3	+3,8%	-10%, +5%	CNS-U 3000 Plus LCD (UK) with heating element B*
240V, 50Hz	3000	3091,7	+3,1%	-10%, +5%	CNS-U 3000 Plus LCD (UK) with heating element B*

Supplementary information:

Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd.

Heating element B*: Stiebel Eltron GmbH & Co. KG

10.2-1	**TABLE: Current deviation**				P
Current deviation of/at:	**I rated (A)**	**I measured (A)**	**Δ I**	**Required Δ I**	**Remark**
230V, 50Hz	2,2	2,18	-1,0%	-10%, +5%	CNS 500 Plus LCD with heating element A*
230V, 50Hz	2,2	2,25	+2,2%	-10%, +5%	CNS 500 Plus LCD with heating element B*
230V, 50Hz	3,3	3,3	+0,0%	-10%, +5%	CNS 750 Plus LCD with heating element A*
230V, 50Hz	3,3	2,28	-0,6%	-10%, +5%	CNS 750 Plus LCD with heating element B*
230V, 50Hz	4,3	4,3	+0,0%	-10%, +5%	CNS 1000 Plus LCD with heating element A*
230V, 50Hz	4,3	4,36	+1,4%	-10%, +5%	CNS 1000 Plus LCD with heating element B*
230V, 50Hz	6,5	6,58	+1,2%	-10%, +5%	CNS 1500 Plus LCD with heating element A*
230V, 50Hz	6,5	6,3	-3,1%	10%, +5%	CNS 1500 Plus LCD with heating element B*
230V, 50Hz	8,7	8,5	-2,3%	10%, +5%	CNS 2000 Plus LCD with heating element A*
230V, 50Hz	8,7	8,9	+2,3%	10%, +5%	CNS 2000 Plus LCD with heating element B*

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Clause	Requirement + Test	Result - Remark	Verdict

230V, 50Hz	10,9	10,9	+0,0%	10%, +5%	CNS 2500 Plus LCD with heating element A*
230V, 50Hz	10,9	10,9	+0,0%	10%, +5%	CNS 2500 Plus LCD with heating element B*
230V, 50Hz	13,0	13,0	+0,0%	10%, +5%	CNS 3000 Plus LCD with heating element A*
230V, 50Hz	13,0	13,0	+0,0%	10%, +5%	CNS 3000 Plus LCD with heating element B*
Supplementary information: Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd. Heating element B*: Stiebel Eltron GmbH & Co. KG					

10.2-2	**TABLE: Current deviation**				P
Current deviation of/at:	**I rated (A)**	**I measured (A)**	**Δ I**	**Required Δ I**	**Remark**
230V, 50Hz	2,0	2,05	+2,5%	-10%, +5%	CNS-U 500 Plus LCD (UK) with heating element A*
240V, 50Hz	2,1	2,16	+2,9%	-10%, +5%	CNS-U 500 Plus LCD (UK) with heating element A*
230V, 50Hz	2,0	2,08	+4,0%	-10%, +5%	CNS-U 500 Plus LCD (UK) with heating element B*
240V, 50Hz	2,1	2,12	+1,0%	-10%, +5%	CNS-U 500 Plus LCD (UK) with heating element B*
230V, 50Hz	3,0	3,1	+3,3%	-10%, +5%	CNS-U 750 Plus LCD (UK) with heating element A*
240V, 50Hz	3,1	3,2	+3,3%	-10%, +5%	CNS-U 750 Plus LCD (UK) with heating element A*
230V, 50Hz	3,0	3,1	+3,3%	-10%, +5%	CNS-U 750 Plus LCD (UK) with heating element B*
240V, 50Hz	3,1	3,2	+3,3%	-10%, +5%	CNS-U 750 Plus LCD (UK) with heating element B*
230V, 50Hz	4,0	3,9	-2,5%	-10%, +5%	CNS-U 1000 Plus LCD (UK) with heating element A*
240V, 50Hz	4,2	4,1	-2,4%	-10%, +5%	CNS-U 1000 Plus LCD (UK) with heating element A*
230V, 50Hz	4,0	3,94	-1,5%	-10%, +5%	CNS-U 1000 Plus LCD (UK) with heating element B*
240V, 50Hz	4,2	4,08	-2,9%	-10%, +5%	CNS-U 1000 Plus LCD (UK) with heating element B*
230V, 50Hz	6,0	5,9	-1,7%	-10%, +5%	CNS-U 1500 Plus LCD (UK) with heating element A*
240V, 50Hz	6,3	6,1	-3,2%	-10%, +5%	CNS-U 1500 Plus LCD (UK) with heating element A*

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Clause	Requirement + Test	Result - Remark	Verdict

230V, 50Hz	6,0	6,3	-5,0%	-10%, +5%	CNS-U 1500 Plus LCD (UK) with heating element B*
240V, 50Hz	6,3	6,5	-3,2%	-10%, +5%	CNS-U 1500 Plus LCD (UK) with heating element B*
230V, 50Hz	8,0	7,9	-1,3%	-10%, +5%	CNS-U 2000 Plus LCD (UK) with heating element A*
240V, 50Hz	8,3	8,3	+0,0%	-10%, +5%	CNS-U 2000 Plus LCD (UK) with heating element A*
230V, 50Hz	8,0	8,2	+2,5%	-10%, +5%	CNS-U 2000 Plus LCD (UK) with heating element B*
240V, 50Hz	8,3	8,6	+3,6%	-10%, +5%	CNS-U 2000 Plus LCD (UK) with heating element B*
230V, 50Hz	10,0	9,8	-2,0%	-10%, +5%	CNS-U 2500 Plus LCD (UK) with heating element A*
240V, 50Hz	10,4	10,2	+2,0%	-10%, +5%	CNS-U 2500 Plus LCD (UK) with heating element A*
230V, 50Hz	10,0	9,8	-2,0%	-10%, +5%	CNS-U 2500 Plus LCD (UK) with heating element B*
240V, 50Hz	10,4	10,2	+2,0%	-10%, +5%	CNS-U 2500 Plus LCD (UK) with heating element B*
230V, 50Hz	12,0	12,4	+3,3%	-10%, +5%	CNS-U 3000 Plus LCD (UK) with heating element A*
240V, 50Hz	12,5	12,8	+2,4%	-10%, +5%	CNS-U 3000 Plus LCD (UK) with heating element A*
230V, 50Hz	12,0	12,4	+3,3%	-10%, +5%	CNS-U 3000 Plus LCD (UK) with heating element B*
240V, 50Hz	12,5	12,9	+3,2%	-10%, +5%	CNS-U 3000 Plus LCD (UK) with heating element B*

Supplementary information:

Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd.

Heating element B*: Stiebel Eltron GmbH & Co. KG

11.8-1	**TABLE: Heating Test**		P
	Test voltage (V) ..... :	255,4V/ 575W	—
	Ambient (°C) .....:	24,3; 22,4	—

Thermocouple Locations	**Max. temperature rise measured, Δ T (K))**		**Max. temperature rise limit, Δ T (K)**
	heating element A*	heating element B*	
Power cord	12,8	14,5	50
Top metal enclosure surface middle (at least 25mm away air out)	51,8	45,2	85

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Clause	Requirement + Test	Result - Remark	Verdict

Front metal enclosure surface 1 (at least 25mm away air out)	47,5	58,6	85
Front metal enclosure surface 2 (at least 25mm away air out)	53,5	49,3	85
Front metal enclosure surface 3 (at least 25mm away air out)	41,4	36,2	85
Air outlet grills	94,6	81,3	130
Rear enclosure near top surface	52,8	54,4	85
Ambient of power switch	12,8	17,5	80 (T105)
Ambient of Relay on power board	33,6	34,0	60 (T85)
Varistor on power board	22,9	24,2	60 (T85)
Y capacitor on power board	30,4	30,5	100 (T125)
Optocoupler	23,1	23,8	85 (T110)
Winding of transformer	33,9	33,9	85 (Class B)
Power board PCB	26,9	28,0	120
Control board PCB	51,5	52,4	120
Control Panel	27,3	29,0	60
Ambient of thermal cut-out	38,0	36,8	185 (T210)
Internal wire (near heating element)	15,6	20,2	155 (T180)
Silicon tube near heating element terminal	21,0	26,4	145
Heat shrinkable tube near heat element	30,7	32,8	100 (T125)
Heating element surface	96,2	83,0	Ref.
Power switch knob	9,9	10,7	60
Test floor	19,6	22,7	60
Power board box	26,3	30,5	For CL30.1
Control board box	66,2	54,2	For CL30.1
Heating element bracket (plastic)	63,4	64,9	For CL30.1
Plastic enclosure near thermal control sensor head	4,0	6,7	For CL30.1
Power cord bush	12,4	16,2	For CL30.1
Supplementary information: EUT: CNS-U 500 Plus LCD Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd. Heating element B*: Stiebel Eltron GmbH & Co. KG			

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict

11.8-2	**TABLE: Heating Test**		P
	Test voltage (V) ..... :	260,4V/1150W	—
	Ambient (°C) .....:	22,6; 24,1	—

Thermocouple Locations	**Max. temperature rise measured, Δ T (K))**		**Max. temperature rise limit, Δ T (K)**
	heating element A*	heating element B*	
Power cord	17,3	16,9	50
Top metal enclosure surface middle (at least 25mm away air out)	67,2	67,1	85
Front metal enclosure surface 1 (at least 25mm away air out)	49,1	48,3	85
Front metal enclosure surface 2 (at least 25mm away air out)	46,0	47,0	85
Front metal enclosure surface 3 (at least 25mm away air out)	54,0	51,4	85
Air outlet grills	116,0	116,1	130
Rear enclosure near top surface	65,4	62,0	85
Ambient of power switch	20,9	22,2	80 (T105)
Ambient of Relay on power board	45,5	46,8	60 (T85)
Varistor on power board	31,1	30,3	60 (T85)
Y capacitor on power board	38,9	40,9	100 (T125)
Optocoupler	32,1	30,0	85 (T110)
Winding of transformer	43,2	43,6	85 (Class B)
Power board PCB	36,8	35,7	120
Control board PCB	61,8	58,7	120
Control Panel	27,9	28,4	60
Ambient of thermal cut-out	52,8	54,3	185 (T210)
Internal wire (near heating element)	23,3	22,4	155 (T180)
Silicon tube near heating element terminal	34,1	33,4	100 (125)
Heat shrinkable tube near heat element	38,5	37,9	100 (T125)
Heating element surface	159,5	154,5	Ref.
Power switch knob	10,8	10,3	60
Test floor	33,7	34,0	60
Power board box	41,4	41,2	For CL30.1
Control board box	76,1	76,6	For CL30.1

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Clause	Requirement + Test	Result - Remark	Verdict

Heating element bracket (plastic)	72,1	68,7	For CL30.1
Plastic enclosure near thermal control sensor head	7,0	4,2	For CL30.1
Power cord bush	16,7	19,0	For CL30.1
Supplementary information: EUT: CNS-U 1000 Plus LCD Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd. Heating element B*: Stiebel Eltron GmbH & Co. KG			

11.8-3	**TABLE: Heating Test**		P
	Test voltage (V) ..... :	259,3V/1725W	—
	Ambient (°C) .....:	22,6; 22,6	—

Thermocouple Locations	**Max. temperature rise measured, Δ T (K))**		**Max. temperature rise limit, Δ T (K)**
	heating element A*	heating element B*	
Power cord	19,9	19,7	50
Top metal enclosure surface middle (at least 25mm away air out)	66,3	64,6	85
Front metal enclosure surface 1 (at least 25mm away air out)	43,1	42,7	85
Front metal enclosure surface 2 (at least 25mm away air out)	39,8	39,2	85
Front metal enclosure surface 3 (at least 25mm away air out)	52,6	51,0	85
Air outlet grills	94,7	101,3	130
Rear enclosure near top surface	62,5	61,3	85
Ambient of power switch	22,0	22,2	80 (T105)
Ambient of Relay on power board	43,5	44,0	60 (T85)
Varistor on power board	29,2	29,5	60 (T85)
Y capacitor on power board	35,9	35,9	100 (T125)
Optocoupler	27,6	27,8	85 (T110)
Winding of transformer	40,8	40,9	85 (Class B)
Power board PCB	33,0	33,1	120
Control board PCB	58,8	57,1	120
Control Panel	34,1	32,6	60
Ambient of thermal cut-out	51,5	51,1	185 (T210)
Internal wire (near heating element)	22,9	23,4	155 (T180)
Silicon tube near heating element	31,0	31,1	145

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict

terminal			
Heat shrinkable tube near heat element	37,1	37,4	100 (T125)
Heating element surface	155,5	151,3	Ref.
Power switch knob	12,2	12,1	60
Test floor	33,2	33,1	60
Power board box	36,2	36,4	For CL30.1
Control board box	70,9	69,1	For CL30.1
Heating element bracket (plastic)	66,3	63,9	For CL30.1
Plastic enclosure near thermal control sensor head	2,2	2,5	For CL30.1
Power cord bush	18,3	18,5	For CL30.1
Supplementary information: EUT: CNS-U 1500 Plus LCD Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd. Heating element B*: Stiebel Eltron GmbH & Co. KG			

11.8-4	**TABLE: Heating Test**		P
	Test voltage (V) ..... :	256,9V/2300W	—
	Ambient (°C) .....:	23,8; 24,9	—

Thermocouple Locations	**Max. temperature rise measured, Δ T (K))**		**Max. temperature rise limit, Δ T (K)**
	heating element A*	heating element B*	
Power cord	19,1	17,6	50
Top metal enclosure surface middle (at least 25mm away air out)	66,4	66,1	85
Front metal enclosure surface 1 (at least 25mm away air out)	45,6	47,5	85
Front metal enclosure surface 2 (at least 25mm away air out)	39,5	40,5	85
Front metal enclosure surface 3 (at least 25mm away air out)	62,5	64,0	85
Air outlet grills	117,3	116,3	130
Rear enclosure near top surface	64,7	64,5	85
Ambient of power switch	19,3	18,1	80 (T105)
Ambient of Relay on power board	43,3	44,1	60 (T85)
Varistor on power board	29,9	29,2	60 (T85)
Y capacitor on power board	36,3	37,4	100 (T125)
Optocoupler	27,7	28,0	85 (T110)

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Clause	Requirement + Test	Result - Remark	Verdict

Winding of transformer	40,8	40,1	85 (Class B)
Power board PCB	33,6	33,5	120
Control board PCB	58,2	62,6	120
Control Panel	1,2	2,0	60
Ambient of thermal cut-out	53,5	53,4	185 (T210)
Internal wire (near heating element)	27,6	29,2	155 (T180)
Silicon tube near heating element terminal	32,7	34,7	145
Heat shrinkable tube near heat element	41,2	42,2	100 (T125)
Heating element surface	98,4	98,9	Ref.
Power switch knob	11,5	12,0	60
Test floor	34,0	36,5	60
Power board box	43,1	45,5	For CL30.1
Control board box	78,3	80,1	For CL30.1
Heating element bracket (plastic)	51,0	53,5	For CL30.1
Plastic enclosure near thermal control sensor head	1,5	4,9	For CL30.1
Power cord bush	18,9	18,1	For CL30.1
Supplementary information: EUT: CNS-U 2000 Plus LCD Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd. Heating element B*: Stiebel Eltron GmbH & Co. KG			

11.8-5	**TABLE: Heating Test**		P
	Test voltage (V) ..... :	260,3V/2875W	—
	Ambient (°C) .....:	23,2; 23,4	—

Thermocouple Locations	**Max. temperature rise measured, Δ T (K))**		**Max. temperature rise limit, Δ T (K)**
	heating element A*	heating element B*	
Power cord	25,1	23,8	50
Top metal enclosure surface middle (at least 25mm away air out)	72,4	68,2	85
Front metal enclosure surface 1 (at least 25mm away air out)	40,3	38,7	85
Front metal enclosure surface 2 (at least 25mm away air out)	40,0	39,2	85
Front metal enclosure surface 3 (at least 25mm away air out)	34,5	33,6	85

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Clause	Requirement + Test	Result - Remark	Verdict

Air outlet grills	138,7	133,5	130
Rear enclosure near top surface	68,1	65,0	85
Ambient of power switch	28,0	26,9	80 (T105)
Ambient of Relay on power board	44,3	43,3	60 (T85)
Varistor on power board	31,2	30,4	60 (T85)
Y capacitor on power board	36,9	36,1	100 (T125)
Optocoupler	29,8	29,1	85 (T110)
Winding of transformer	41,0	39,9	85 (Class B)
Power board PCB	35,5	34,7	120
Control board PCB	1,1	0,8	120
Control Panel	28,7	27,8	60
Ambient of thermal cut-out	56,4	54,1	185 (T210)
Internal wire (near heating element)	36,1	34,5	155 (T180)
Silicon tube near heating element terminal	54,4	52,3	145
Heat shrinkable tube near heat element	30,4	29,5	100 (T125)
Heating element surface	82,6	77,3	Ref.
Power switch knob	12,1	11,3	60
Test floor	34,5	33,1	60
Power board box	30,2	29,3	For CL30.1
Control board box	67,9	67,5	For CL30.1
Heating element bracket (plastic)	63,6	59,5	For CL30.1
Plastic enclosure near thermal control sensor head	5,0	4,6	For CL30.1
Power cord bush	22,7	21,6	For CL30.1
Supplementary information: EUT: CNS-U 2500 Plus LCD Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd. Heating element B*: Stiebel Eltron GmbH & Co. KG			

11.8-6	**TABLE: Heating Test**		P
	Test voltage (V) ..... :	253,7V/3450W	—
	Ambient (°C) .....:	24,1; 23,8	—

Thermocouple Locations	**Max. temperature rise measured, Δ T (K))**		**Max. temperature rise limit, Δ T (K)**
	heating element A*	heating element B*	
Power cord	30,8	30,3	50

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict

Top metal enclosure surface middle (at least 25mm away air out)	75,3	74,1	85
Front metal enclosure surface 1 (at least 25mm away air out)	45,0	48,1	85
Front metal enclosure surface 2 (at least 25mm away air out)	43,9	47,0	85
Front metal enclosure surface 3 (at least 25mm away air out)	57,8	69,7	85
Air outlet grills	124,5	118,7	130
Rear enclosure near top surface	68,3	67,2	85
Ambient of power switch	31,7	29,4	80 (T105)
Ambient of Relay on power board	47,3	46,5	60 (T85)
Varistor on power board	32,5	32,0	60 (T85)
Y capacitor on power board	31,6	31,0	100 (T125)
Optocoupler	30,0	29,6	85 (T110)
Winding of transformer	42,2	41,6	85 (Class B)
Power board PCB	34,4	33,9	120
Control board PCB	3,5	3,4	120
Control Panel	32,7	34,7	60
Ambient of thermal cut-out	65,1	63,5	185 (T210)
Internal wire (near heating element)	39,0	38,0	155 (T180)
Silicon tube near heating element terminal	50,8	50,1	145
Heat shrinkable tube near heat element	48,2	47,1	100 (T125)
Heating element surface	102,4	99,4	Ref.
Power switch knob	13,2	13,3	60
Test floor	33,9	33,1	60
Power board box	47,6	46,6	For CL30.1
Control board box	66,2	66,0	For CL30.1
Heating element bracket (plastic)	78,5	74,7	For CL30.1
Plastic enclosure near thermal control sensor head	6,2	6,5	For CL30.1
Power cord bush	25,9	25,5	For CL30.1
Supplementary information: EUT: CNS-U 3000 Plus LCD Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd. Heating element B*: Stiebel Eltron GmbH & Co. KG			

11.8-7	**TABLE: Heating Test**	P

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict

	Test voltage (V) ..... :	245,9V/575W	—
	Ambient (°C) .....:	22,5; 22,4	—

Thermocouple Locations	**Max. temperature rise measured, Δ T (K))**		**Max. temperature rise limit, Δ T (K)**
	heating element A*	heating element B*	
Power cord	14,0	14,9	50
Top metal enclosure surface middle (at least 25mm away air out)	51,6	46,5	85
Front metal enclosure surface 1 (at least 25mm away air out)	48,7	60,7	85
Front metal enclosure surface 2 (at least 25mm away air out)	54,8	51,7	85
Front metal enclosure surface 3 (at least 25mm away air out)	42,4	37,4	85
Air outlet grills	97,1	95,4	130
Rear enclosure near top surface	56,0	55,9	85
Ambient of power switch	3,2	17,4	80 (T105)
Ambient of Relay on power board	34,1	34,1	60 (T85)
Varistor on power board	24,9	23,4	60 (T85)
Y capacitor on power board	30,9	30,9	100 (T125)
Optocoupler	25,8	24,5	85 (T110)
Winding of transformer	36,2	33,2	85 (Class B)
Power board PCB	29,5	26,5	120
Control board PCB	53,0	3,6	120
Control Panel	30,1	26,9	60
Ambient of thermal cut-out	40,4	36,4	185 (T210)
Internal wire (near heating element)	17,4	20,9	155 (T180)
Silicon tube near heating element terminal	11,1	26,4	145
Heat shrinkable tube near heat element	20,6	34,1	100 (T125)
Heating element surface	25,2	32,7	Ref.
Power switch knob	9,5	9,5	60
Test floor	20,8	19,7	60
Power board box	29,4	28,8	For CL30.1
Control board box	68,9	53,6	For CL30.1
Heating element bracket (plastic)	25,8	64,3	For CL30.1
Plastic enclosure near thermal control	6,5	5,3	For CL30.1

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Clause	Requirement + Test	Result - Remark	Verdict

sensor head			
Power cord bush	13,4	14,5	For CL30.1
Supplementary information: EUT: CNS 500 Plus LCD Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd. Heating element B*: Stiebel Eltron GmbH & Co. KG			

11.8-8	**TABLE: Heating Test**		P
	Test voltage (V) ..... :	247,5V/1150W	—
	Ambient (°C) .....:	22,6; 23,1	—

Thermocouple Locations	**Max. temperature rise measured, Δ T (K))**		**Max. temperature rise limit, Δ T (K)**
	heating element A*	heating element B*	
Power cord	17,3	16,9	50
Top metal enclosure surface middle (at least 25mm away air out)	67,2	67,1	85
Front metal enclosure surface 1 (at least 25mm away air out)	49,1	48,3	85
Front metal enclosure surface 2 (at least 25mm away air out)	46,0	47,0	85
Front metal enclosure surface 3 (at least 25mm away air out)	54,0	51,4	85
Air outlet grills	116,0	116,1	130
Rear enclosure near top surface	65,4	62,0	85
Ambient of power switch	20,9	22,2	80 (T105)
Ambient of Relay on power board	45,5	46,8	60 (T85)
Varistor on power board	31,1	30,3	60 (T85)
Y capacitor on power board	38,9	40,9	100 (T125)
Optocoupler	32,1	30,0	85 (T110)
Winding of transformer	43,2	43,6	85 (Class B)
Power board PCB	36,8	35,7	120
Control board PCB	61,8	58,7	120
Control Panel	27,9	28,4	60
Ambient of thermal cut-out	52,8	54,3	185 (T210)
Internal wire (near heating element)	23,3	22,4	155 (T180)
Silicon tube near heating element terminal	34,1	33,4	145
Heat shrinkable tube near heat element	38,5	37,9	100 (T125)

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict

Heating element surface	159,5	154,5	Ref.
Power switch knob	10,8	10,3	60
Test floor	33,7	34,0	60
Power board box	41,4	41,2	For CL30.1
Control board box	76,1	76,6	For CL30.1
Heating element bracket (plastic)	72,1	68,7	For CL30.1
Plastic enclosure near thermal control sensor head	7,0	4,2	For CL30.1
Power cord bush	16,7	19,0	For CL30.1
Supplementary information: EUT: CNS 1000 Plus LCD Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd. Heating element B*: Stiebel Eltron GmbH & Co. KG			

11.8-9	**TABLE: Heating Test**		P
	Test voltage (V) ..... :	247,8V/1725W	—
	Ambient (ºC) .....:	23,2; 22,9	—

Thermocouple Locations	**Max. temperature rise measured, Δ T (K))**		**Max. temperature rise limit, Δ T (K)**
	heating element A*	heating element B*	
Power cord	17,5	22,3	50
Top metal enclosure surface middle (at least 25mm away air out)	67,5	64,8	85
Front metal enclosure surface 1 (at least 25mm away air out)	43,6	44,6	85
Front metal enclosure surface 2 (at least 25mm away air out)	41,2	39,9	85
Front metal enclosure surface 3 (at least 25mm away air out)	52,7	52,9	85
Air outlet grills	98,2	103,2	130
Rear enclosure near top surface	62,5	62,5	85
Ambient of power switch	21,5	21,7	80 (T105)
Ambient of Relay on power board	41,6	43,0	60 (T85)
Varistor on power board	27,5	28,0	60 (T85)
Y capacitor on power board	36,1	37,6	100 (T125)
Optocoupler	25,7	27,4	85 (T110)
Winding of transformer	41,4	39,6	85 (Class B)
Power board PCB	33,2	32,7	120

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Clause	Requirement + Test	Result - Remark	Verdict

Control board PCB	55,8	57,2	120
Control Panel	31,1	32,2	60
Ambient of thermal cut-out	51,5	49,5	185 (T210)
Internal wire (near heating element)	23,9	24,5	155 (T180)
Silicon tube near heating element terminal	32,2	30,6	145
Heat shrinkable tube near heat element	36,9	36,6	100 (T125)
Heating element surface	154,0	150,5	Ref.
Power switch knob	10,1	11,5	60
Test floor	30,3	34,4	60
Power board box	36,4	37,5	For CL30.1
Control board box	69,5	71,4	For CL30.1
Heating element bracket (plastic)	67,7	62,6	For CL30.1
Plastic enclosure near thermal control sensor head	3,7	1,7	For CL30.1
Power cord bush	17,4	17,2	For CL30.1
Supplementary information: EUT: CNS 1500 Plus LCD Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd. Heating element B*: Stiebel Eltron GmbH & Co. KG			

11.8-10	**TABLE: Heating Test**		P
	Test voltage (V) ..... :	248,6V/2300W	—
	Ambient (°C) .....:	23,6; 23,3	—

Thermocouple Locations	**Max. temperature rise measured, Δ T (K))**		**Max. temperature rise limit, Δ T (K)**
	heating element A*	heating element B*	
Power cord	18,3	20,3	50
Top metal enclosure surface middle (at least 25mm away air out)	65,4	68,4	85
Front metal enclosure surface 1 (at least 25mm away air out)	48,3	46,5	85
Front metal enclosure surface 2 (at least 25mm away air out)	41,0	38,7	85
Front metal enclosure surface 3 (at least 25mm away air out)	64,9	62,1	85
Air outlet grills	115,9	11,4	130
Rear enclosure near top surface	67,5	64,9	85

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Clause	Requirement + Test	Result - Remark	Verdict

Ambient of power switch	21,8	17,8	80 (T105)
Ambient of Relay on power board	43,2	41,8	60 (T85)
Varistor on power board	30,9	30,8	60 (T85)
Y capacitor on power board	39,0	36,2	100 (T125)
Optocoupler	29,4	28,2	85 (T110)
Winding of transformer	42,5	38,8	85 (Class B)
Power board PCB	35,7	33,0	120
Control board PCB	59,4	60,2	120
Control Panel	3,1	1,5	60
Ambient of thermal cut-out	55,9	55,0	185 (T210)
Internal wire (near heating element)	29,0	26,2	155 (T180)
Silicon tube near heating element terminal	34,0	32,9	145
Heat shrinkable tube near heat element	44,3	41,0	100 (T125)
Heating element surface	101,2	96,3	Ref.
Power switch knob	13,4	11,3	60
Test floor	35,2	31,3	60
Power board box	45,9	43,8	For CL30.1
Control board box	81,1	79,3	For CL30.1
Heating element bracket (plastic)	52,7	52,9	For CL30.1
Plastic enclosure near thermal control sensor head	2,1	2,3	For CL30.1
Power cord bush	20,4	19,2	For CL30.1
Supplementary information: EUT: CNS 2000 Plus LCD Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd. Heating element B*: Stiebel Eltron GmbH & Co. KG			

11.8-11	**TABLE: Heating Test**		P
	Test voltage (V) ..... :	247,6V/2875W	—
	Ambient (°C) .....:	22,8; 22,5	—

Thermocouple Locations	**Max. temperature rise measured, Δ T (K))**		**Max. temperature rise limit, Δ T (K)**
	heating element A*	heating element B*	
Power cord	24,4	21,1	50
Top metal enclosure surface middle (at least 25mm away air out)	74,2	69,8	85

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Clause	Requirement + Test	Result - Remark	Verdict

Front metal enclosure surface 1 (at least 25mm away air out)	42,3	40,3	85
Front metal enclosure surface 2 (at least 25mm away air out)	42,8	38,9	85
Front metal enclosure surface 3 (at least 25mm away air out)	35,1	33,5	85
Air outlet grills	139,3	133,5	130
Rear enclosure near top surface	68,3	65,9	85
Ambient of power switch	30,6	29,7	80 (T105)
Ambient of Relay on power board	45,2	44,5	60 (T85)
Varistor on power board	30,3	30,5	60 (T85)
Y capacitor on power board	38,0	36,7	100 (T125)
Optocoupler	29,0	29,0	85 (T110)
Winding of transformer	39,6	38,6	85 (Class B)
Power board PCB	35,2	33,3	120
Control board PCB	1,6	1,7	120
Control Panel	30,3	27,9	60
Ambient of thermal cut-out	57,0	54,4	185 (T210)
Internal wire (near heating element)	35,4	33,3	155 (T180)
Silicon tube near heating element terminal	57,6	53,5	145
Heat shrinkable tube near heat element	29,9	31,5	100 (T125)
Heating element surface	85,9	79,7	Ref.
Power switch knob	11,6	13,0	60
Test floor	33,0	34,4	60
Power board box	29,5	31,9	For CL30.1
Control board box	68,6	69,4	For CL30.1
Heating element bracket (plastic)	64,8	60,1	For CL30.1
Plastic enclosure near thermal control sensor head	4,3	4,0	For CL30.1
Power cord bush	23,4	21,2	For CL30.1
Supplementary information: EUT: CNS 2500 Plus LCD Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd. Heating element B*: Stiebel Eltron GmbH & Co. KG			

11.8-12	**TABLE: Heating Test**		P
	Test voltage (V) ..... :	247,8V/2300W	—

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict

	Ambient (°C) .....:	23,7; 23,5	—

Thermocouple Locations	**Max. temperature rise measured, Δ T (K))**		**Max. temperature rise limit, Δ T (K)**
	heating element A*	heating element B*	
Power cord	30,8	30,1	50
Top metal enclosure surface middle (at least 25mm away air out)	76,4	75,7	85
Front metal enclosure surface 1 (at least 25mm away air out)	43,3	50,2	85
Front metal enclosure surface 2 (at least 25mm away air out)	44,6	50,3	85
Front metal enclosure surface 3 (at least 25mm away air out)	58,1	70,0	85
Air outlet grills	126,3	118,6	130
Rear enclosure near top surface	68,4	66,9	85
Ambient of power switch	34,7	30,0	80 (T105)
Ambient of Relay on power board	47,0	47,8	60 (T85)
Varistor on power board	32,9	34,1	60 (T85)
Y capacitor on power board	32,8	33,1	100 (T125)
Optocoupler	29,6	31,8	85 (T110)
Winding of transformer	41,7	40,5	85 (Class B)
Power board PCB	34,3	33,9	120
Control board PCB	6,0	5,9	120
Control Panel	29,0	33,3	60
Ambient of thermal cut-out	67,3	62,1	185 (T210)
Internal wire (near heating element)	41,1	40,3	155 (T180)
Silicon tube near heating element terminal	51,6	49,4	145
Heat shrinkable tube near heat element	46,6	47,1	100 (T125)
Heating element surface	103,1	100,0	Ref.
Power switch knob	13,9	15,7	60
Test floor	32,4	31,7	60
Power board box	49,8	48,2	For CL30.1
Control board box	67,0	66,0	For CL30.1
Heating element bracket (plastic)	78,7	75,9	For CL30.1
Plastic enclosure near thermal control sensor head	6,5	5,8	For CL30.1
Power cord bush	27,0	26,2	For CL30.1

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:
EUT: CNS 3000 Plus LCD
Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd.
Heating element B*: Stiebel Eltron GmbH & Co. KG

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. dT (K)**	**Insulation class**

Supplementary information: N/A

13.2	**TABLE: Leakage current for all models**	P
	Heating appliances: 1.15 x rated input (W) .. : 1,15P	—
	Motor-operated and combined appliances: 1.06 x rated voltage (V) ..... : N/A	—

Leakage current between:	**I (mA)**	**Max. allowed I (mA)**
L/N-earthed metal parts	0,046	0,75
L/N- control knob	0,008	0,35 (peak)
L/N- plastic hand	0,008	0,35 (peak)

Supplementary information: Max. test values recorded.

13.3	**TABLE: Dielectric Strength for all models**	P

Test voltage applied between:	**Test potential applied (V)**	**Breakdown / flashover (Yes/No)**
L/N-earthed metal parts	1000	No
Heat shrinkable tube, 1 layer	1750	No
L/N- control knob	3000	No
L/N- plastic hand	3000	No

Supplementary information: N/A

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

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

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information: N/A					

16.2	TABLE: Leakage current		P
	Single phase appliances: 1.06 x rated voltage (V) ..... :	For CNS models: 243,8V For CNS-U models: 254,4V	—
	Three phase appliances 1.06 x rated voltage divided by √3 (V) ..... :	N/A	—

Leakage current between:	**I (mA)**	**Max. allowed I (mA)**
L/N-earthed metal parts	0,056	0,75
L/N- control knob	0,011	0,25
L/N- plastic hand	0,011	0,25
Supplementary information: Max. test values recorded.		

16.2	TABLE: Leakage current		P
	Single phase appliances: 1.06 x rated voltage (V) ..... :	For CNS models: 243,8V For CNS-U models: 254,4V	—
	Three phase appliances 1.06 x rated voltage divided by √3 (V) ..... :	N/A	—

Leakage current between:	**I (mA)**	**Max. allowed I (mA)**
L/N-earthed metal parts	0,053	0,75
L/N- control knob	0,012	0,25
L/N- plastic hand	0,012	0,25
Supplementary information: Max. test values recorded.		

16.3	TABLE: Dielectric strength		P
Test voltage applied between:		**Test potential applied (V)**	**Breakdown / flashover (Yes/No)**
L/N to switch knob		3000	No
L/N- accessible plastic enclosure		3000	No
Heat shrinkable tube, 1 layer		1750	No
L/N-earthed metal parts		1250	No
Supplementary information: N/A			

17	TABLE: Overload protection		P
Thermocouple locations:		**Max. temperature rise measured, Δ T (K)**	**Max. temperature rise limit, Δ T (K)**
Transformer winding		24,9	150 (Class B)

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Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information: N/A

17	TABLE: Overload protection, resistance method		N/A
	Test voltage (V) .....:		—
	Ambient, t1 (°C) .....:		—
	Ambient, t2 (°C) .....:		—

Temperature of winding:	R1 (Ω)	R2 (Ω)	Δ T (K)	T (°C)	Max. T (°C)

Supplementary information: N/A

19	Abnormal operation conditions	P

Operational characteristics	YES/NO	Operational conditions
Are there electronic circuits to control the appliance operation?	No	N/A
Are there “off” or “stand-by” position?	No	No “off” position obtained electronic disconnection
The unintended operation of the appliance results in dangerous malfunction?	NO	N/A

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
19.3	--	--	--	--	--	--	N/A
19.4	--	--	--	--	--	--	N/A
19.5	1,15 times rated power	No hazards	N/A	N/A	N/A	N/A	P
19.6	--	--	--	--	--	--	N/A
19.7	--	--	--	--	--	--	N/A
19.8	--	--	--	--	--	--	N/A
19.9	--	--	--	--	--	--	N/A
19.10	--	--	--	--	--	--	N/A
19.11	Rated voltage	No hazards	N/A	N/A	N/A	N/A	P
19.101	1,24 times rated power	No hazards	N/A	N/A	N/A	N/A	P
19.103	1,15 times rated power	No hazards	N/A	N/A	N/A	N/A	P

Supplementary information: N/A

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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, t1 (°C) .....:					—
	Ambient, t2 (°C) .....:					—
Temperature of winding:		**R1 (Ω)**	**R2 (Ω)**	**Δ T (K)**	**T (°C)**	**Max. T (°C)**
Supplementary information: N/A						

19.9	**TABLE: Abnormal operation, running overload**					N/A
	Test voltage (V) .....:					—
	Ambient, t1 (°C) .....:					—
	Ambient, t2 (°C) .....:					—
Temperature of winding:		**R1 (Ω)**	**R2 (Ω)**	**Δ T (K)**	**T (°C)**	**Max. T (°C)**
Supplementary information: N/A						

19.13-1	**TABLE: Abnormal operation, temperature rises**				P
Thermocouple locations:	**Max. temperature rise measured, Δ T (K)**				**Max. temperature rise limit, Δ T (K)**
	19.101		19.103		--
	A	B	A	B	
Power cord	13,9	14,6	24,5	22,5	150
Test Corner	21,4	23,4	30,2	29,7	150
Power board box	28,0	31,7	41,5	49,6	For CL30.1
Control board box	70,3	56,2	87,2	68,7	For CL30.1
Heating element bracket (plastic)	67,5	68,7	76,2	75,1	For CL30.1
Plastic enclosure near thermal control sensor head	4,9	6,3	7,2	8,8	For CL30.1
Power cord bush	13,5	16,4	25,2	26,5	For CL30.1
Felt strips	--	--	120,6	128,4	150
Supplementary information:					

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Clause	Requirement + Test	Result - Remark	Verdict

EUT: CNS-U 500 Plus LCD
Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd.
Heating element B*: Stiebel Eltron GmbH & Co. KG

19.13-2	**TABLE: Abnormal operation, temperature rises**	P

Thermocouple locations:	**Max. temperature rise measured, Δ T (K)**				**Max. temperature rise limit, Δ T (K)**
	19.101		19.103		--
	A	B	A	B	
Power cord	22,0	16,2	34,0	34,3	150
Test Corner	41,7	37,0	51,7	54,0	150
Power board box	42,7	37,0	63,3	67,3	For CL30.1
Control board box	83,7	78,3	102,3	98,8	For CL30.1
Heating element bracket (plastic)	83,0	76,2	91,7	97,5	For CL30.1
Plastic enclosure near thermal control sensor head	5,2	3,8	9,2	9,3	For CL30.1
Power cord bush	21,6	18,2	38,7	39,0	For CL30.1
Felt strips	--	--	144,4	139,9	150

Supplementary information:
EUT: CNS-U 1000 Plus LCD
Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd.
Heating element B*: Stiebel Eltron GmbH & Co. KG

19.13-3	**TABLE: Abnormal operation, temperature rises**	P

Thermocouple locations:	**Max. temperature rise measured, Δ T (K)**				**Max. temperature rise limit, Δ T (K)**
	19.101		19.103		--
	A	B	A	B	
Power cord	21,8	21,4	26,3	27,0	150
Test Corner	36,1	35,7	48,5	49,3	150
Power board box	39,2	38,8	50,7	51,6	For CL30.1
Control board box	75,0	73,0	89,8	90,1	For CL30.1
Heating element bracket (plastic)	72,0	69,1	85,0	84,4	For CL30.1
Plastic enclosure near thermal control sensor	22,6	22,2	2,5	3,2	For CL30.1

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Clause	Requirement + Test	Result - Remark	Verdict

head					
Power cord bush	20,4	20,1	26,6	27,4	For CL30.1
Felt strips	--	--	142,5	141,2	150

Supplementary information:
EUT: CNS-U 1500 Plus LCD
Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd.
Heating element B*: Stiebel Eltron GmbH & Co. KG

19.13-4	**TABLE: Abnormal operation, temperature rises**	P

Thermocouple locations:	**Max. temperature rise measured, Δ T (K)**				**Max. temperature rise limit, Δ T (K)**
	19.101		19.103		--
	A	B	A	B	
Power cord	21,7	20,6	24,7	23,9	150
Test Corner	38,7	36,4	52,8	50,8	150
Power board box	47,2	45,1	58,2	56,0	For CL30.1
Control board box	85,5	82,2	100,7	90,8	For CL30.1
Heating element bracket (plastic)	55,7	53,9	77,2	84,4	For CL30.1
Plastic enclosure near thermal control sensor head	3,1	2,8	20,6	20,3	For CL30.1
Power cord bush	21,9	20,4	26,9	25,0	For CL30.1
Felt strips	--	--	147,1	137,8	150

Supplementary information:
EUT: CNS-U 2000 Plus LCD
Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd.
Heating element B*: Stiebel Eltron GmbH & Co. KG

19.13-5	**TABLE: Abnormal operation, temperature rises**	P

Thermocouple locations:	**Max. temperature rise measured, Δ T (K)**				**Max. temperature rise limit, Δ T (K)**
	19.101		19.103		--
	A	B	A	B	
Power cord	26,9	25,4	28,2	28,8	150
Test Corner	37,8	35,1	60,3	61,5	150
Power board box	32,4	30,7	37,0	37,7	For CL30.1
Control board	76,6	72,6	92,3	93,7	For CL30.1

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict

box					
Heating element bracket (plastic)	68,5	64,7	92,0	97,6	For CL30.1
Plastic enclosure near thermal control sensor head	5,7	5,4	3,0	3,8	For CL30.1
Power cord bush	24,3	23,0	26,6	27,2	For CL30.1
Felt strips	--	--	146,0	142,9	150
Supplementary information: EUT: CNS-U 2500 Plus LCD Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd. Heating element B*: Stiebel Eltron GmbH & Co. KG					

19.13-6	**TABLE: Abnormal operation, temperature rises**				P
Thermocouple locations:	**Max. temperature rise measured, Δ T (K)**				**Max. temperature rise limit, Δ T (K)**
	19.101		19.103		--
	A	B	A	B	
Power cord	32,0	31,7	29,3	36,4	150
Test Corner	36,4	35,1	59,2	63,6	150
Power board box	50,4	48,2	39,0	38,3	For CL30.1
Control board box	70,8	73,1	93,4	95,5	For CL30.1
Heating element bracket (plastic)	82,8	80,5	90,7	99,0	For CL30.1
Plastic enclosure near thermal control sensor head	7,3	7,5	3,5	5,3	For CL30.1
Power cord bush	27,1	26,7	25,9	28,0	For CL30.1
Felt strips	--	--	146,8	143,9	150
Supplementary information: EUT: CNS-U 3000 Plus LCD Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd. Heating element B*: Stiebel Eltron GmbH & Co. KG					

19.13-7	**TABLE: Abnormal operation, temperature rises**				P
Thermocouple locations:	**Max. temperature rise measured, Δ T (K)**				**Max. temperature rise limit, Δ T (K)**
	19.101		19.103		--
	A	B	A	B	

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict

Power cord	13,9	14,6	22,8	24,1	150
Test Corner	25,7	26,2	30,8	29,0	150
Power board box	27,7	32,4	41,7	48,3	For CL30.1
Control board box	69,9	57,6	81,2	68,5	For CL30.1
Heating element bracket (plastic)	58,8	71,4	77,0	77,1	For CL30.1
Plastic enclosure near thermal control sensor head	7,9	7,8	7,2	9,2	For CL30.1
Power cord bush	16,4	16,4	23,9	25,2	For CL30.1
Felt strips	--	--	124,3	128,9	150
Supplementary information: EUT: CNS 500 Plus LCD Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd. Heating element B*: Stiebel Eltron GmbH & Co. KG					

19.13-8	**TABLE: Abnormal operation, temperature rises**				P
Thermocouple locations:	**Max. temperature rise measured, Δ T (K)**				**Max. temperature rise limit, Δ T (K)**
	19.101		19.103		--
	A	B	A	B	
Power cord	22,0	16,2	27,4	26,7	150
Test Corner	41,7	37,0	43,2	43,7	150
Power board box	42,7	42,8	53,7	53,2	For CL30.1
Control board box	83,7	78,3	104,2	100,1	For CL30.1
Heating element bracket (plastic)	83,0	76,2	78,6	76,0	For CL30.1
Plastic enclosure near thermal control sensor head	5,2	3,8	6,7	7,1	For CL30.1
Power cord bush	21,6	18,2	26,7	28,6	For CL30.1
Felt strips	--	--	133,7	135,8	150
Supplementary information: EUT: CNS 1000 Plus LCD Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd. Heating element B*: Stiebel Eltron GmbH & Co. KG					

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict

19.13-9	**TABLE: Abnormal operation, temperature rises**				P
Thermocouple locations:	**Max. temperature rise measured, Δ T (K)**				**Max. temperature rise limit, Δ T (K)**
	19.101		19.103		--
	A	B	A	B	
Power cord	19,6	22,2	23,5	24,6	150
Test Corner	36,6	36,6	50,7	49,0	150
Power board box	41,4	41,3	52,4	54,4	For CL30.1
Control board box	75,8	72,6	91,1	91,5	For CL30.1
Heating element bracket (plastic)	73,7	69,2	84,4	84,6	For CL30.1
Plastic enclosure near thermal control sensor head	4,9	2,9	5,3	5,8	For CL30.1
Power cord bush	22,6	19,5	28,7	29,1	For CL30.1
Felt strips	--	--	142,0	142,3	150
Supplementary information: EUT: CNS 1500 Plus LCD Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd. Heating element B*: Stiebel Eltron GmbH & Co. KG					

19.13-10	**TABLE: Abnormal operation, temperature rises**				P
Thermocouple locations:	**Max. temperature rise measured, Δ T (K)**				**Max. temperature rise limit, Δ T (K)**
	19.101		19.103		--
	A	B	A	B	
Power cord	23,3	20,3	23,5	26,8	150
Test Corner	38,6	34,7	52,6	51,6	150
Power board box	46,0	46,2	61,1	57,4	For CL30.1
Control board box	86,6	84,1	103,2	90,8	For CL30.1
Heating element bracket (plastic)	56,0	56,0	80,4	85,5	For CL30.1
Plastic enclosure near thermal control sensor head	5,3	4,5	1,8	1,7	For CL30.1
Power cord bush	22,8	22,9	26,7	26,6	For CL30.1
Felt strips	--	--	147,4	138,1	150

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information:
EUT: CNS 2000 Plus LCD
Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd.
Heating element B*: Stiebel Eltron GmbH & Co. KG

19.13-11	**TABLE: Abnormal operation, temperature rises**				P
Thermocouple locations:	**Max. temperature rise measured, Δ T (K)**				**Max. temperature rise limit, Δ T (K)**
	19.101		19.103		--
	A	B	A	B	
Power cord	29,4	25,1	33,9	34,4	150
Test Corner	39,6	35,3	34,3	33,4	150
Power board box	35,3	32,2	47,6	50,1	For CL30.1
Control board box	75,5	73,3	95,7	96,5	For CL30.1
Heating element bracket (plastic)	68,1	64,7	78,2	81,3	For CL30.1
Plastic enclosure near thermal control sensor head	7,0	5,8	7,1	12,8	For CL30.1
Power cord bush	23,6	24,2	35,2	38,0	For CL30.1
Felt strips	--	--	145,6	144,8	150

Supplementary information:
EUT: CNS 2000 Plus LCD
Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd.
Heating element B*: Stiebel Eltron GmbH & Co. KG

19.13-12	**TABLE: Abnormal operation, temperature rises**				P
Thermocouple locations:	**Max. temperature rise measured, Δ T (K)**				**Max. temperature rise limit, Δ T (K)**
	19.101		19.103		--
	A	B	A	B	
Power cord	34,6	31,7	25,4	37,5	150
Test Corner	38,6	38,4	60,0	61,7	150
Power board box	52,0	48,0	39,5	36,3	For CL30.1
Control board box	71,8	72,5	90,3	94,7	For CL30.1
Heating element bracket (plastic)	79,3	82,5	94,6	97,8	For CL30.1
Plastic enclosure	8,5	9,1	4,3	1,7	For CL30.1

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Clause	Requirement + Test	Result - Remark	Verdict

near thermal control sensor head					
Power cord bush	29,7	28,2	28,1	24,5	For CL30.1
Felt strips	--	--	144,7	140,7	150

Supplementary information:

EUT: CNS 3000 Plus LCD

Heating element A*: Hangzhou Heatwell Electric Heating Technology Co., Ltd.

Heating element B*: Stiebel Eltron GmbH & Co. KG

21.1	TABLE: Impact Resistance			P
Impacts per surface	**Surface tested**	**Impact energy (Nm)**	**Comments**	
3	Switch button, control surfaces, Temperature sensor	0,5	No obvious damage	
3	Front metal enclosure	0,5	No obvious damage	
3	Top metal air outlet	0,5	No obvious damage	
3	Bottom metal air inlet	0,5	No obvious damage	
Supplementary information: N/A				

24.1	TABLE: Critical components information				P
Object / part No.	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity[1)]**
Plug for CNS series models	Scolmore International Ltd.	SW102	AC250V, 16A, IP20, DIN 49441-R2	DIN VDE 0620-2-1	VDE 40004330
Alternative	Guangdong Xiongrun Electrical Co., Ltd.	XR-322	AC250V, 16A, IP20, DIN 49441-R2	DIN VDE 0620-2-1	VDE 40006857
Alternative	Chau's Electrical Co., Ltd.	CE-512	AC250V, 16A, IP20, DIN 49441-R2	DIN VDE 0620-2-1	VDE 40001201
Alternative	Chau's Electrical Co., Ltd.	CE-502, CE-502N	AC250V, 16A, IP20, DIN 49441-R2	DIN VDE 0620-2-1	VDE 40013084
Plug for CNS(CH) series models	Guangdong Xiongrun Electrical Co., Ltd.	XR-313	AC250V, 10A, type 12, IP20	IEC 60884-1 SN441011-1 SN441011-2-1	ESTI 24.0631
Alternative	Chau's Electrical Co., Ltd.	CE-507	AC250V, 10A, type 12, IP20	IEC 60884-1 SN441011-1 SN441011-2-1	ESTI 22.0021

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Plug for CNS(AU) series models	Guangdong Xiongrun Electrical Co., Ltd.	XR-351A-1	AC250V, 10A	AS/NZS 3112 AS/NZS 3100	SAA-193180-EA
Alternative	Hangzhou Hongshi Electrical Co., Ltd.	SW190	AC250V, 10A	AS/NZS 3112 AS/NZS 3100	SAA-200979-EA
Supply cord for CNS, CNS(CH) series models	Hangzhou Hongshi Electrical Co., Ltd.	H05VV-F	3*1,0 mm^2, 3*1,5 mm^2	EN 50525-2-11	VDE 40010839
Alternative	Guangdong Xiongrun Electrical Co., Ltd.	H05VV-F	3*1,0 mm^2, 3*1,5 mm^2	EN 50525-2-11	VDE 40020627
Alternative	Guangdong Xiongrun Electrical Co., Ltd.	H05RN-F, H05RR-F	3*1,0 mm^2, 3*1,5 mm^2	EN 50525-2-21	VDE 40044694
Alternative	Chau's Electrical Co.,Ltd.	H05VV-F	3*1,0 mm^2, 3*1,5 mm^2	EN 50525-2-11	VDE 113934
Alternative	Chau's Electrical Co.,Ltd.	H05RN-F, H07RN-F	3*1,0 mm^2, 3*1,5 mm^2	EN 50525-2-21	VDE 40016331
Note for power cord: 3*1,0 mm^2 cord only used for 500W, 750W, 1000W, 1500W CNS, CNS(CH) models					
Supply cord for CNS(AU) series models	Guangdong Xiongrun Electrical Co., Ltd.	H05VV-F	3*1,0 mm^2, 3*1,5 mm^2	AS/NZS 3191	SAA-182409-EA
Alternative	Hangzhou Hongshi Electrical Co., Ltd.	H05VV-F	3*1,0 mm^2, 3*1,5 mm^2	AS/NZS 3191	ESV180030
Supply cord for CNS-U series models	SUZHOU TONGYUAN ELECTRIC WIRE & CABLE Co., Ltd	H05VV-F	4*1,0 mm^2, 4*1,5 mm^2	EN 50525-2-11	VDE 128253
Alternative	Guangdong Xiongrun Electrical Co., Ltd.	H05V2V2-F	4*1,0 mm^2, 4*1,5 mm^2	EN 50525-2-11	VDE 40033833
Alternative	Chau's Electrical Co.,Ltd.	H07RN-F	4*1,0 mm^2, 4*1,5 mm^2	EN 50525-2-21	VDE 40016331
Alternative	Chau's Electrical Co.,Ltd.	H05VV-F	4*1,0 mm^2, 4*1,5 mm^2	EN 50525-2-11	VDE 113934
Note for power cord: 1,0 mm^2 cord only used for 500W, 750W, 1000W, 1500W CNS-U series models					
Power Switch	Canal Electronic Co., Ltd.	R210	250VAC, 16A, T125, 1E4	IEC/EN 61058-1	ENEC 02664
Alternative	Zhejiang Yibao Technology Co., Ltd.	RCE-2116	250VAC, 16A, T125, 1E4	IEC/EN 61058-1	ENEC 71-118673

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Alternative	Zhejiang Yibao Technology Co., Ltd.	RCE-R21	250VAC, 16A, T105, 1E4	IEC/EN 61058-1	TUV R 50499902
Alternative	SHANGHAI YONGXING ELECTRONIC SWITCH CO.,LTD.	KCD2-21	250VAC 16A, T125, 1E4	IEC/EN 61058-1	ENEC NO4702
Thermal cut-out	Tongbao-Hualong Controls Co., Ltd.	KSD307-G	250V~, 16A, T320 Tf=95°C, 10E4	IEC/EN 60730-1 IEC/EN 60730-2-9	TUV R 50386218
Alternative	Tongbao-Hualong Controls Co.,Ltd.	KSD301-G	250VAC, 16A, 10E3, T220, Tf=95°C	IEC/EN 60730-1 IEC/EN 60730-2-9	VDE 40016656
Alternative	Tongbao-Hualong Controls Co.,Ltd.	KSD301-G	250VAC, 16A, 1E5, T210, Tf=95°C	IEC/EN 60730-1 IEC/EN 60730-2-9	TUV R 50128729
Alternative	Nippon GT Corporation	21EN, 52N	250VAC, 16A, 10E3, Tf=95°C	IEC/EN 60730-1 IEC/EN 60730-2-9	VDE 40004992
Main Circuit Board for CNS series	Stiebel Eltron GmbH & Co. KG	321200	AC 240V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Alternative	HaiLin Energy Saving Technology Inc.	321200	AC 240V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Main Circuit Board for CNS-U series	Stiebel Eltron GmbH & Co. KG	325509	AC 240V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Alternative	HaiLin Energy Saving Technology Inc.	325509	AC 240V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
PCB	Global Expert Technologies Ltd.	320956	FR-4, UL94 V-0, T130, UL E230968	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Alternative	Matrix Electronics LTD.	320956	FR-4, UL94 V-0, T130, UL E196960	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Alternative	HUIZHOU KEDISHENG TECHNOLOGY CO LTD	320956	L-2, FR-4, UL94 V0, T130, UL E312490	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Relay (K1)	Xiamen Hongfa Electroacoustic Co., Ltd.	HF115FK/5-H3T (335)	AC250V, 16A, 1E7, T85	IEC/EN 61810-1	VDE 116934

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Alternative	Tyco Electronics Austria GmbH	RZ03-1A4-D005	AC250V, 16A, 1E7, T85	IEC/EN 61810-1	VDE 40023970
Alternative	OMRON Corporation	G5RL-1A-E-LN-HA 5VDC	AC250V, 16A, 1E7, T85	IEC/EN 61810-1	VDE 40007172
Transformer (T1)	Kaschke Components GmbH	071663	265Veff, T125, Insulation class B	EN 61558-1 EN 61558-2-16	VDE 40043403
Alternative	Myrra	M28721	248Veff, Insulation class B	EN 61558-1 EN 61558-2-16	VDE 40047072
Y1 Ceramic Capacitor (C11, C12)	VISHAY Electronic GmbH	VY1	2200pF, 500/760VAC, T125, Class X1/Y1	IEC/EN 60384-14	VDE 40012673
Alternative	Murata Mfg. Co., Ltd.	KX	250VAC, T125, 2200pF, Class X1/Y1, E3	IEC/EN 60384-14	VDE 40002831
Variable Discharge Resistor (R18)	TDK Electronics GmbH & Co OG	S07K300	300V AC, U=470V, T85	IEC 61051-1 IEC 61051-2 EN 61051	VDE 40027582
Alternative	VISHAY Resistors Belgium BVBA	VDRS07H300	300V AC, U=470V, T85	IEC 61051-1 IEC 61051-2 EN 61051	VDE 40002622
Internal wiring (PCB)	COROPLAST FRITZ MULLER GMBH & CO KG	3135	14AWG, T200, 600V UL E41773	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Alternative	Jiang Yin Tianqi Silicone Rubber Products Co., Ltd.	3135	14AWG, 200°C, 600V UL E225526	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Optocoupler U1, U2 (CNS-U series)	VISHAY Semiconductor GmbH	VOL618A	Uiso=5000V, VIORM= 1050V, >8mm	IEC/EN 60747-5-5	VDE 132473
Alternative	CT Micro International Corporation	CT816L2 SMT T1	Uiso=5000V	IEC/EN 60747-5-5	VDE 40039590
Alternative	Fairchild Semiconductor Pte Ltd	FOD817A3S	Uiso=5000V	IEC/EN 60747-5-5	VDE 40026857
Internal wiring	Jiang Yin Tianqi Silicone Rubber Products Co., Ltd.	H05S-K	1,5 mm^2, 300/500V, 180°C	EN 50525-2-41	VDE 40017265
Alternative	Guangzhou Tang Yao Wires Co. Ltd.	TY1990	15AWG, 300/500V, 180°C	VDE 0250	VDE 40002540

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict

Heating elements for CNS 500 Plus LCD & CNS 500 Plus LCD (CH)	Stiebel Eltron GmbH & Co. KG	500W/230V	500W/230V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Alternative	Hangzhou Heatwell Electric Heating Technology Co., Ltd.	500W/230V	500W/230V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Heating elements for CNS 750 Plus LCD & CNS 750 Plus LCD (CH)	Stiebel Eltron GmbH & Co. KG	750W/230V	750W/230V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Alternative	Hangzhou Heatwell Electric Heating Technology Co., Ltd.	750W/230V	750W/230V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Heating elements for CNS 1000 Plus LCD & CNS 1000 Plus LCD (CH)	Stiebel Eltron GmbH & Co. KG	1000W/230V	1000W/230V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Alternative	Hangzhou Heatwell Electric Heating Technology Co., Ltd.	1000W/230V	1000W/230V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Heating elements for CNS 1500 Plus LCD & CNS 1500 Plus LCD (CH)	Stiebel Eltron GmbH & Co. KG	1500W/230V	1500W/230V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Alternative	Hangzhou Heatwell Electric Heating Technology Co., Ltd.	1500W/230V	1500W/230V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Heating elements for CNS 2000 Plus LCD & CNS 2000 Plus LCD (CH)	Stiebel Eltron GmbH & Co. KG	2000W/230V	2000W/230V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict

Alternative	Hangzhou Heatwell Electric Heating Technology Co., Ltd.	2000W/230V	2000W/230V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Heating elements for CNS 2500 Plus LCD	Stiebel Eltron GmbH & Co. KG	2500W/230V	2500W/230V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Alternative	Hangzhou Heatwell Electric Heating Technology Co.,Ltd.	2500W/230V	2500W/230V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Heating elements for CNS 3000 Plus LCD	Stiebel Eltron GmbH & Co. KG	3000W/230V	3000W/230V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Alternative	Hangzhou Heatwell Electric Heating Technology Co.,Ltd.	3000W/230V	3000W/230V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Heating elements for CNS-U 500 Plus LCD (UK)	Stiebel Eltron GmbH & Co. KG	500W/240V	500W/240V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Alternative	Hangzhou Heatwell Electric Heating Technology Co.,Ltd.	500W/240V	500W/240V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Heating elements for CNS-U 750 Plus LCD (UK)	Stiebel Eltron GmbH & Co. KG	750W/240V	750W/240V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Alternative	Hangzhou Heatwell Electric Heating Technology Co.,Ltd.	750W/240V	750W/240V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Heating elements for CNS-U 1000 Plus LCD (UK) & CNS 1000 Plus LCD (AU)	Stiebel Eltron GmbH & Co. KG	1000W/240V	1000W/240V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict

Alternative	Hangzhou Heatwell Electric Heating Technology Co.,Ltd.	1000W/240V	1000W/240V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Heating elements for CNS-U 1500 Plus LCD (UK) & CNS 1500 Plus LCD (AU)	Stiebel Eltron GmbH & Co. KG	1500W/240V	1500W/240V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Alternative	Hangzhou Heatwell Electric Heating Technology Co.,Ltd.	1500W/240V	1500W/240V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Heating elements for CNS-U 2000 Plus LCD (UK) & CNS 2000 Plus LCD (AU)	Stiebel Eltron GmbH & Co. KG	2000W/240V	2000W/240V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Alternative	Hangzhou Heatwell Electric Heating Technology Co.,Ltd.	2000W/240V	2000W/240V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Heating elements for CNS-U 2500 Plus LCD (UK)	Stiebel Eltron GmbH & Co. KG	2500W/240V	2500W/240V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Alternative	Hangzhou Heatwell Electric Heating Technology Co.,Ltd.	2500W/240V	2500W/240V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Heating elements for CNS-U 3000 Plus LCD (UK)	Stiebel Eltron GmbH & Co. KG	3000W/240V	3000W/240V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Alternative	Hangzhou Heatwell Electric Heating Technology Co.,Ltd.	3000W/240V	3000W/240V	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Heating element support	Tianjin Wan Su New Materials Technology Co., Ltd.	C3100NP-8072SM	PA66, FV-0	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict

Alternative	Nanjin Lihan Chemical Co., Ltd	A9000 EPWH	PA66, FV-0 UL E182725	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Cover for PCBA	Tianjin Wan Su New Materials Technology Co., Ltd.	C3100NP-8072SM	PA66, FV-0	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Alternative	Nanjin Lihan Chemical Co., Ltd	A9000 EPWH	PA66, FV-0 UL E182725	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Holder for power cord	Tianjin Wan Su New Materials Technology Co., Ltd.	C3100NP-8072SM	PA66, FV-0	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Alternative	Nanjin Lihan Chemical Co., Ltd	A9000 EPWH	PA66, FV-0 UL E182725	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Sensor holder	Tianjin Wan Su New Materials Technology Co., Ltd.	C3100NP-8072SM	PA66, FV-0	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Alternative	Nanjin Lihan Chemical Co., Ltd	A9000 EPWH	PA66, FV-0 UL E182725	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Switch holder	Tianjin Wan Su New Materials Technology Co., Ltd.	C3100NP-8072SM	PA66 FV-0	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Alternative	Nanjin Lihan Chemical Co., Ltd	A9000 EPWH	PA66, FV-0 UL E182725	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Cover for User interface	Tianjin Wan Su New Materials Technology Co., Ltd.	C3100NP-8072SM	PA66 FV-0	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Alternative	Nanjin Lihan Chemical Co., Ltd	A9000 EPWH	PA66, FV-0 UL E182725	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Shrinking tube	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD	RSFR-H	600V, VW-1, 125°C UL E203950	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance
Shrinking tube	Shanghai Ruiyue Industry Co., Ltd	K-2	600V, VW-1, 125°C UL E214175	IEC/EN 60335-1 IEC/EN 60335-2-30	Test with appliance

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict

Supplementary information: N/A

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

28.1	**TABLE: Threaded part torque test**		P
Threaded part identification:	**Diameter of thread (mm)**	**Column number (I, II, or III)**	**Applied torque (Nm)**
Screw for enclosure	3,5	II	0,8
Screw for earthing terminal	4,0	II	1,2
Supplementary information:			

29.1	**TABLE: Clearances**					P
	Overvoltage category ....:	II				—
		Type of insulation:				
Rated impulse voltage (V):	**Min. cl (mm)**	**Basic (mm)**	**Supplementary (mm)**	**Reinforced (mm)**	**Functional (mm)**	**Verdict / Remark**
330	0,2* / 0,5 / 0,8**					N/A
500	0,2* / 0,5 / 0,8**					N/A
800	0,2* / 0,5 / 0,8**					N/A
1 500	0,5 / 0,8** / 1,0***					N/A
2 500	**1,5** / 2,0***	☒	☒		☒	P
4 000	**3,0** / 3,5***			☒		P
6 000	5,5 / 6,0***					N/A
8 000	8,0 / 8,5***					N/A
10 000	11,0 / 11,5***					N/A

Supplementary information: N/A

*) For tracks on printed circuit boards if pollution degree 1 and 2
**) For pollution degree 3
***) If the construction is affected by wear, distortion, movement of the parts or during assembly

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

IEC 60335-2-30											
Clause	Requirement + Test							Result - Remark			Verdict
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9	—		—	N/A
≤50	0,36	1,2	1,7	2,4	3,0	3,4	3,8	—	—		N/A
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4		—	—	N/A
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4	—		—	N/A
125	0,56	1,5	2,1	3,0	3,8	4,2	4,8	—	—		N/A
250	0,56	1,25	1,8	**2,5**	3,2	3,6	4,0	☒	—	—	P
250	0,56	1,25	1,8	**2,5**	3,2	3,6	4,0	—	☒	—	P
250	1,12	2,5	3,6	**5,0**	6,4	7,2	8,0	—	—	☒	P
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3		—	—	N/A
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3	—		—	N/A
400	2,0	4,0	5,6	8,0	10,0	11,2	12,6	—	—		N/A
500	1,3	2,5	3,6	5,0	6,3	7,1	8,0		—	—	N/A
500	1,3	2,5	3,6	5,0	6,3	7,1	8,0	—		—	N/A
500	2,6	5,0	7,2	10,0	12,6	14,2	16,0	—	—		N/A
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0		—	—	N/A
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	—		—	N/A
>630 and ≤800	3,6	6,4	9,0	12,6	16,0	18,0	20,0	—	—		N/A
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5		—	—	N/A
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	—		—	N/A
>800 and ≤1000	4,8	8,0	11,2	16,0	20,0	22,0	25,0	—	—		N/A
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0		—	—	N/A
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	—		—	N/A
>1000 and ≤1250	6,4	10,0	14,2	20,0	25,0	28,0	32,0	—	—		N/A
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0		—	—	N/A
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	—		—	N/A
>1250 and ≤1600	8,4	12,6	18,0	25,0	32,0	36,0	40,0	—	—		N/A
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0		—	—	N/A
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	—		—	N/A
>1600 and ≤2000	11,2	16,0	22,0	32,0	40,0	44,0	50,0	—	—		N/A
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0		—	—	N/A
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	—		—	N/A
>2000 and ≤2500	15,0	20,0	28,0	40,0	50,0	56,0	64,0	—	—		N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0		—	—	N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	—		—	N/A

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict

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

Supplementary information:

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

**) B = Basic insulation, S = Supplementary insulation, R = Reinforced insulation

29.2	**TABLE: Creepage distances, functional insulation**							P
Working voltage (V):	**Creepage distance (mm) Pollution degree**							
	1	**2**			**3**			
		Material group			**Material group**			
		I	**II**	**IIIa/IIIb**	**I**	**II**	**IIIa/IIIb***	**Verdict / Remark**
≤10	0,08	0,4	0,4		1,0	1,0	1,0	N/A
50	0,16	0,56	0,8	1,1	1,4	1,6	1,8	N/A
125	0,25	0,71	1,0	0,4	1,8	2,0	2,2	N/A
250	0,42	1,0	1,4	**2,0**	2,5	2,8	3,2	P
400	0,75	1,6	2,2	3,2	4,0	4,5	5,0	N/A
500	1,0	2,0	2,8	4,0	5,0	5,6	6,3	N/A

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict

>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	N/A
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	N/A
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	N/A
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	N/A
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	N/A
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	N/A
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	N/A
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	N/A
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	N/A
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	N/A
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	N/A
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	N/A

Supplementary information:

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

30.1	**TABLE: Ball Pressure Test of Thermoplastics**		P
Allowed impression diameter (mm) ..... :		2,0	—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)
Power board box	See table 24.1	113	0,8
Control board box	See table 24.1	122	1,1
Heating element bracket (plastic)	See table 24.1	124	1,2
Plastic enclosure near thermal control sensor head	See table 24.1	75	0,6
Power cord bush	See table 24.1	75	0,8
Supplementary information: N/A			

30.2	**TABLE: Resistance to heat and fire - Glow wire tests**							P
Object/ Part No./ Material	**Manufacturer/ trademark**	**Glow wire test (GWT); (°C)**						**Verdict**
		550	**650**		**750**		**850**	
			te	**ti**	**te**	**ti**		
Power board box	See table 24.1	--	--	--	29	2	P	P
Control board box	See table 24.1	--	--	--	27	4	P	P

IEC 60335-2-30			
Clause	Requirement + Test	Result - Remark	Verdict

Heating element bracket (plastic)	See table 24.1	P	--	--	--	--	--	P
Plastic enclosure near thermal control sensor head	See table 24.1	--	No ignition		--	--	--	P
Power cord bush	See table 24.1	--	No ignition		--	--	--	P
Power switch	See table 24.1	--	--	--	8	3	P	P
Relay	See table 24.1	--	--	--	No ignition		P	P

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

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

Supplementary information: N/A

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 (ta); (s)**	**Ignition of specified layer Yes/No**	**Duration of burning (tb) (s)**	**Verdict**
PCB	See table 24.1	30s	No	0	P
Power board box	See table 24.1	30s	No	0	P
Control board box	See table 24.1	30s	No	0	P
Power switch	See table 24.1	30s	No	0	P

Supplementary information: N/A

- 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

ATTACHMENT to TRF IEC60335_2_30S			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT **IEC 60335-2-30** **(AUSTRALIA/NEW ZEALAND) NATIONAL DIFFERENCES** (Household and similar electrical appliances – Safety – Part 2-30: Particular requirements for room heaters)			
Differences according to .....:	AS/NZS 60335.2.30:2023 AS/NZS 60335.1:2020 + A1:2021		
TRF template used: ..... :	IECEE OD-2020-F3, Ed. 1.2		
Attachment Form No. .....:	AU_NZ_ND_IEC60335_2_30S		
Attachment Originator.....:	NZ Electrotechnical Committee/Standards New Zealand		
Master Attachment .....:	Date 2024-09-27		
	National Differences		
1	**SCOPE**		
	Insert the following variation after the existing sixth dashed item in Note 101:		—
	– ceiling recessed radiant heaters; (AS/NZS 60335.2.30:2023)		N/A
	Insert the following variation after the existing ninth dashed item in Note 103:		—
	– recessed luminaires (IEC 60598-2-2); (AS/NZS 60335.2.30:2023)		N/A
3	**TERMS AND DEFINITIONS**		—
3.106	Insert the following variation:		—
	NOTE 301 A **ceiling mounted heat lamp appliance** is not considered to be a ceiling recessed radiant heater. (AS/NZS 60335.2.30:2023)		N/A
	Insert the following definition:		—
AZ.3.1.201	Outlet load (AS/NZS 60335.1:2020)	No outlet load	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:		—

ATTACHMENT to TRF IEC60335_2_30S			
Clause	Requirement + Test	Result - Remark	Verdict
	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:		—
	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)	a.c. only	P
6	**CLASSIFICATION**		—
6.1	Replace the first paragraph of the requirement by the following variation:		—
	Appliances shall be of one of the following classes with respect to protection against electric shock: class I, class II, class III. (AS/NZS 60335.1:2020)	Class I	P
7	**MARKING AND INSTRUCTIONS**		—
7.1	After the first paragraph of the requirement insert the following variation:		—
	For appliance outlets and socket outlets accessible to the user that are incorporated in appliances connected to the supply mains; and	No such devices	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
	After the sixth paragraph of the requirement, insert the following variation:		—
	Portable visibly glowing radiant heaters shall be marked with the substance of the following:	No such appliances	N/A
	WARNING: FIRE RISK EXISTS IF THE HEATER IS COVERED BY OR POSITIONED CLOSE TO CURTAINS OR OTHER COMBUSTIBLE MATERIALS (AS/NZS 60335.2.30:2023)		N/A
7.12.1	Insert the following variation after the ninth paragraph of the addition.		—
	The instructions for ceiling recessed radiant heaters shall give details for proper installation in the ceiling and shall state the substance of the following: (AS/NZS 60335.2.30:2023)	No such appliances	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	– the minimum distance between the top of the heater and any building element above it – the minimum distance between the sides of the heater and any building element adjacent to it. (AS/NZS 60335.2.30:2023)		N/A
	The appliance shall, under no circumstances, be covered with insulating material or similar material. (AS/NZS 60335.2.30:2023)		N/A
	The distance between the sides of the heater and the sides and any adjacent ceiling recessed heater shall not be less than four times the minimum distance specified for the distance between the sides of the heater and any building element adjacent to it. (AS/NZS 60335.2.30:2023)		N/A
7.13	Replace the requirement with the following variation:		—
	Instructions and other text required by this standard are written in English. (AS/NZS 60335.1:2020)		P
7.15	After the last paragraph of the requirement insert the following variation:		—
	The marking of the maximum outlet load shall be close to the appliance outlet or socket outlet. (AS/NZS 60335.1:2020)		N/A
	After the third paragraph of the addition, insert the following variation:		—
	The fire risk warning for portable visibly glowing radiant heaters shall be visible during normal use (AS/NZS 60335.2.30:2023)	No such appliances	N/A
	The fire risk warning for portable visibly glowing radiant heaters may be provided on a permanent durable label attached to the supply cord at a distance not exceeding 600 mm from the body of the heater. (AS/NZS 60335.2.30:2023)	No such appliances	N/A
8	**PROTECTION AGAINST ELECTRIC SHOCK**		—
8.2	Add the following new sentence to the addition:		—
	Other basic insulation associated with the heat lamp circuits and luminaire circuits may be touched provided it complies with the requirements of this standard. (AS/NZS 60335.2.30:2023)	No such appliances	N/A
10	**POWER INPUT AND CURRENT**		—
10.1	After the last paragraph of the test specification insert the following variation:		—

ATTACHMENT to TRF IEC60335_2_30S			
Clause	Requirement + Test	Result - Remark	Verdict
	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**		—
11.2	Insert the following variation after the last paragraph of the test specification.		—
	Ceiling recessed radiant heaters are mounted in a test recess, consisting of the test corner walls and ceiling on top of which is a rectangular test box with vertical sides and horizontal top. Unless otherwise specified in the instruction, the ceiling recessed radiant heater is mounted as near as possible to the walls of the test corner. (AS/NZS 60335.2.30:2023)		N/A
	The test corner ceiling shall extend at least 100 mm outside the projection of the test box on the ceiling. The box is made of dull black-painted plywood approximately 20 mm thick and the top of the box is tightly sealed to its sides. The ceiling of the test corner external to the box and the outside of the box is covered with insulating material having a coefficient of thermal insulation of approximately 3,2 m^2K/W. (AS/NZS 60335.2.30:2023)		N/A
	The position of the ceiling recessed radiant heater within the test box shall be such that the distance between the sides of the box and the sides of the ceiling recessed radiant heater is equal to the distance specified in the instructions between the sides of the ceiling recessed radiant heater and any building element adjacent to it. The height of the box shall be equal to the height of the ceiling recessed radiant heater plus the distance specified in the instructions between the top of the ceiling recessed radiant heater and any building element above it. (AS/NZS 60335.2.30:2023)		N/A
11.7	After the first paragraph of the test specification insert the following variation:		—
	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:		—

ATTACHMENT to TRF IEC60335_2_30S			
Clause	Requirement + Test	Result - Remark	Verdict
	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)……...……:		
19	**ABNORMAL OPERATION**		—
19.1	As a new sentence to the modification insert the following variation:		
	If relevant, 19.301 is also applicable. (AS/NZS 60335.2.30:2023)	No such appliances	N/A
19.13	After the seventh paragraph of the test specification insert the following variation:		—
	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)	No such devices	N/A
	Voltage normal use (V)……...:		N/A
	Voltage abnormal operation (V)……:		N/A
	Deviation (%)……:		N/A
	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)		N/A
	Voltage normal use (V)……...:		N/A
	Voltage abnormal operation (V)……:		N/A
	Deviation (%)……:		N/A
19.301	Ceiling recessed radiant heaters shall be operated under the conditions of Clause 11, supplied at rated voltage and without the test box in position.	No such appliances	N/A
	Insulation material having a coefficient of thermal insulation of approximately 4 m^2K/W is placed in contact with all recessed surfaces of the heater. This insulation shall extend out to the existing insulation covering the test corner ceiling.		N/A
	– wood shall not exceed 105 K;		N/A
	Recorded temperature rise (K)……:		N/A
	– all surfaces of the thermal insulation shall not exceed 120 K;		N/A
	Recorded temperature rise (K)……:		N/A

ATTACHMENT to TRF IEC60335_2_30S			
Clause	Requirement + Test	Result - Remark	Verdict
	unless a thermal cut-out operates before the temperature rise exceeds 150 K. (AS/NZS 60335.2.30:2023)		N/A
22	**CONSTRUCTION**		—
22.2	After the first paragraph of the requirement insert the following variation:		—
	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)	No such appliances	N/A
22.3	Replace the text with the following variation:		—
	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.		N/A
	Compliance is checked as specified in Appendix 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

ATTACHMENT to TRF IEC60335_2_30S			
Clause	Requirement + Test	Result - Remark	Verdict
	- 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
	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)		N/A
	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)		N/A
	Rated voltage (V)……..:		N/A
	Current of outlet (A)……..:		N/A
	Test current (A)……..:		N/A
	Ambient temperature (°C)……..:		N/A
	The device shall operate to interrupt the current within 2 h. (AS/NZS 60335.1:2020)		N/A
	Overload condition existed for (_h,_min, _sec)…..:		N/A
	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)		N/A
	Rated voltage (V)……..:		N/A
	Current of outlet (A)……..:		N/A
	Test current (A)……..:		N/A
	Ambient temperature (°C)……..:		N/A
	The device shall operate to interrupt the current within 5 s. (AS/NZS 60335.1:2020)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Overload condition existed for (sec)……..…..:		N/A
	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)		N/A
	The device shall comply with the ball pressure test of 30.1 carried out at 160 °C. (AS/NZS 60335.1:2020)		N/A
	Plastic material type……:		N/A
	Impression diameter (mm)…….……..:		N/A
	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)		N/A
	Plastic material type…….……:		N/A
	Time of ignition (sec)…….…….……:		N/A
	Time of extinguish (sec)…….……..:		N/A
	Specified layer placed underneath the test specimen does not ignite. …….……..:		N/A
22.301	Portable fan heaters shall be fitted with a device that automatically disconnects heating elements from the supply when the heater is placed in any position other than in its position or positions of normal use. (AS/NZS 60335.2.30:2023)	No such appliances	N/A
24	**COMPONENTS**		—
24.1	Insert the following variation before NOTE 1:		—
	NOTE 201 The relevant IEC standard can be replaced with the relevant Australia/New Zealand standard where applicable. (AS/NZS 60335.1:2020)		P
24.301	Thermal cut-outs incorporated to comply with 19.301 shall be non-self-resetting. (AS/NZS 60335.2.30:2023)		N/A
25	**SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS**		—
25.1	Insert the following variation:		—
	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
	Room heaters shall not be provided with pins for insertion into socket-outlets (AS/NZS 60335.2.30:2023)		P

ATTACHMENT to TRF IEC60335_2_30S			
Clause	Requirement + Test	Result - Remark	Verdict
Table 11	In footnote *a insert* the following variation		—
	However, they cannot be used in class I appliances. (AS/NZS 60335.1:2020)		N/A
25.7	Replace the second paragraph of the addition with the following variation:		—
	Supply cords of heaters intended to be used on building sites shall not be lighter than heavy duty PVC-sheathed flexible cord complying with AS/NZS 3191. (AS/NZS 60335.2.30:2023)		N/A
30	**RESISTANCE TO HEAT AND FIRE**		—
30.2.1	After the text of the modification *insert* the following variation:		—
	Addition: In fan heaters, other than those intended to be operated at maximum heat output with the fan switched off or rendered inoperative in the most unfavourable way, the non-metallic material (AS/NZS 60335.2.30:2023)		N/A
	– in the enclosure, in fan blades and in all structural elements within the enclosure (AS/NZS 60335.2.30:2023)		N/A
	– in components such as thermostats, thermal cut-outs, switches and the like that are mounted within a distance of 25 mm from a heating element; (AS/NZS 60335.2.30:2023)		N/A
	are subjected to the following tests		N/A
	Parts shall withstand the glow-wire test of IEC 60695-2-11 without ignition, the test being carried out with a severity of 850 °C. (AS/NZS 60335.2.30:2023)		N/A
	However, the glow-wire test is not carried out on parts of material classified as having a glow-wire ignition temperature according to IEC 60695-2-13 of at least 875 °C. (AS/NZS 60335.2.30:2023)		N/A
	If the glow-wire ignition temperature is not available for a sample with a thickness within ± 0,1 mm of the relevant part, then the test sample shall have a thickness equal to the nearest preferred value specified in IEC 60695-2-13 that is no thicker than the relevant part. (AS/NZS 60335.2.30:2023)		N/A
	NOTE 301 The preferred values in IEC 60695-2-13 are 0,75 mm ± 0,1 mm, 1,5 mm ± 0,1 mm and 3,0 mm ± 0,2 mm. (AS/NZS 60335.2.30:2023)		N/A

ATTACHMENT to TRF IEC60335_2_30S			
Clause	Requirement + Test	Result - Remark	Verdict
	Special national conditions (if any)		
	Australia		
5	**GENERAL CONDITIONS FOR THE TESTS**		—
AZ.5.201	For appliances, other than class III appliances, that are intended for connections to the supply mains (AS/NZS 60335.1:2020/A1:2021)		P
	– for single phase appliances, if marked with a rated voltage of either “230V” or “240V” test: (AS/NZS 60335.1:2020/A1:2021)	Both 230V & 240V marked	P
	• at the multiplication factor (of less than 1) × 230 V; and (AS/NZS 60335.1:2020/A1:2021)		P
	• at the multiplication factor (of greater than 1) × 240 V; (AS/NZS 60335.1:2020/A1:2021)		P
	– for multi-phase appliances, if marked with a rated voltage of either “400V” or “415V” test: (AS/NZS 60335.1:2020/A1:2021)		N/A
	• at the multiplication factor (of less than 1) × 400 V; and (AS/NZS 60335.1:2020/A1:2021)		N/A
	• at the multiplication factor (of greater than 1) × 415 V; (AS/NZS 60335.1:2020/A1:2021)		N/A
	If marked with a rated voltage range then test: • at the multiplication factor (of less than 1) × the lower extremity of the rated voltage range; and (AS/NZS 60335.1:2020/A1:2021)		N/A
	• at the multiplication factor (of greater than 1) × the higher extremity of the rated voltage range; or (AS/NZS 60335.1:2020/A1:2021)		N/A
	• at the worst case voltage within the rated voltage range (AS/NZS 60335.1:2020/A1:2021)		N/A
7	**MARKING AND INSTRUCTIONS**		—
7.1	After the first paragraph of the requirement insert the following variation:		—
	Appliances intended for connection to the supply mains, other than class III appliances, shall be marked with:		P

ATTACHMENT to TRF IEC60335_2_30S			
Clause	Requirement + Test	Result - Remark	Verdict
	- a rated voltage of at least: ..... 230 V for single-phase appliances; .....400 V for muti-phase appliances; or (AS/NZS 60335.1:2020/A1:2021)		P
	- a rated voltage range that includes: ..... 230 V for single-phase appliances; ..... 400 V for multi-phase appliances. (AS/NZS 60335.1:2020/A1:2021)		N/A
24	**COMPONENTS**		—
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		
7	**MARKING AND INSTRUCTIONS**		—
7.1	After the first paragraph of the requirement insert the following variation:		—
	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 multi-phase appliances; or (AS/NZS 60335.1:2020/A1:2021)	Both 230V & 240V marked	P
	- a rated voltage range that includes: ..... 230 V for single-phase appliances; ..... 400 V for muti-phase appliances. (AS/NZS 60335.1:2020/A1:2021)		N/A