中国认可
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检测
TESTING
CNAS L6478

TEST REPORT

Reference No.	:	WTF23F12259866J
Applicant	:	Mid Ocean Brands B.V.
Address	:	7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong
Manufacturer	:	118144
Address	:	--
Product Name	:	USB foldable desk fan
Model No.	:	MO2123
Test specification	:	EN 60335-1:2012+A11:2014+A13:2017+A1:2019+A14:2019+A2:2019+A15:2021 EN 60335-2-80:2003+A1:2004+A2:2009 EN 62233:2008
Date of Receipt sample	:	2023-10-25
Date of Test	:	2023-10-26 to 2023-12-14
Date of Issue	:	2023-12-15
Test Report Form No.	:	WSH-60335280I-01A
Test Result	:	Pass

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of approver.

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Tested by: William He
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Approved by: Jerry Mu
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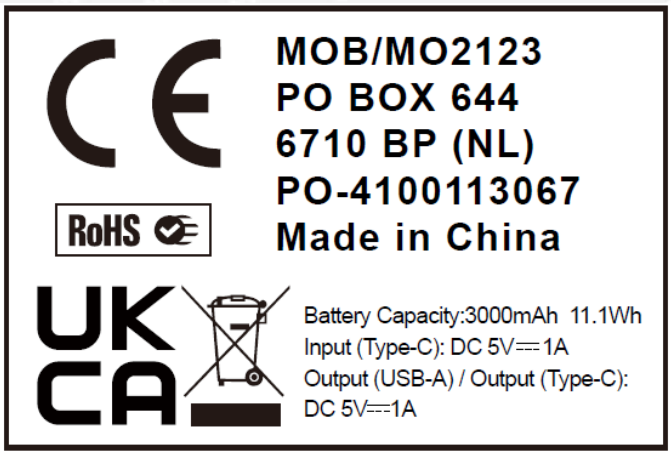
Test item description ..... :	USB foldable desk fan
Trade Mark ..... :	--
Model/Type reference ..... :	MO2123
Ratings ..... :	Input: 5V ⎓, 1A Output: 5V ⎓, 1A, Class III, IPX0

Copy of marking plate:



Remark: When the equipment is vended to EU, then name and address of the importer or authorized representative within the EEA shall be added on the equipment.

Summary of testing:

1. These samples are tested and complied with the requirements of standards listed in this report.
2. Full tests were performed on model MO2123.

Test item particulars ..... :		
Classification of installation and use ..... :		Portable appliance, household and indoor use
Supply Connection ..... :		DC Inlet
Possible test case verdicts:		
- test case does not apply to the test object ..... :		N
- test object does meet the requirement ..... :		P(Pass)
- test object does not meet the requirement ..... :		F(Fail)

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 point is used as the decimal separator.

General product information:

1. The appliances are for household and indoor use only.

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
5	GENERAL CONDITIONS FOR THE TESTS		--
	Tests performed according to clause 5, e.g. nature of supply, sequence of testing, etc.		P
5.7	Fans to be used in tropical climates, the tests of clause 10.11 and 13 are carried out at 40 °C +/- 2 °C (IEC 60335-2-80)		N
	Fans marked with ambient operating temperature, the tests of clause 10, 11 and 13 are carried out at marked value +/- 2 °C (IEC 60335-2-80)		N
6	CLASSIFICATION		--
6.1	Protection against electric shock: Class 0, 0I, I, II, III .... :	Class III	P
	For a class III construction with a detachable power supply part the appliance is classified according to the detachable power supply part		N
6.2	Protection against harmful ingress of water		N
	At least IPX2 for Duct fans (IEC 60335-2-80)		N
6.101	Classification to climatic conditions (IEC 60335-2-80): - fans for temperature climates - fans for tropical climates	Temperature climates	P
7	MARKING AND INSTRUCTIONS		--
7.1	Rated voltage or voltage range (V) .... :	See page 2	P
	Symbol for nature of supply, or .... :	See page 2	P
	Rated frequency (Hz) .... :		N
	Rated power input (W), or .... :		N
	Rated current (A) .... :	See page 2	P
	Manufacturer's or responsible vendor's name, trademark or identification mark..... ..... :	See page 2	P
	Model or type reference .... :	See page 2	P
	Symbol IEC 60417-5172, for class II appliances		N
	IP number, other than IPX0..... ..... :	IPX0	N
	Symbol IEC 60417-5180, for class III appliances, unless		N
	the appliance is operated by batteries only		P
	Symbol IEC 60417-5018, for class II and class III appliances incorporating a functional earth		N
	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

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	Symbol IEC 60417-5180 (2003-02), for class III appliances. This marking is not necessary for appliances operated only by batteries (primary batteries or secondary batteries recharged outside of the appliance) or appliances powered by rechargeable batteries recharged in the appliance.		P
	For tropical climates marked with letter T (IEC 60335-2-80)		N
	Fans intended for operation in location where the local temperature exceeds 40 ℃ shall be marked with the ambient operating temperature. (IEC 60335-2-80)		N
7.2	Warning for stationary appliances for multiple supply		N
	Warning placed in vicinity of terminal cover		N
7.3	Range of rated values marked with the lower and upper limits separated by a hyphen		N
	Different rated values marked with the values separated by an oblique stroke		N
7.4	Appliances adjustable for different rated voltages or rated frequencies, the voltage or the frequency setting is clearly discernible		N
	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
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		N
	the power input or current are related to the arithmetic mean value of the rated voltage range		N
	Relation between marking for upper and lower limits of rated power input or rated current and voltage is clear		N
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
	Units of physical quantities and their symbols according to international standardized system		P
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply, unless		N
	correct mode of connection is obvious		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
7.8	Except for type Z attachment, terminals for connection to the supply mains indicated as follows:		--
	- marking of terminals exclusively for the neutral conductor (letter N)		N
	- marking of protective earthing terminals (symbol IEC 60417-5019)		N
	- marking of functional earthing terminals (symbol IEC 60417-5018)		N
	- marking not placed on removable parts		N
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 use of symbols	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		N
	The figure 0 indicates only OFF position, unless no confusion with the OFF position		N
7.11	Indication for direction of adjustment of controls		N
7.12	Instructions for safe use provided		P
	Details concerning precautions during user maintenance		P
	The instructions state that:		--
	- the appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction		P
	- children being supervised not to play with the appliance		P
	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
	Instructions for class III appliances state that it must only be supplied at SELV, unless		P
	it is a battery-operated appliance, the battery being charged outside the appliance		N
	For appliances for altitudes exceeding 2000 m, the maximum altitude is stated..... ..... :		N
	The instructions for appliances incorporating a functional earth states that the appliance incorporates an earth connection for functional		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	purposes only		
	If the instructions state that the guard has to be removed for cleaning purposes, the instructions shall state the substance of the following: (IEC 60335-2-80/A1)		--
	Ensure that the fan is switched off from the supply mains before removing the guard. (IEC 60335-2-80/A1)		N
	The instructions for ceiling fans shall include the substance of the following warning:		--
	WARNING: If unusual oscillating movement is observed, immediately stop using the ceiling fan and contact the manufacturer, its service agent or suitably qualified persons. (IEC 60335-2-80/A1)		N
	The instructions for ceiling fans shall include the substance of the following: (IEC 60335-2-80/A1)		--
	– the maintenance cycle and method of maintenance; (IEC 60335-2-80/A1)		N
	– the weight of the appliance in kilograms; (IEC 60335-2-80/A1)		N
	– that the replacement of parts of the safety suspension system device shall be performed by the manufacturer, its service agent or suitably qualified persons. (IEC 60335-2-80/A1)		N
	The instructions for fans incorporating motors containing brushes shall include the substance of the following: (IEC 60335-2-80/A1)		--
	If it is necessary to replace the live or neutral brushes to ensure operation of the motor then both brushes and the earth brush shall be replaced at the same time. The brushes shall only be replaced by a suitably qualified person. (IEC 60335-2-80/A1)		N
7.12.1	Sufficient details for installation supplied		P
	For an appliance intended to be permanently connected to the water mains and not connected by a hose-set, this is stated		N
	The installation instructions for ceiling fans shall include the substance of the following: (IEC 60335-2-80)		--
	– the fixing means for attachment to the ceiling such as hooks or other devices shall be fixed with a sufficient strength to withstand 4 times the weight of the ceiling fan; (IEC 60335-2-80)		N
	– that the mounting of the suspension system shall be performed by the manufacturer, its service agent or suitably qualified persons; (IEC 60335-2-80)		N
	– that the fan is to be installed so that the blades are more than 2.3 m above the floor; (IEC 60335-2-80)		N
	– the model or type reference of a luminaire that may be installed in a fan constructed for this purpose. (IEC 60335-2-80)		N
	The instructions for other fans shall include the substance of the following:		--

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	(IEC 60335-2-80)		
	– whether the fan is intended for mounting in outside windows or walls (for partition fans); (IEC 60335-2-80)		N
	– that the fan is to be installed so that the blades are more than 2.3 m above the floor (for fans intended to be mounted at high level); (IEC 60335-2-80)		N
	– that precautions must be taken to avoid the back-flow of gases into the room from the open flue of gas or other fuel-burning appliances (for duct and partition fans). (IEC 60335-2-80)		N
	If different rated voltages or different rated frequencies are marked, the instructions state what action to be taken to adjust the appliance		N
7.12.2	Stationary appliances not fitted with means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under overvoltage category III, the instructions state that means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules		N
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
7.12.4	Instructions for built-in appliances:		--
	- dimensions of space		N
	- dimensions and position of supporting and fixing		N
	- minimum distances between parts and surrounding structure		N
	- minimum dimensions of ventilating openings and arrangement		N
	- connection to supply mains and interconnection of separate components		N
	- allow disconnection of the appliance after installation, by accessible plug or a switch in the fixed wiring, unless		N
	a switch complying with 24.3		N
7.12.5	Replacement cord instructions, type X attachment with a specially prepared cord		N
	Replacement cord instructions, type Y attachment		N
	Replacement cord instructions, type Z attachment		N
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
7.12.7	Instructions for fixed appliances stating how the		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	appliance is to be fixed		
7.12.8	Instructions for appliances connected to the water mains:		--
	- max. inlet water pressure (Pa)..... ..... :		N
	- min. inlet water pressure, if necessary (Pa)..... :		N
	Instructions concerning new and old hose-sets for appliances connected to the water mains by detachable hose-sets		N
7.12.9	Instructions specified in 7.12 and from 7.12.1 to 7.12.8 appear together before any other instructions supplied with the appliance		P
	These instructions may be supplied with the appliance separately from any functional use booklet		P
	They may follow the description of the appliance that identifies parts, or follow the drawings/sketches		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 .... :	Website	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..... ..... :		N
	Uppercase letter of the text explaining the signal word not smaller than 1.6 mm .... :		N
	Moulded in, engraved, or stamped markings either raised above or have a depth below the surface of at least 0.25 mm, unless		N
	contrasting colours are used		N
	Markings checked by inspection, measurement and rubbing test as specified		P
7.15	Markings on a main part		P
	Marking clearly discernible from the outside, if necessary after removal of a cover		P
	For portable appliances, cover can be removed or opened without a tool		N
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation		N
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	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
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		N
8	PROTECTION AGAINST ACCESS TO LIVE PARTS		--
8.1	Adequate protection against accidental contact with live parts	No live part	N
8.1.1	Requirement applies for all positions, detachable parts removed		N
	Lamps behind a detachable cover not removed, if conditions met		N
	Insertion or removal of lamps, protection against contact with live parts of the lamp cap		N
	Use of test probe B of IEC 61032, with a force not exceeding 1 N: no contact with live parts		N
	Use of test probe B of IEC 61032 through openings, with a force of 20N: no contact with live parts		N
	Lamps are not removed. However, during insertion or removal of lamps, no contact with live parts of the lamp cap. (IEC 60335-2-80)		N
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		N
	Test probe 13 also applied through openings in earthed metal enclosures having a non-conductive coating: no contact with live parts		N
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		N
	For a single switching action obtained by a switching device, requirements as specified		N
	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
8.1.4	Accessible part not considered live if:		--
	- safety extra-low a.c. voltage: peak value not exceeding 42.4 V		N
	- safety extra-low d.c. voltage: not exceeding		P

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	42.4 V		
	- or separated from live parts by protective impedance		N
	If protective impedance: d.c. current not exceeding 2 mA, and		N
	a.c. peak value not exceeding 0.7 mA		N
	- for peak values over 42.4 V up to and including 450 V, capacitance not exceeding 0.1 μF		N
	- for peak values over 450 V up to and including 15 kV, discharge not exceeding 45 μC		N
	- for peak values over 15kV, the energy in the discharge not exceeding 350 mJ		N
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		--
	- built-in appliances		N
	- fixed appliances		N
	- appliances delivered in separate units		N
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		N
	Only possible to touch parts separated from live parts by double or reinforced insulation		N
8.2	After removal of detachable parts for user maintenance purposes, the basic insulation of internal wiring may be touched provided the equivalent insulating of cords complying with IEC 60227 or IEC 60245. (IEC 60335-2-80)		N
9	STARTING OF MOTOR-OPERATED APPLIANCES		--
	Requirements and tests are specified in part 2 when necessary		N
10	POWER INPUT AND CURRENT		--
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)	N
	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
	Otherwise the power input is the arithmetic mean value		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		N
	the rated power input is related to the arithmetic mean value		N
	Appliances are tested with shutters or similar devices in the open position. (IEC 60335-2-80)		N
10.2	Current at normal operating temperature, rated voltage and normal operation not deviating from rated current by more than shown in table 2..... :	(see appended table)	P
	If the current varies throughout the operating cycle and the maximum value of the current exceeds, by a factor greater than two, the arithmetic mean value of the current occurring during a representative period, the current is the maximum value that is exceeded for more than 10 % of the representative period		N
	Otherwise the current is the arithmetic mean value		N
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		N
	the rated current is related to the arithmetic mean value of the range		N
	Appliances are tested with shutters or similar devices in the open position. (IEC 60335-2-80)		N
11	HEATING		--
11.1	No excessive temperatures in normal use		P
11.2	The appliance is held, placed or fixed in position as described..... :	Placed on test corner	P
11.3	Temperature rises, other than of windings, determined by thermocouples		P
	Temperature rises of windings determined by resistance method, unless		N
	the windings are non-uniform or it is difficult to make the necessary connections		P
11.4	Heating appliances operated under normal operation at 1.15 times rated power input (W) .... :		N
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage (V)..... :	(see appended table)	P
11.6	Combined appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage (V)..... :		N
11.7	Appliances are operated until steady conditions are established. (IEC 60335-2-80)		P

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
11.8	Temperature rises monitored continuously and not exceeding the values in table 3 ..... :	(see appended table)	P
	If the temperature rise of a motor winding exceeds the value of table 3, or		N
	if there is doubt with regard to classification of insulation,		N
	tests of Annex C are carried out		N
	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
	The temperature rise limits for appliances for tropical climates are reduced by 15 K. (IEC 60335-2-80)		N
	The temperature rise limits for fans marked with an ambient operating temperature are reduced by the difference between the marked value and 25 °C. (IEC 60335-2-80)		N
13	LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE		--
13.1	Leakage current not excessive and electric strength adequate		P
	Heating appliances operated at 1.15 times the rated power input (W)..... :		N
	Motor-operated appliances and combined appliances supplied at 1.06 times the rated voltage (V)..... :	(see appended table)	P
	Protective impedance and radio interference filters disconnected before carrying out the tests		N
13.2	For class 0, class II and class III appliances, and class II constructions, leakage current measured by means of the circuit described in figure 4 of IEC 60990		P
	For class 0I and class I appliances, a low impedance ammeter may be used		N
	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
	Clearances having a value less than specified in table 16 subjected to an impulse voltage test, the		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	test voltage specified in table 6 ..... :		
	No flashover during the test, unless		N
	of functional insulation if the appliance complies with clause 19 with the clearance short-circuited		N
15	MOISTURE RESISTANCE		--
15.1	Enclosure provides the degree of moisture protection according to classification of the appliance		N
	Compliance checked as specified in 15.1.1, taking into account 15.1.2, followed by the electric strength test of 16.3		N
	No trace of water on insulation which can result in a reduction of clearances or creepage distances below values specified in clause 29		N
15.1.1	Appliances, other than IPX0, subjected to tests as specified in IEC 60529 ..... :	IPX0	N
	Water valves containing live parts in external hoses for connection of an appliance to the water mains tested as specified for IPX7 appliances		N
	The outer part of fans to be installed in the external structure is subjected to subclause 14.2.4(a) of IEC 60529:1989. The part of fans that is not mounted on the outside surface is protected against the spray water from the oscillating tube. (IEC 60335-2-80)		N
	The test is carried out with the appliance in the rest position and then in operation while supplied at rated voltage, shutters or similar devices being in the open position. (IEC 60335-2-80)		N
	Fans marked with the second numeral of the IP system are subjected to the appropriate test of IEC 60529 both at rest and in operation while supplied at rated voltage. (IEC 60335-2-80)		N
15.1.2	Hand-held appliance turned continuously through the most unfavourable positions during the test		N
	Built-in appliances installed according to the instructions		N
	Appliances placed or used on the floor or table placed on a horizontal unperforated support		N
	Appliances normally fixed to a wall and appliances with pins for insertion into socket-outlets are mounted on a wooden board		N
	For IPX3 appliances, the base of wall mounted appliances is placed at the same level as the pivot axis of the oscillating tube		N
	For IPX4 appliances, the horizontal centre line of the appliance is aligned with the pivot axis of the		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	oscillating tube, and		
	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
	Wall-mounted appliances, take into account the distance to the floor stated in the instructions		N
	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
	for IPX4 appliances, the movement of the tube is limited to two times 90° from the vertical for a period of 5 min		N
	Appliances with type X attachment fitted with a flexible cord as described		N
	Detachable parts subjected to the relevant treatment with the main part		N
	However, if a part has to be removed for user maintenance and a tool is needed, this part is not removed		N
15.2	Spillage of liquid does not affect the electrical insulation		N
	Spillage solution comprising water containing approximately 1 % NaCl and 0.6 % rinsing agent		N
	Appliances with type X attachment fitted with a flexible cord as described		N
	Appliances incorporating an appliance inlet tested with or without an connector, whichever is most unfavourable		N
	Detachable parts are removed		N
	Overfilling test with additional amount of the solution, over a period of 1 min (l)..... :		N
	The appliance withstands the electric strength test of 16.3		N
	No trace of water on insulation that can result in a reduction of clearances or creepage distances below values specified in clause 29		N
15.3	Appliances proof against humid conditions		P
	Checked by test Cab: Damp heat steady state in IEC 60068-2-78		P
	Detachable parts removed and subjected, if necessary, to the humidity test with the main part		P
	Humidity test for 48 h in a humidity cabinet	25°C, 93% R.H.	P
	Reassembly of those parts that may have been		P

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	removed		
	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		N
	Protective impedance disconnected from live parts before carrying out the tests		N
	Tests carried out at room temperature and not connected to the supply		N
16.2	Single-phase appliances: test voltage 1.06 times rated voltage (V)..... :		N
	Three-phase appliances: test voltage 1.06 times rated voltage divided by √3 (V) ..... :		N
	Leakage current measurements ..... :	(see appended table)	N
	Limit values doubled if:		--
	- all controls have an off position in all poles, or		N
	- the appliance has no control other than a thermal cut-out, or		N
	- all thermostats, temperature limiters and energy regulators do not have an off position, or		N
	- the appliance has radio interference filters		N
	With the radio interference filters disconnected, the leakage current do not exceed limits specified .... :		N
16.3	Electric strength tests according to table 7 ..... :	(see appended table)	N
	Test voltage applied between the supply cord and inlet bushing and cord guard and cord anchorage as specified ..... :	(see appended table)	N
	No breakdown during the tests		N
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 ..... :		N
	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) ..... :		N
	Basic insulation is not short-circuited		N
	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		N
	Temperature of the winding not exceeding the value specified in table 8		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	However, limits do not apply to fail-safe transformers complying with sub-clause 15.5 of IEC 61558-1		N
18	ENDURANCE		--
	Requirements and tests are specified in part 2 when necessary		N
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 ..... :	Considered	P
	Appliances incorporating heating elements subjected to the tests of 19.2 and 19.3, and		N
	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
	if applicable, to the test of 19.5		N
	Appliances incorporating PTC heating elements are also subjected to the test of 19.6		N
	Appliances incorporating motors subjected to the tests of 19.7 to 19.10, as applicable		P
	Appliances incorporating electronic circuits subjected to the tests of 19.11 and 19.12, as applicable		P
	Appliances incorporating contactors or relays subjected to the test of 19.14, being carried out before the tests of 19.11		N
	Appliances incorporating voltage selector switches subjected to the test of 19.15		N
	Unless otherwise specified, the tests are continued until a non-self-resetting thermal cut-out operates, or		N
	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
	If the control performs more than one function, only that aspect of the control under consideration is rendered inoperative. Other functions of the control may continue to operate normally.		N
	Fans incorporating shutters or similar subjected to the test of cl. 19.101 (IEC 60335-2-80)		N
19.2	Test of appliances with heating elements with restricted heat dissipation; test voltage (V), power		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	input of 0.85 times rated power input (W) ..... :		
19.3	Test of 19.2 repeated; test voltage (V), power input of 1.24 times rated power input (W) ..... :		N
19.4	Test conditions as in clause 11, any control limiting the temperature during tests of clause 11 short-circuited		N
19.5	Test of 19.4 repeated on Class 0I and I appliances with tubular sheathed or embedded heating elements. No short-circuiting, but one end of the element connected to the sheath		N
	The test repeated with reversed polarity and the other end of the heating element connected to the sheath		N
	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
19.6	Appliances with PTC heating elements tested at rated voltage, establishing steady conditions		N
	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
19.7	Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque, or		N
	locking moving parts of other appliances		P
	Locked rotor, capacitors open-circuited one at a time		N
	Test repeated with capacitors short-circuited one at a time, unless		N
	the capacitor is of class S2 or S3 of IEC 60252-1		N
	Appliances with timer or programmer supplied with rated voltage for each of the tests, for a period equal to the maximum period allowed..... :		N
	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
	Other appliances supplied with rated voltage for a period as specified ..... :	Until steady	P
	Winding temperatures not exceeding values specified in table 8..... :	(see appended table)	P
	Mounting of separate control (IEC 60335-2-80)		N
	Approximately 50 % of the area of each ventilating		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	opening is blocked. (IEC 60335-2-80)		
	Winding temperatures not exceeding values specified in table 8 (IEC 60335-2-80)		N
	The temperature rise of the board not exceed: (IEC 60335-2-80)		--
	– 50 K, for appliances with T marking; (IEC 60335-2-80)		N
	– 65 K, for other appliances. (IEC 60335-2-80)		N
19.8	Multi-phase motors operated at rated voltage with one phase disconnected		N
19.9	Not applicable. (IEC 60335-2-80)		N
19.10	Series motor operated at 1.3 times rated voltage for 1 min (V)..... :		N
	During the test, parts not being ejected from the appliance		N
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		N
	they comply with the conditions specified in 19.11.1		P
	Appliances incorporating an electronic circuit that relies upon a programmable component to function correctly, subjected to the test of 19.11.4.8, unless		P
	restarting does not result in a hazard		N
	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
	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
	- any current flowing through protective impedance not exceeding the limits specified in 8.1.4		N
	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
	- any loosened conductor does not reduce clearance or creepage distances between live parts and accessible metal parts below the values		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	specified in clause 29		
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		N
	b) open circuit at the terminals of any component		N
	c) short circuit of capacitors, unless		N
	they comply with IEC 60384-14		N
	d) short circuit of any two terminals of an electronic component, other than integrated circuits		N
	This fault condition is not applied between the two circuits of an optocoupler		N
	e) failure of triacs in the diode mode		N
	f) failure of microprocessors and integrated circuits		N
	g) failure of an electronic power switching device		N
	Each low power circuit is short-circuited by connecting the low-power point to the pole of the supply source from which the measurements were made		N
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
19.11.4	Appliances having a device with an off position obtained by electronic disconnection, or		N
	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
	appliances operated for 30 s or 5 min during the		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	test of 19.7 are not subjected to the tests for electromagnetic phenomena.		
	Surge protective devices disconnected, unless		N
	They incorporate spark gaps		N
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		N
	Earthed heating elements in class I appliances disconnected		N
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
19.11.4.7	The appliance is subjected to mains signals in accordance with IEC 61000-4-13, test level class 2		P
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
	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
19.13	During the tests the appliance does not emit		P

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	flames, molten metal, poisonous or ignitable gas in hazardous amounts		
	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		P
	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)..... :		N
	- supplementary insulation (V) ..... :		N
	- reinforced insulation (V) ..... :		N
	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
	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
	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
	- the appliance does not start after the cycle in which the interlock was released		N
19.14	Appliances operated under the conditions of clause 11, any contactor or relay contact operating under the conditions of clause 11 being short-circuited		N
	For a relay or contactor with more than one contact, all contacts are short-circuited at the same time		N
	A relay or contactor operating only to ensure the appliance is energized for normal use is not short-circuited		N
	If more than one relay or contactor operates in clause 11, they are short-circuited in turn		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
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
19.101	Fans incorporating shutters or similar that are operated automatically are supplied at rated voltage in the closed or open position, whichever is more unfavourable (IEC 60335-2-80)		N
20	STABILITY AND MECHANICAL HAZARDS		--
20.1	Appliances having adequate stability		P
	Tilting test through an angle of 10°, appliance placed on an inclined plane/horizontal support, not connected to the supply mains; appliance does not overturn		P
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°		N
	Possible heating test in overturned position; temperature rise does not exceed values shown in table 9		N
	Portable pedestal fans exceeding 1.7 m and exceeding 10 kg tested with a force of 40 N at 1.5 m. (IEC 60335-2-80)		N
	20.101 Fan blades, other than those of fans for mounting at high level, shall be guarded unless their leading edges and tips are rounded with a radius of not less than 0.5 mm and (IEC 60335-2-80)		N
	– they have a hardness less than D 60 Shore, or (IEC 60335-2-80)		N
	– they have a peripheral speed less than 15 m/s when the fan is supplied at rated voltage, or (IEC 60335-2-80)		N
	– the fan has a power output not exceeding 2 W when supplied at rated voltage. (IEC 60335-2-80)		N
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury		P
	Protective enclosures, guards and similar parts are non-detachable, and		P
	have adequate mechanical strength		P
	Enclosures that can be opened by overriding an interlock are considered to be detachable parts		N
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard by unexpected closure		N
	Not possible to touch dangerous moving parts with the test probe described		P
20.101	Fan blades, other than those for mounting at high level, shall be guarded, unless their leading edges and tips are rounded with a radius of not less than 0.5 mm and: (IEC 60335-2-80)		P

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	-they have a hardness less than D 60 Shore, or (IEC 60335-2-80)		N
	-they have a peripheral speed less than 15 m/s when the fan is supplied at rated voltage, or (IEC 60335-2-80)		N
	-the fan has a power output not exceeding 2 W when supplied at rated voltage. (IEC 60335-2-80)		N
20.102	There shall be no risk of entrapment or injury caused by movement of the oscillating head of pedestal fans or table fans. (IEC 60335-2-80)		N
	Unless the entrapment point is guarded so that it cannot be touched by test probe 18 of IEC 61032, the appliance is operated at rated voltage and test probe 18 is placed at the entrapment point across the width and height of its opening. (IEC 60335-2-80)		N
	If test probe 18 is touched by the moving part, it shall not be subjected to a force exceeding 15 N. (IEC 60335-2-80)		N
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
	If necessary, repetition of groups of three blows on a new sample		N
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		N
	The insulation is tested as specified, and does withstand the electric strength test of 16.3		N
21.101	Fan guards are subjected to a push and pull force of 20 N applied along the axis of the motor. Dangerous moving parts are not accessible with a test probe that is similar to test probe B of IEC 61032, but having a circular stop face with a diameter of 50 mm instead of the non-circular face. (IEC 60335-2-80)		P
	The test probe is applied with a force not exceeding 5N. (IEC 60335-2-80)		P
21.102	Ceiling fans have adequate strength. Ceiling fans are mounted in accordance with the		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	installation instructions. A load equal to four times the mass of the fan is suspended from the body of the fan for 1 min. A torque of 1 Nm is then applied to the fixed body of the fan for 1 min. The test is repeated with the torque applied in the reverse direction. The suspension system including any safety suspension system device shall not break and the fan shall not be damaged to such an extent that compliance with 8.1, 16.3 and Clause 29 is impaired. (IEC 60335-2-80)		
22	CONSTRUCTION		--
22.1	Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60529 are fulfilled	IPX0	N
	NOTE 101 The enclosure defined in IEC 60529 does not include guards for fan blades. (IEC 60335-2-80)		N
22.2	Stationary appliance: means to ensure all-pole disconnection from the supply being provided:		--
	- a supply cord fitted with a plug, or		N
	- a switch complying with 24.3, or		N
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided, or		N
	- an appliance inlet		N
	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
22.3	Appliance provided with pins: no undue strain on socket-outlets		N
	Applied torque not exceeding 0.25 Nm		N
	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
	Each pin subjected to a torque of 0.4Nm; the pins are not rotating, unless		N
	rotating does not impair compliance with this standard		N
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets		N
22.5	No risk of electric shock when touching pins, for appliances having a capacitor with rated		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	capacitance equal to or greater than 0.1μF, the appliance being disconnected from the supply at the instant of voltage peak		
	Voltage not exceeding 34 V (V) ..... :		N
	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
	The discharge test is then repeated three times, voltage not exceeding 34 V (V)..... :		N
22.6	Electrical insulation not affected by condensing water or leaking liquid		N
	Electrical insulation of Class II appliances not affected if a hose ruptures or seal leaks		N
	In case of doubt, test as described		N
22.7	Adequate safeguards against the risk of excessive pressure in appliances containing liquid or gases or having steam-producing devices		N
22.8	Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and that are likely to be cleaned in normal use		N
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
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 non-self-resetting thermal cut-out is required by the standard, and		N
	- a voltage maintained non-self-resetting thermal cut-out is used to meet it		N
	Non-self-resetting thermal motor protectors have a trip-free action, unless		N
	they are voltage maintained		N
	Reset buttons of non-self-resetting controls so located or protected that accidental resetting is unlikely		N
22.11	Reliable fixing of non-detachable parts that provide the necessary degree of protection against electric shock, moisture or contact with moving parts		P
	Obvious locked position of snap-in devices used for fixing such parts		N
	No deterioration of the fixing properties of snap-in devices used in parts that are likely to be removed		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	during installation or servicing		
	The 50 N force is not applied to clips used to fasten fan guards. (IEC 60335-2-80)		P
	Instead, a force of 15 N is applied in any direction to the clips in an attempt to release them. (IEC 60335-2-80)		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
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		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
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
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance		P
	No exposed pointed ends of self-tapping screws or other fasteners, likely to be touched by the user in normal use or during user maintenance		P
22.15	Storage hooks and the like for flexible cords smooth and well rounded		N
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
	Cord reel tested with 6000 operations, as specified		N
	Electric strength test of 16.3, voltage of 1000 V applied		N
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner		N
22.18	Current-carrying parts and other metal parts resistant to corrosion		P
22.19	Driving belts not relied upon to provide the required level of insulation, unless		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	constructed to prevent inappropriate replacement		N
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless		N
	material used is non-corrosive, non-hygroscopic and non-combustible		N
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless		P
	impregnated		N
	This requirement does not apply to magnesium oxide and mineral ceramic fibres used for the electrical insulation of heating elements		N
22.22	Appliances not containing asbestos		P
22.23	Oils containing polychlorinated biphenyl (PCB) not used		P
22.24	Bare heating elements, except in class III appliances or class III constructions that do not contain live parts, adequately supported		N
	In case of rupture, the heating conductor is unlikely to come in contact with accessible metal parts		N
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
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
22.27	Parts connected by protective impedance separated by double or reinforced insulation		N
22.28	Metal parts of Class II appliances conductively connected to gas pipes or in contact with water, separated from live parts by double or reinforced insulation		N
22.29	Class II appliances permanently connected to fixed wiring so constructed that the required degree of access to live parts is maintained after installation		N
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		N
	so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete		N
22.31	Neither clearances nor creepage distances over supplementary and reinforced insulation reduced below values specified in clause 29 as a result of		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	wear		
	Neither clearances nor creepage distances between live parts and accessible parts reduced below values for supplementary insulation if wires, screws etc. become loose		N
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		N
	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
	Ceramic material not tightly sintered, similar materials or beads alone not used as supplementary or reinforced insulation		N
	Ceramic and similar porous material in which heating conductors are embedded is considered to be basic insulation, not reinforced insulation		N
	Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature		N
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
	unearthed metal parts separated from live parts by basic insulation only		N
	Electrodes not used for heating liquids		N
	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
	the reinforced insulation consists of at least 3 layers		N
	For class II constructions, conductive liquids which are in contact with live parts, not in direct contact with reinforced insulation, unless		N
	the reinforced insulation consists of at least 3 layers		N
	An air layer not used as basic or supplementary insulation in a double insulation system if likely to be bridged by leaking liquid		N
22.34	Shafts of operating knobs, handles, levers etc. not live, unless		P
	the shaft is not accessible when the part is removed		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
22.35	For other than class III constructions, handles, levers and knobs, held or actuated in normal use, not becoming live in the event of a failure of basic insulation		N
	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
	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
	Insulating material covering metal handles, levers and knobs withstand the electric strength test of 16.3 for supplementary insulation		N
22.36	For appliances other than class III, handles continuously held in the hand in normal use so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts, unless		N
	they are separated from live parts by double or reinforced insulation		N
22.37	Capacitors in Class II appliances not connected to accessible metal parts and their casings, if of metal, separated from accessible metal parts by supplementary insulation, unless		N
	the capacitors comply with 22.42		N
22.38	Capacitors not connected between the contacts of a thermal cut-out		P
22.39	Lamp holders used only for the connection of lamps		N
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		P
	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
22.41	No components, other than lamps, containing mercury		P

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
22.42	Protective impedance consisting of at least two separate components		N
	Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited		N
	Resistors checked by the test of 14.1 a) in IEC 60065		N
	Capacitors checked by the tests for class Y capacitors in IEC 60384-14		N
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		N
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		N
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
	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
	These requirements are not applicable to software used for functional purpose or compliance with clause 11		N
22.47	Appliances connected to the water mains withstand the water pressure expected in normal use		N
	No leakage from any part, including any inlet water hose		N
22.48	Appliances connected to the water mains constructed to prevent backsiphonage of non-potable water		N
22.49	For remote operation, the duration of operation is to be set before the appliance can be started, unless		N
	the appliance switches off automatically or can operate continuously without hazard		N
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation		N
22.51	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
	There is a visual indication showing that the		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	appliance is adjusted for remote operation		
	These requirements not necessary on appliances that can operate as follows, without giving rise to a hazard:		--
	- continuously, or		N
	- automatically, or		N
	- remotely		N
22.52	Socket-outlets on appliances accessible to the user in accordance with the socket-outlet system used in the country in which the appliance is sold		N
22.53	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
22.54	Button cells and batteries designated R1 not accessible without the aid of a tool, unless		N
	the cover of their compartment can only be opened after at least two independent movements have been applied simultaneously		N
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 mean of position	P
	The requirement concerning position does not preclude use of a push on push off switch		N
	An indication when the device has been operated is given by:		P
	– tactile feedback from the actuator or from the appliance, or		N
	– reduction in heat output; or		N
	– audible and visible feedback		P
22.56	Detachable power supply part provided with the part of class III construction		N
22.57	The properties of non-metallic materials do not degrade from exposure to UV-C radiation, as specified in Annex T		N
	This requirement does not apply to glass, ceramics or similar materials		N
22.101	Appliances having provision for attaching a luminaire incorporate appropriate terminals and internal wiring. The internal wiring associated with the luminaire shall have insulation at least equivalent to silicone rubber compound type IE2 complying with IEC 60245-3. This requirement is not applicable to fans incorporating a luminaire that cannot be replaced without breaking the appliance. (IEC 60335-2-80)		N
22.102	The ceiling fan shall be constructed so that a failure		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	of the fixing device of the motor to the mounting rod could not give rise to risk of injury to the user or surroundings. (IEC 60335-2-80)		
22.102.1	The ceiling fan shall incorporate a device that disconnects the fan from the supply before the suspension system fails. An example of this construction is shown in Figure 101. (IEC 60335-2-80)		N
22.102.2	The ceiling fan shall be constructed so that the fan motor and blades do not fall more than 300 mm after failure of the suspension system and the fan shall be disconnected from the supply. An example of this construction is shown in Figure 103. (IEC 60335-2-80)		N
22.102.3	The ceiling fan shall be constructed so that the fan blades and motor are connected to the suspension system via a threaded down rod that is locked by means of one or more setscrews. An example of this construction is shown in Figure 104. (IEC 60335-2-80)		N
22.102.4	The ceiling fan shall be constructed so that an additional through bolt, lock washer and nut, or the like limits the distance of drop by no more than 75 mm in case of the suspension system failure. An example of this construction is shown in Figure 105. (IEC 60335-2-80)		N
22.102.5	The ceiling fan shall be constructed so that all components required to prevent the failure of the suspension system are treated or coated to resist corrosion. Any fixing bolts shall have a minimum diameter of 5 mm and a minimum tensile strength of 200 MPa. Any such bolts shall have provision to prevent them working loose due to vibration. An example of this construction is shown in Figure 106. (IEC 60335-2-80)		N
23	INTERNAL WIRING		--
23.1	Wireways smooth and free from sharp edges		P
	Wires protected against contact with burrs, cooling fins etc.		P
	Wire holes in metal well-rounded or provided with bushings		N
	Wiring effectively prevented from coming into contact with moving parts		P
23.2	Beads etc. on live wires cannot change their position, and are not resting on sharp edges		N
	Beads inside flexible metal conduits contained within an insulating sleeve		N
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress		P
	Flexible metallic tubes not causing damage to		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	insulation of conductors		
	Open-coil springs not used		P
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N
	Fans with an oscillating mechanism influencing wiring, the conductors shall show no damage after 100 000 cycles of flexing at rated voltage and operated under normal operation , the angle being the maximum allowed by the construction (IEC 60335-2-80)		P
	100 flexings for conductors flexed during user maintenance		N
	Electric strength test of 16.3, 1000 V between live parts and accessible metal parts		P
	Not more than 10% of the strands of any conductor broken, and		P
	not more than 30% for wiring supplying circuits that consume no more than 15W		P
23.4	Bare internal wiring sufficiently rigid and fixed	No bare internal wiring used	N
23.5	The insulation of internal wiring subjected to the supply mains voltage withstanding the electrical stress likely to occur in normal use		P
	Basic insulation electrically equivalent to the basic insulation of cords complying with IEC 60227 or IEC 60245, or		N
	no breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation		P
	For class II construction, the requirements for supplementary insulation and reinforced insulation apply,		N
	except that the sheath of a cord complying with IEC 60227 or IEC 60245 may provide supplementary insulation.		N
	A single layer of internal wiring insulation does not provide reinforced insulation		N
23.6	Sleeving used as supplementary insulation on internal wiring retained in position by clamping at both ends, or		N
	be such that it can only be removed by breaking or cutting		N
23.7	The colour combination green/yellow only used for earthing conductors		N
23.8	Aluminium wires not used for internal wiring	No aluminium wires used	N
23.9	Stranded conductors not consolidated by soldering where they are subjected to contact pressure,		P

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	unless		
	the contact pressure is provided by spring terminals		N
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
24	COMPONENTS		--
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		P
	Relays tested as part of the appliance, or		N
	alternatively acc. to IEC 60730-1, and meeting the additional requirements in IEC 60335-1		N
	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
	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
	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		P

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	in 24.1.1 to 24.1.9		
	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
	No additional tests specified for nationally standardized plugs such as those detailed in IEC/TR 60083 or connectors complying with the standard sheets of IEC 60320-1 and IEC 60309		N
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
	If the capacitors have to be tested, they are tested according to Annex F		N
24.1.2	Transformers in associated switch mode power supplies comply with Annex BB of IEC 61558-2-16		N
	Safety isolating transformers comply with IEC 61558-2-6		N
	If they have to be tested, they are tested according to Annex G		N
24.1.3	Switches comply with IEC 61058-1, the number of cycles of operation being at least 10 000		N
	If they have to be tested, they are tested according to Annex H		N
	If the switch operates a relay or contactor, the complete switching system is subjected to the test		N
	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
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
	- temperature limiters: 1 000		N
	- self-resetting thermal cut-outs: 300		N
	- voltage maintained non-self-resetting thermal cut-outs: 1 000		N
	- other non-self-resetting thermal cut-outs: 30		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	- timers: 3 000		N
	- energy regulators: 10 000		N
	The number of cycles for controls operating during clause 11 need not be declared, if the appliance meets the requirements of this standard when they are short-circuited		N
	Thermal motor protectors are tested in combination with their motor under the conditions specified in Annex D		N
	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
	Thermal cut-outs of the capillary type comply with the requirements for type 2.K controls in IEC 60730-2-9		N
24.1.5	Appliance couplers comply with IEC 60320-1		N
	However, for class II appliances classified higher than IPX0, the appliance couplers comply with IEC 60320-2-3		N
	Interconnection couplers comply with IEC 60320-2-2		N
24.1.6	Small lamp holders similar to E10 lampholders comply with IEC 60238, the requirements for E10 lampholders being applicable		N
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
24.1.8	The relevant standard for thermal links is IEC 60691		N
	Thermal links not complying with IEC 60691 are considered to be an intentionally weak part for the purposes of Clause 19		N
24.1.9	Contactors and relays, other than motor starting relays, tested as part of the appliance		N
	They are also tested in accordance with Clause 17 of IEC 60730-1, the number of cycles of operations in 24.1.4 selected according to the contactor or relay function in the appliance..... :		N
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		P

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	appliance		
	- thermal cut-outs that can be reset by soldering, unless		P
	the solder has a melding point of at least 230 ˚C		N
	Switches or automatic controls in flexible cords are allowed for appliances not exceeding 25 W. (IEC 60335-2-80)		N
24.3	Switches intended for all-pole disconnection of stationary appliances are directly connected to the supply terminals and have a contact separation in all poles, providing full disconnection under overvoltage category III conditions		N
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		N
24.5	Capacitors in auxiliary windings of motors marked with their rated voltage and capacitance, and used accordingly		N
	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
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
	In addition, the motors comply with the requirements of Annex I		N
24.7	Detachable hose-sets for connection of appliances to the water mains comply with IEC 61770		N
	They are supplied with the appliance		N
	Appliances intended to be permanently connected to the water mains not connected by a detachable hose-set		N
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
	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
	- the capacitors are housed within a metallic or ceramic enclosure		N
	- the distance of separation of the outer surface to		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	adjacent non-metallic parts exceeds 50 mm		
	- adjacent non-metallic parts within 50 mm withstand the needle-flame test of Annex E		N
	- adjacent non-metallic parts within 50 mm classified as at least V-1 according to IEC 60695-11-10		N
24.101	Thermal cut-outs incorporated in duct fans in order to comply with cl. 19 are not self-resetting (IEC 60335-2-80)		N
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		N
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance, or	DC inlet	N
	- pins for insertion into socket-outlets		N
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
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 fitted supply cord		N
	- a set of supply leads accommodated in a suitable compartment		N
	- 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 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
	For a fixed appliance constructed so that parts can be removed to facilitate easy installation, this		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	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		
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimension according to table 10 (mm) ..... :		N
	Introduction of conduit or cable does not reduce clearances or creepage distances below values specified in clause 29		N
25.5	Method for assembling the supply cord to the appliance:		--
	- type X attachment		N
	- type Y attachment		N
	- type Z attachment is allowed for portable fans (IEC 60335-2-80)		N
	Type X attachment, other than those with a specially prepared cord, not used for flat twin tinsel cords		N
	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
25.6	Plugs fitted with only one flexible cord		N
25.7	Supply cords, other than for class III appliances, being one of the following types:		--
	- rubber sheathed (at least 60245 IEC 53)		N
	- polychloroprene sheathed (at least 60245 IEC 57)		N
	- polyvinyl chloride sheathed. Not used if they are likely to touch metal parts having a temperature rise exceeding 75 K during the test of clause 11		--
	• light polyvinyl chloride sheathed cord (60227 IEC 52), for appliances not exceeding 3 kg		N
	• ordinary polyvinyl chloride sheathed cord (60227 IEC 53), for other appliances		N
	- 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
	• heat-resistant polyvinyl chloride sheathed cord (60227 IEC 57), for other appliances		N
	- 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
	• - Ordinary duty halogen-free low smoke		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	flexible cable (62821 IEC 102) for circular cable and (62821 IEC 102f) for flat cable		
	Supply cords for class III appliances adequately insulated		N
	Test with 500 V for 2 min for supply cords of class III appliances that contain live parts		N
25.8	Nominal cross-sectional area of supply cords not less than table 11; rated current (A); cross-sectional area (mm^2) ..... :		N
25.9	Supply cords not in contact with sharp points or edges		N
25.10	Supply cord of class I appliances have a green/yellow core for earthing		N
	In multi-phase appliances, the colour of the neutral conductor of the supply cord is blue.		N
	Where additional neutral conductors are provided in the supply cord:		--
	- other colours may be used for these additional neutral conductors;		N
	- all of the neutral conductors and line conductors are identified by marking using the alpha numeric notation specified in IEC 60445		N
	- the supply cord is fitted to the appliance		N
25.11	Conductors of supply cords not consolidated by soldering where they are subject to contact pressure, unless		N
	the contact pressure is provided by spring terminals		N
25.12	Insulation of the supply cord not damaged when moulding the cord to part of the enclosure		N
25.13	Inlet openings so constructed as to prevent damage to the supply cord		N
	If it is not evident that the supply cord can be introduced without risk of damage, a non-detachable lining or bushing complying with 29.3 for supplementary insulation provided		N
	If unsheathed supply cord, a similar additional bushing or lining is required, unless the appliance is		N
	class 0, or		N
	a class III appliance not containing live parts		N
25.14	Supply cords moved while in operation adequately protected against excessive flexing		N
	Flexing test, as described:		--
	- applied force (N)..... :		N
	- number of flexings..... :		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	The test does not result in:		--
	- short-circuit between the conductors, such that the current exceeds a value of twice the rated current		N
	- breakage of more than 10% of the strands of any conductor		N
	- separation of the conductor from its terminal		N
	- loosening of any cord guard		N
	- damage to the cord or the cord guard		N
	- broken strands piercing the insulation and becoming accessible		N
25.15	For appliances with supply cord and appliances to be permanently connected to fixed wiring by a flexible cord, conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorage		N
	The cord cannot be pushed into the appliance to such an extent that the cord or internal parts of the appliance can be damaged		N
	Pull and torque test of supply cord:		--
	- fixed appliances: pull 100 N; torque (not on automatic cord reel) (Nm) ..... :		N
	- other appliances: values shown in table 12: mass (kg); pull (N); torque (not on automatic cord reel) (Nm)..... :		N
	Cord not damaged and max. 2 mm displacement of the cord		N
25.16	Cord anchorages for type X attachments constructed and located so that:		--
	- replacement of the cord is easily possible		N
	- it is clear how the relief from strain and the prevention of twisting are obtained		N
	- they are suitable for different types of supply cord		N
	- cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless		N
	they are separated from accessible metal parts by supplementary insulation		N
	- the cord is not clamped by a metal screw which bears directly on the cord		N
	- at least one part of the cord anchorage securely fixed to the appliance, unless		N
	it is part of a specially prepared cord		N
	- screws which have to be operated when replacing the cord do not fix any other component, unless		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	the appliance becomes inoperative or incomplete or the parts cannot be removed without a tool		N
	- if labyrinths can be bypassed the test of 25.15 is nevertheless withstood		N
	- for class 0, 0I and I appliances they are of insulating material or are provided with an insulating lining, unless		N
	failure of the insulation of the cord does not make accessible metal parts live		N
	- for class II appliances they are of insulating material, or		N
	if of metal, they are insulated from accessible metal parts by supplementary insulation		N
	After the test of 25.15, under the conditions specified, the conductors have not moved by more than 1 mm in the terminals		N
25.17	Adequate cord anchorages for type Y and Z attachment, test with the cord supplied with the appliance		N
25.18	Cord anchorages only accessible with the aid of a tool, or		N
	Constructed so that the cord can only be fitted with the aid of a tool		N
25.19	Type X attachment, glands not used as cord anchorage in portable appliances		N
	Tying the cord into a knot or tying the cord with string not used		N
25.20	The conductors of the supply cord for type Y and Z attachment insulated from accessible metal parts		N
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
	- so there is no risk of damage to the conductors or their insulation when fitting the cover		N
	- 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
	2 N test to the conductor for portable appliances; no contact with accessible metal parts		N
25.22	Appliance inlets:		--
	- live parts not accessible during insertion or removal		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	Requirement not applicable to appliance inlets complying with IEC 60320-1		N
	- connector can be inserted without difficulty		N
	- the appliance is not supported by the connector		N
	- not for cold conditions if temp. rise of external metal parts exceeds 75 K during clause 11, unless		N
	the supply cord is unlikely to touch such metal parts		N
25.23	Interconnection cords comply with the requirements for the supply cord, except that:		N
	- the cross-sectional area of the conductors is determined on the basis of the maximum current during clause 11		N
	- the thickness of the insulation may be reduced		N
	- 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
	If necessary, electric strength test of 16.3		N
25.24	Interconnection cords not detachable without the aid of a tool if compliance with this standard is impaired when they are disconnected		N
25.25	Dimensions of pins that are inserted into socket-outlets compatible with the dimensions of the relevant socket-outlet.		N
	Dimensions of pins and engagement face in accordance with the dimensions of the relevant plug in IEC/TR 60083		N
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
	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
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
	the connections are soldered		N
	Screws and nuts not used to fix any other component, except		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N
	If soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone, unless		N
	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
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
	Terminals fixed so that when the clamping means is tightened or loosened:		--
	- the terminal does not become loose		N
	- internal wiring is not subjected to stress		N
	- neither clearances nor creepage distances are reduced below the values in clause 29		N
	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
	No deep or sharp indentations of the conductors		N
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
	so constructed or placed that conductors prevented from slipping out when clamping screws or nuts are tightened		N
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
	Stranded conductor test, 8 mm insulation removed		N
	No contact between live parts and accessible metal parts and,		N
	for class II constructions, between live parts and metal parts separated from accessible metal parts by supplementary insulation only		N
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		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	table 13; rated current (A); nominal cross-sectional area (mm²)..... :		
	If a specially prepared cord is used, terminals need only be suitable for that cord		N
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
26.8	Terminals for the connection of fixed wiring, including the earthing terminal, located close to each other		N
26.9	Terminals of the pillar type constructed and located as specified		N
26.10	Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless		N
	conductors ends fitted with means suitable for screw terminals		N
	Pull test of 5 N to the connection		N
26.11	For type Y and Z attachment, soldered, welded, crimped or similar connections may be used		N
	For Class II appliances, the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone		N
	If soldering, welding or crimping alone used, barriers provided so that clearances and creepage distances between live parts and other metal parts are not reduced below the values for supplementary insulation if the conductor becomes free		N
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		N
	Earthing terminals and earthing contacts not connected to the neutral terminal		N
	Class 0, II and III appliances have no provision for protective earthing	Class III	P
	Class II appliances and class III appliances can incorporate an earth for functional purposes		N
	Safety extra-low voltage circuits not earthed, unless		N
	protective extra-low voltage circuits		N
27.2	Clamping means of earthing terminals adequately secured against accidental loosening		N
	Terminals for the connection of external equipotential bonding conductors allow connection of conductors of 2.5 to 6 mm², and		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	- do not provide earthing continuity between different parts of the appliance, and		N
	- conductors cannot be loosened without the aid of a tool		N
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N
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
	For appliances with supply cords, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		N
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N
	The allowed travel of the live and neutral brushes due to wear shall be less than the allowed travel of the earth brush so that the earthing circuit is maintained even after the appliance ceases to operate due to live and neutral brush wear. (IEC 60335-2-80)		N
27.4	No risk of corrosion resulting from contact between parts of the earthing terminal and the copper of the earthing conductor or other metal		N
	Parts providing earthing continuity, other than parts of a metal frame or enclosure, have adequate resistance to corrosion		N
	If of steel, these parts provided with an electroplated coating with a thickness at least 5 µm		N
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		N
	In 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
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N
27.5	Low resistance of connection between earthing terminal and earthed metal parts		N
	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

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N
	Resistance not exceeding 0.1 Ω at the specified low-resistance test (Ω) ..... :		N
27.6	The printed conductors of printed circuit boards not used to provide earthing continuity in hand-held appliances.		N
	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
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N
28	SCREWS AND CONNECTIONS		--
28.1	Fixings, electrical connections and connections providing earthing continuity withstand mechanical stresses		P
	Screws not of soft metal liable to creep, such as zinc or aluminium		P
	Diameter of screws of insulating material min. 3 mm		N
	Screws of insulating material not used for any electrical connections or connections providing earthing continuity		N
	Screws used for electrical connections or connections providing earthing continuity screwed into metal		N
	Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation		N
	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
	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		N
	there is resiliency in the metallic parts to compensate for shrinkage or distortion of the insulating material		N
	This requirement does not apply to electrical connections in circuits of appliances		--

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	for which:		
	• 30.2.2 is applicable and that carry a current not exceeding 0.5 A		N
	• 30.2.3 is applicable and that carry a current not exceeding 0.2 A		N
28.3	Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together		N
	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
	Thread-cutting (self-tapping) screws not used if they are likely to be operated by the user or installer		N
	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
	- during user maintenance,		N
	- when replacing a supply cord having a type X attachment, or		N
	- during installation		N
	At least two screws being used for each connection providing earthing continuity, unless		N
	the screw forms a thread having a length of at least half the diameter of the screw		N
28.4	Screws and nuts that make mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity		N
	This requirement does not apply to screws in the earthing circuit if at least two screws are used, or		N
	if an alternative earthing circuit is provided		N
	Rivets for electrical connections or connections providing earthing continuity secured against loosening if the connections are subjected to torsion		N
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
	The microenvironment is pollution degree 1 under		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	type 1 protection		
	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
	These values apply to functional, basic, supplementary and reinforced insulation ..... :		N
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
	However, if the distances are affected by wear, distortion, movement of the parts or during assembly, the clearances for rated impulse voltages of 1500V and above are increased by 0.5 mm and the impulse voltage test is not applicable		P
	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
	Impulse voltage test is not applicable:		--
	- when the microenvironment is pollution degree 3, or		P
	- for basic insulation of class 0 and class 01 appliances, or		N
	- to appliances intended for use at altitudes exceeding 2 000 m		N
	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
	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)	N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
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)	N
	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		N
29.1.4	Clearances for functional insulation are the largest values determined from:		--
	- table 16 based on the rated impulse voltage ..... :	(see appended table)	P
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N
	If values of table 16 are largest, the impulse voltage test of clause 14 may be applied instead, unless		N
	the microenvironment is pollution degree 3, or		P
	the distances can be affected by wear, distortion, movement of the parts or during assembly		P
	However, clearances are not specified if the appliance complies with clause 19 with the functional insulation short-circuited		N
	Lacquered conductors of windings considered to be bare conductors		P
	However, clearances at crossover points are not measured		P
	Clearance between surfaces of PTC heating elements may be reduced to 1mm		N
29.1.5	Appliances having higher working voltages than rated voltage, clearances for basic insulation are the largest values determined from:		--
	- table 16 based on the rated impulse voltage ..... :	(see appended table)	N
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N
	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
	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

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	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
	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
	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
29.2	Creepage distances not less than those appropriate for the working voltage, taking into account the material group and the pollution degree ..... :	(see appended table)	P
	Pollution degree 2 applies, unless		N
	- precautions taken to protect the insulation; pollution degree 1		N
	- insulation subjected to conductive pollution; pollution degree 3		P
	Microenvironment is pollution degree 3 unless insulation is enclosed or located that it is unlikely to be exposed to pollution during normal use. (IEC 60335-2-80)		P
	A force of 2 N is applied to bare conductors, other than heating elements		P
	A force of 30 N is applied to accessible surfaces		P
	In a double insulation system, the working voltage for both the basic and supplementary insulation is taken as the working voltage across the complete double insulation system		N
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
	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
29.2.2	Creepage distances of supplementary insulation at	(see appended table)	N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	least those specified for basic insulation in table 17, or ..... :		
	Table 2 of IEC 60664-4, as applicable..... :		N
29.2.3	Creepage distances of reinforced insulation at least double those specified for basic insulation in table 17, or ..... :	(see appended table)	N
	Table 2 of IEC 60664-4, as applicable..... :		N
29.2.4	Creepage distances of functional insulation not less than specified in table 18 ..... :	(see appended table)	P
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 18 ..... :		N
	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		N
	Compliance checked:		--
	- by measurement, in accordance with 29.3.1, or		N
	- by an electric strength test in accordance with 29.3.2, or		N
	- 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
	for accessible parts of reinforced insulation consisting of a single layer, by measurement in accordance with 29.3.4, or		N
	- 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
	- 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
29.3.1	Supplementary insulation have a thickness of at least 1 mm		N
	Reinforced insulation have a thickness of at least 2 mm		N
29.3.2	Each layer of material withstand the electric strength test of 16.3 for supplementary insulation		N
	Supplementary insulation consist of at least 2		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	layers		
	Reinforced insulation consist of at least 3 layers		N
29.3.3	The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by		N
	the electric strength test of 16.3		N
	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
29.3.4	Thickness of accessible parts of reinforced insulation consisting of a single layer not less than specified in table 19..... :		N
30	RESISTANCE TO HEAT AND FIRE		--
30.1	External parts of non-metallic material,		P
	parts supporting live parts, and		N
	parts of thermoplastic material providing supplementary or reinforced insulation		N
	sufficiently resistant to heat		P
	Ball-pressure test according to IEC 60695-10-2		P
	External parts tested at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 75 °C, whichever is the higher; temperature (°C)..... :	(see appended table)	P
	Parts supporting live parts tested at 40°C plus the maximum temperature rise determined during the test of clause 11, or at 125 °C, whichever is the higher; temperature (°C) ..... :	(see appended table)	N
	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)..... :		N
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
	- for unattended appliances, 30.2.3 applies		P

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	For appliances for remote operation, 30.2.3 applies		N
	For base material of printed circuit boards, 30.2.4 applies		P
30.2.1	Parts of non-metallic material subjected to the glow-wire test of IEC 60695-2-11 at 550°C	(see appended table 30.2)	P
	However, test not carried out if the material is classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 550 °C, or		N
	the material is classified at least HB40 according to IEC 60695-11-10		N
	Parts for which the glow-wire test cannot be carried out need to meet the requirements in ISO 9772 for material classified HBF		N
30.2.2	Not applicable. (IEC 60335-2-80)		P
30.2.3	Appliances operated while unattended, tested as specified in 30.2.3.1 and 30.2.3.2		N
	The tests are not applicable to conditions as specified ..... :	Low-power circuits described in 19.11.1	P
30.2.3.1	Parts of non-metallic material supporting connections carrying a current exceeding 0.2 A during normal operation, and		N
	parts of non-metallic material, other than small parts, within a distance of 3 mm,		N
	subjected to the glow-wire test of IEC 60695-2-11 with a test severity of 850 °C	(see appended table 30.2)	N
	Glow-wire applied to an interposed shielding material, if relevant		N
	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
30.2.3.2	Parts of non-metallic material supporting connections, and		N
	parts of non-metallic material within a distance of 3mm,		N
	subjected to the glow-wire test of IEC 60695-2-11 with appropriate severity level:		N
	- 750 °C, for connections carrying a current exceeding 0.2 A during normal operation	(see appended table 30.2)	N
	- 650 °C, for other connections		N
	Glow-wire applied to an interposed shielding material, if relevant		N
	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:		--

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	- a glow-wire ignition temperature according to IEC 60695-2-13 of at least:		N
	• 775 °C, for connections carrying a current exceeding 0.2 A during normal operation		N
	• 675 °C, for other connections		N
	- a glow-wire flammability index according to IEC 60695-2-12 of at least:		N
	- 750 °C, for connections carrying a current exceeding 0.2 A during normal operation		N
	- 650 °C, for other connections		N
	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
	- comprise material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N
	- comply with the needle-flame test of Annex E, or		N
	- comprise material classified as V-0 or V-1 according to IEC 60695-11-10		N
	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		N
	- parts that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N
	- small parts, that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N
	- small parts for which the needle-flame test of Annex E was applied, or		N
	- small parts for which a material classification of V-0 or V-1 was applied		N
	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
	- parts comprising material classified as V-0 or V-1 according to IEC 60695-11-10, or		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	- 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
30.2.4	Base material of printed circuit boards subjected to the needle-flame test of Annex E		N
	Test not applicable to conditions as specified..... :	Low-power circuits described in 19.11.1	P
31	RESISTANCE TO RUSTING		--
	Relevant ferrous parts adequately protected against rusting		P
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
A	ANNEX A (INFORMATIVE) ROUTINE TESTS		--
	Description of routine tests to be carried out by the manufacturer		N
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		P
	Three forms of construction covered:		--
	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
	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
	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		P
3.1.9	Appliance operated under the following conditions:		--
	- the appliance, supplied by its fully charged battery, operated as specified in relevant part 2		P
	- the battery is charged, the battery being initially discharged to such an extent that the appliance		P

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	cannot operate		
	-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		P
	- 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
3.6.2	Part to be removed in order to discard the battery is not considered to be detachable		P
5.B.101	Appliances supplied from the supply mains tested as specified for motor-operated appliances		P
7.1	Battery compartment for batteries intended to be replaced by the user, marked with battery voltage (V) and polarity of the terminals .... :		N
	The positive terminal indicated by symbol IEC 60417-5005 and the negative terminal by symbol IEC 60417-5006		N
	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
	use only with <model designation> supply unit ... . :		P
7.6	Additional symbols		P
7.12	The instructions give information regarding charging		P
	Instructions for appliances incorporating batteries intended to be replaced by the user include required information		N
	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
	Instructions for appliances containing non-replaceable batteries shall state the substance of the following:		--
	This appliance contains batteries that are non-replaceable		P
	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		P

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	If the symbol for detachable supply unit is used, its meaning is explained		P
7.15	Markings placed on the part of the appliance connected to the supply mains		P
	The type reference of the detachable supply unit is placed in close proximity to the symbol		P
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		P
	If the appliance can be operated without batteries, double or reinforced insulation required		N
11.7	The battery is charged for the period stated in the instructions or 24 h ..... :	(see appended table)	P
11.8	Temperature rise of the battery surface does not exceed the limit in the battery manufacturer's specification; measured (K); limit (K) ..... :		N
	If no limit specified, the temperature rise does not exceed 20 K; measured (K) ..... :	4.3K	P
19.1	Appliances subjected to tests of 19.B.101, 19.B.102 and 19.B.103		P
19.10	Not applicable		N
19.B.101	Appliances supplied at rated voltage for 168 h, the battery being continually charged		P
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
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
19.13	The battery does not rupture or ignite		P
21.B.101	Appliances having pins for insertion into socket-outlets have adequate mechanical strength		N
	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
	- 50, if the mass of the part exceeds 250 g ..... :		N
	After the test, the requirements of 8.1, 15.1.1, 16.3 and clause 29 are met		N
22.3	Appliances having pins for insertion into socket-outlets tested as fully assembled as possible		N
25.13	An additional lining or bushing not required for		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	interconnection cords in class III appliances or class III constructions operating at safety extra-low voltage not containing live parts		
30.2	For parts of the appliance connected to the supply mains during the charging period, 30.2.3 applies		P
	For other parts, 30.2.2 applies		N
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
	Test conditions as specified		N
D	ANNEX D (NORMATIVE) THERMAL MOTOR PROTECTORS		--
	Applicable to appliances having motors that incorporate thermal motor protectors necessary for compliance with the standard		N
	Test conditions as specified		N
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		--
	The duration of application of the test flame is 30 s ± 1 s		N
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		N
9.2	The first paragraph does not apply		N
	If possible, the flame is applied at least 10 mm from a corner		N
9.3	The test is carried out on one specimen		N
	If the specimen does not withstand the test, the test may be repeated on two additional specimens, both withstanding the test		N
11	Evaluation of test results		--
	The duration of burning not exceeding 30 s		N
	However, for printed circuit boards, the duration of burning not exceeding 15 s		N
F	ANNEX F (NORMATIVE) CAPACITORS		--
	Capacitors likely to be permanently subjected to the supply voltage, and used for		--

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	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
1.5.4	This subclause is applicable		N
1.6	Marking		--
	Items a) and b) are applicable		N
3.4	Approval testing		--
3.4.3.2	Table 3 is applicable as described		N
4.1	Visual examination and check of dimensions		--
	This subclause is applicable		N
4.2	Electrical tests		--
4.2.1	This subclause is applicable		N
4.2.5	This subclause is applicable		N
4.2.5.2	Only table 11 is applicable		N
	Values for test A apply		N
	However, for capacitors in heating appliances the values for test B or C apply		N
4.12	Damp heat, steady state		--
	This subclause is applicable		N
	Only insulation resistance and voltage proof are checked		N
4.13	Impulse voltage		--
	This subclause is applicable		N
4.14	Endurance		--
	Subclauses 4.14.1, 4.14.3, 4.14.4 and 4.14.7 are applicable		N
4.14.7	Only insulation resistance and voltage proof are checked		N
	No visible damage		N
4.17	Passive flammability test		--
	This subclause is applicable		N
4.18	Active flammability test		--
	This subclause is applicable		N
G	ANNEX G (NORMATIVE) SAFETY ISOLATING TRANSFORMERS		--
	The following modifications to this standard are applicable for safety isolating transformers:		--
7	Marking and instructions		--

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
7.1	Transformers for specific use marked with:		--
	-name, trademark or identification mark of the manufacturer or responsible vendor ..... :		N
	-model or type reference ..... :		N
17	Overload protection of transformers and associated circuits		--
	Fail-safe transformers comply with subclause 15.5 of IEC 61558-1		N
22	Construction		--
	Subclauses 19.1 and 19.1.2 of IEC 61558-2-6 are applicable		N
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
	For insulated winding wires complying with subclause 19.12.3 of IEC 61558-1 there are no requirements for clearances or creepage distances		N
	For windings providing reinforced insulation, the distance specified in item 2c of table 13 of IEC 61558-1 is not assessed		N
	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
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
	Before being tested, switches are operated 20 times without load		N
8	Marking and documentation		--
	Switches are not required to be marked		N
	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
13	Mechanism		--
	The tests may be carried out on a separate sample		N
15	Insulation resistance and dielectric strength		--
15.1	Not applicable		N
15.2	Not applicable		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
15.3	Applicable for full disconnection and micro-disconnection		N
17	Endurance		--
	Compliance is checked on three separate appliances or switches		N
	For 17.2.4.4, the number of cycles declared according to 7.1.4 is 10 000, unless		N
	otherwise specified in 24.1.3 of the relevant part 2 of IEC 60335 ..... :		N
	Switches for operation under no load and which can be operated only by a tool, and		N
	switches operated by hand that are interlocked so that they cannot be operated under load,		N
	are not subjected to the tests		N
	However, switches without this interlock are subjected to the test of 17.2.4.4 for 100 cycles of operation		N
	Subclauses 17.2.2 and 17.2.5.2 not applicable		N
	The ambient temperature during the test is that occurring in the appliance during the test of Clause 11 in IEC 60335-1		N
	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
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
	It is also applicable to creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in Table 24		N
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
11	Heating		--
11.3	The temperature rise of the body of the motor is determined instead of the temperature rise of the windings		N
11.8	The temperature rise of the body of the motor,		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	where in contact with insulating material, not exceeding values in table 3 for the relevant insulating material		
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
19	Abnormal operation		--
19.1	The tests of 19.7 to 19.9 are not carried out		N
19.l.101	Appliance operated at rated voltage with each of the following fault conditions:		--
	- short circuit of the terminals of the motor, including any capacitor incorporated in the motor circuit		N
	- short circuit of each diode of the rectifier		N
	- open circuit of the supply to the motor		N
	- open circuit of any parallel resistor, the motor being in operation		N
	Only one fault simulated at a time, the tests carried out consecutively		N
22	Construction		--
22.l.101	For class I appliances incorporating a motor supplied by a rectifier circuit, the d.c. circuit being insulated from accessible parts of the appliance by double or reinforced insulation		N
	Compliance checked by the tests specified for double and reinforced insulation		N
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
5.7.1	Cold		--
	The test is carried out at -25 °C		N
5.7.3	Rapid change of temperature		--
	Severity 1 is specified		N
5.9	Additional tests		--
	This subclause is not applicable		N
K	ANNEX K (NORMATIVE) OVERVOLTAGE CATEGORIES		--
	The information on overvoltage categories is extracted from IEC 60664-1		P

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	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
	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
	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
	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
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:		--
	- pollution degree 1: no pollution or only dry, non-conductive pollution occurs. The pollution has no influence		N
	- pollution degree 2: only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be expected		N
	- pollution degree 3: conductive pollution occurs or		P

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	dry non-conductive pollution occurs that becomes conductive due to condensation that is to be expected		
	- pollution degree 4: the pollution generates persistent conductivity caused by conductive dust or by rain or snow		N
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		--
	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.. :	175 V	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
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
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 WARM DAMP EQUABLE CLIMATES		--
	Modifications applicable for class 0 and 01 appliances having a rated voltage exceeding 150V, intended to be used in countries having a tropical climate and that are marked with symbol IEC 60417-6332		--
	Modifications may also be applied to class 1 appliances having a rated voltage exceeding 150V, intended to be used in countries having a tropical climate and that are marked with symbol IEC 60417-6332, if liable to be connected to a supply mains that excludes the protective earthing conductor		--
5.7	The ambient temperature for the tests of clauses 11 and 13 is 40 +3/0 °C		N
7.1	The appliance marked with symbol IEC 60417-6332		N
7.12	The instructions state that the appliance is to be supplied through a residual current device (RCD)		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	having a rated residual operating current not exceeding 30 mA		
	The instructions state that the appliance is considered to be suitable for use in countries having a tropical climate, but may also be used in other countries		N
	If symbol IEC 60417-6332 is used, its meaning is explained		N
11.8	The values of Table 3 are reduced by 15 K		N
13.2	The leakage current for class I appliances not exceeding 0.5 mA		N
15.3	The value of t is 37 °C		N
16.2	The leakage current for class I appliances not exceeding 0.5 mA (mA):		N
19.13	The leakage current test of 16.2 is applied in addition to the electric strength test of 16.3		N
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
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
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
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
	- dual channel (homogenous) with comparison		N
	- dual channel (diverse) with comparison		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	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
	- single channel with periodic self-test		N
	- dual channel without comparison		N
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
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
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
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
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
R.2.2.6	The software is referenced to relevant parts of the operating sequence and the associated hardware functions		N
R.2.2.7	Labels used for memory locations are unique		N
R.2.2.8	The software is protected from user alteration of safety-related segments and data		N
R.2.2.9	Software and safety-related hardware under its control is initialized and terminates before compliance with clause 19 is impaired		N
R.3	Measures to avoid errors		--
R.3.1	General		--

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	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		--
	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
R.3.2	Specification		--
R.3.2.1	Software safety requirements:		N
	The specification of the software safety requirements includes the descriptions listed		N
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		N
R.3.2.2.2	The architecture specification is validated against the specification of the software safety requirements by static analysis		N
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
	Software module design and coding is implemented in a way that is traceable to the software architecture and requirements		N
R.3.2.3.2	Software code is structured		N
R.3.2.3.3	Coded software is validated against the module specification by static analysis		N
	The module specification is validated against the architecture specification by static analysis		N
R.3.3.3	Software validation		--
	The software is validated with reference to the requirements of the software safety requirements specification		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict

	Compliance is checked by simulation of:		--
	- input signals present during normal operation		N
	- anticipated occurrences		N
	- undesired conditions requiring system action		N

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
1.2 VOID						N
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
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
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
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
4.2 Variable memory	DC fault	Periodic static memory test, or word protection with single bit	H.2.19.6 H.2.19.8.2			N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict

		redundancy				
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
5 Internal data path	Stuck at	Word protection with single bit redundancy	H.2.19.8.2			N
5.1 VOID						N
5.2 Addressing	Wrong address	Word protection with single bit redundancy including the address	H.2.19.8.2			N
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
6.1 VOID						--
6.2 VOID						--
6.3 Timing	Wrong point in time	Time-slot monitoring, or scheduled transmission Time-slot and logical monitoring, or comparison of redundant communication channels by either: - reciprocal comparison - independent hardware comparator	H.2.18.10.4 H.2.18.18 H.2.18.10.3 H.2.18.15 H.2.18.3			N
	Wrong sequence	Logical monitoring, or time-slot monitoring, or Scheduled transmission	H.2.18.10.2 H.2.18.10.4 H.2.18.18			
7 Input/output periphery	Fault conditions specified in 19.11.2	Plausibility check	H.2.18.13			N
7.1 VOID						--
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

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict

7.2.2 Analog multiplexer	Wrong addressing	Plausibility check	H.2.18.13			N
8 VOID						--
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

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
	rechargeable batteries (secondary batteries) that are not recharged in the appliance		N
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
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
5.S.102	Appliances are tested as motor-operated appliances.		N
7.1	Appliances marked with the battery voltage (V) and the polarity of the terminals, unless..... ..... :		N
	the polarity is irrelevant		N
	Appliances also marked with:		N
	– name, trade mark or identification mark of the manufacturer or responsible vendor .... :		N
	– model or type reference .... :		N
	– IP number according to degree of protection against ingress of water, other than IPX0 .. .. :		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
	– type reference of battery or batteries .... :		N
	If relevant, the positive terminal is indicated by the symbol IEC 60417-5005 and the negative terminal by the symbol IEC 60417-5006		N
	If appliances use more than one battery, they are marked to indicate correct polarity connection of the batteries		N
7.6	Additional symbols		N
7.12	The instructions contain the following, as applicable:		--
	– the types of batteries that may be used .. .. :		N
	– how to remove and insert the batteries		N
	– non-rechargeable batteries are not to be recharged		N
	– rechargeable batteries are to be removed from the appliance before being charged		N
	– different types of batteries or new and used batteries are not to be mixed		N
	– batteries are to be inserted with the correct polarity		N
	– exhausted batteries are to be removed from the appliance and safely disposed of		N
	– if the appliance is to be stored unused for a long period, the batteries are removed		N
	– the supply terminals are not to be short-circuited		N
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
	– 0.75 and 1.0 times battery voltage, if the appliance is designed for use with rechargeable batteries only		N
	The values specified in Table S.101 for the internal resistance per cell of the battery is taken into account		N
19.1	The tests are carried out with the battery fully charged unless otherwise specified		N
19.13	The battery does not rupture or ignite		N
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
	such a connection is unlikely to occur due to the construction of the appliance		N

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
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
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
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
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
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
30.2.3.2	There is no battery in the area of the vertical cylinder used for the consequential needle flame test, unless		N
	the battery is shielded by a barrier that meets the needle flame test of Annex E, or		N
	that comprises material classified as V-0 or V-1 according to IEC 60695-11-10		N
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
	Does not apply to glass, ceramic and similar materials		N
	Tested as specified in ISO 4892-1 and ISO 4892-2, with the following modifications:		N
	Modifications to ISO 4892-1:		--
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
	Subclause 5.1.6.1 and Table 1 are not applicable		N
5.2.4	The black-panel temperature shall be 63 °C +/- 3 °C		N
5.3.1	Humidification of the chamber air is specified in part 2 when necessary		N
9	This clause is not applicable		N
	Modifications to ISO 4892-2:		--

IEC 60335-2-80			
Clause	Requirement + Test	Result - Remark	Verdict
7.1	At least three test specimens are tested		N
	Ten samples of internal wiring is tested		N
7.2	The specimens are attached to the specimen holders such that they are not subject to any stress		N
7.3	Apparatus prepared as specified		N
	The test specimens and, if used, the irradiance-measuring instrument are exposed for 1 000 h		N
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
7.5	Material properties and test methods for parts providing mechanical support or impact resistance as specified in Table T.1		N
	Material properties and test method for electrical insulation of internal wiring as specified in Table T.2		N
8	This clause is not applicable		N

IEC 60335-2-80

10.1	TABLE: Power input deviation				N
Input deviation of/at:	P rated (W)	P measured (W)	Δ P	Required Δ P	Remark
--	--	--	--	--	--

10.2	TABLE: Current input deviation				P
Input deviation of/at:	I rated (A)	I measured (A)	dP	Required Δ P	Remark
DC 5V	1	0.98	-2.0%	+20%	--

11.8	TABLE: Heating test, thermocouple measurements		P
	Test voltage (V).....:	1.06 x DC 5V = DC 5.3V	—
	Ambient t_1(°C) .....:	22.8	—
	Ambient t_2(°C) .....:	23.1	—

Thermocouple locations	Max. temperature rise measured, dT (K)	Max. temperature rise limit, dT (K)
DC inlet	3.2	Ref.
PCB surface	3.2	Ref.
Battery surface	2.4	Ref.
Internal wire	1.5	T80-25=55
Fan motor winding 1	18.7	Class 105, 65
Fan motor winding 2	19.2	Class 105, 65
Plastic enclosure(inside, near fan motor)	7.8	Cl.30
Plastic enclosure(outside, near fan motor)	4.5	74
Switch button	2.3	60
Test corner	0.8	65
Annex B, test voltage: 254.4V, Ambient t_1: 22.4°C, t_2: 22.5°C		
Battery surface	4.3	20

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

Temperature rise of winding	R1 (Ω)	R2 (Ω)	dT (K)	Max. dT (K)	Insulation class
--	--	--	--	--	--

13.2	TABLE: Leakage current		P
	Heating appliances: 1.15 x rated input (W)..... :	—	—

IEC 60335-2-80

	Motor-operated and combined appliances: 1.06 x rated voltage (V) ..... :	Same as Cl.11.8	—
Leakage current between:		I (mA)	Max. allowed I (mA)
DC inlet and plastic enclosure / switch button		0.006	0.7 peak

13.3	TABLE: Dielectric strength		P
Test voltage applied between:		Test potential applied (V)	Breakdown / flashover (Yes/No)
DC inlet and plastic enclosure / switch button		500	No

16.2	TABLE: Leakage current		N
	Single phase appliances: 1.06 x rated voltage (V) ..... :	--	—
	Three phase appliances 1.06 x rated voltage divided by √3 (V) ..... :	--	—
Leakage current between:		I (mA)	Max. allowed I (mA)
--		--	--

16.3	TABLE: Dielectric strength		N
Test voltage applied between:		Test potential applied (V)	Breakdown / flashover (Yes/No)
--		--	--

19.7	TABLE: temperature rise measurements		P
	Abnormal conditions:	Supplied at rated voltage DC 5V; Until steady conditions, locking fan motor	--
Temperature rise dT of part/at:		dT (K)	Required dT (K)
Fan motor winding 1		32.6	Class 105, 150-25=125
Fan motor winding 2		31.4	Class 105, 150-25=125
Plastic enclosure		16.3	Cl.30

19.13	TABLE: Abnormal operation, temperature rises	P
Thermocouple locations	Max. temperature rise measured, dT (K)	Max.temperature rise limit, dT (K)
Annex B 19.B.101		
Battery surface	8.4	Ref.
Plastic enclosure	5.9	Ref.
Test floor	1.6	150

IEC 60335-2-80

24.1	TABLE: Critical components information				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
DC Inlet	Dongguan Hengdewei plastic Co.,Ltd	Pb-0036	ABS	IEC/EN 60335-1 IEC/EN 60335-2-80	Tested with appliance
PCB material	KINGBOARD LAMINATES HOLDINGS LTD	KB-5150, KB-5152	130°C, V-0	IEC/EN 60335-1 IEC/EN 60335-2-80	UL E123995 Tested with appliance
Fan motor	Tronics Motor Co.,ltd	16.8	DC 9V, 230mA, 3W, Class A	IEC/EN 60335-1 IEC/EN 60335-2-80	Tested with appliance
Battery	Guangdong Cvasun New Energy Technology Co., Ltd.	103665	3.7Vdc, 3000mAh, 11.1Wh	IEC/EN 62133-2	BCTC2212703937B
Plastic enclosure	SABIC INNOVATIVE PLASTICS US L L C	945	PC, rated V-0, 120°C, HAI=3, HWI=3, Min. thickness 2.0mm.	IEC/EN 60335-1 IEC/EN 60335-2-80	Tested with appliance
Internal wire	Various	2468	26AWG, 80°C, 300Vac	--	UL approved
Alternative	Various	1007	24AWG, 80°C, 300Vac	--	UL approved

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 fixing enclosure	2.76	II	0.4

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
500	**0.2* / 0.5 / 0.8****	>1.3	--	--	>1.3	P
800	0.2* / 0.5 / 0.8**	--	--	--	--	N
1 500	0.5 / 0.8** / 1.0***	--	--	--	--	N
2 500	1.5 / 2.0***	--	--	--	--	N
4 000	3.0 / 3.5***	--	--	--	--	N

6 000	5.5 / 6.0***	--	--	--	--	N
8 000	8.0 / 8.5***	--	--	--	--	N
10 000	11.0 / 11.5***	--	--	--	--	N

Supplementary information:

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

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**	>1.9	—	—	P
≤50	0.18	0.6	0.85	1.2	1.5	1.7	1.9	—		—	N
≤50	0.36	1.2	1.7	2.4	3.0	3.4	3.8	—	—		N
125	0.28	0.75	1.05	1.5	1.9	2.1	2.4		—	—	N
125	0.28	0.75	1.05	1.5	1.9	2.1	2.4	—		—	N
125	0.56	1.5	2.1	3.0	3.8	4.2	4.8	—	—		N
250	0.56	1.25	1.8	2.5	3.2	3.6	4.0		—	—	N
250	0.56	1.25	1.8	2.5	3.2	3.6	4.0	—		—	N
250	1.12	2.5	3.6	5.0	6.4	7.2	8.0	—	—		N
400	1.0	2.0	2.8	4.0	5.0	5.6	6.3		—	—	N
400	1.0	2.0	2.8	4.0	5.0	5.6	6.3	—		—	N
400	2.0	4.0	5.6	8.0	10.0	11.2	12.6	—	—		N
500	1.3	2.5	3.6	5.0	6.3	7.1	8.0		—	—	N
500	1.3	2.5	3.6	5.0	6.3	7.1	8.0	—		—	N
500	2.6	5.0	7.2	10.0	12.6	14.2	16.0	—	—		N
>630 and ≤800	1.8	3.2	4.5	6.3	8.0	9.0	10.0		—	—	N
>630 and ≤800	1.8	3.2	4.5	6.3	8.0	9.0	10.0	—		—	N
>630 and ≤800	3.6	6.4	9.0	12.6	16.0	18.0	20.0	—	—		N
>800 and ≤1000	2.4	4.0	5.6	8.0	10.0	11.0	12.5		—	—	N
>800 and ≤1000	2.4	4.0	5.6	8.0	10.0	11.0	12.5	—		—	N
>800 and ≤1000	4.8	8.0	11.2	16.0	20.0	22.0	25.0	—	—		N
>1000 and ≤1250	3.2	5.0	7.1	10.0	12.5	14.0	16.0		—	—	N
>1000 and ≤1250	3.2	5.0	7.1	10.0	12.5	14.0	16.0	—		—	N

>1000 and ≤1250	6.4	10.0	14.2	20.0	25.0	28.0	32.0	—	—		N
>1250 and ≤1600	4.2	6.3	9.0	12.5	16.0	18.0	20.0		—	—	N
>1250 and ≤1600	4.2	6.3	9.0	12.5	16.0	18.0	20.0	—		—	N
>1250 and ≤1600	8.4	12.6	18.0	25.0	32.0	36.0	40.0	—	—		N
>1600 and ≤2000	5.6	8.0	11.0	16.0	20.0	22.0	25.0		—	—	N
>1600 and ≤2000	5.6	8.0	11.0	16.0	20.0	22.0	25.0	—		—	N
>1600 and ≤2000	11.2	16.0	22.0	32.0	40.0	44.0	50.0	—	—		N
>2000 and ≤2500	7.5	10.0	14.0	20.0	25.0	28.0	32.0		—	—	N
>2000 and ≤2500	7.5	10.0	14.0	20.0	25.0	28.0	32.0	—		—	N
>2000 and ≤2500	15.0	20.0	28.0	40.0	50.0	56.0	64.0	—	—		N
>2500 and ≤3200	10.0	12.5	18.0	25.0	32.0	36.0	40.0		—	—	N
>2500 and ≤3200	10.0	12.5	18.0	25.0	32.0	36.0	40.0	—		—	N
>2500 and ≤3200	20.0	25.0	36.0	50.0	64.0	72.0	80.0	—	—		N
>3200 and ≤4000	12.5	16.0	22.0	32.0	40.0	45.0	50.0		—	—	N
>3200 and ≤4000	12.5	16.0	22.0	32.0	40.0	45.0	50.0	—		—	N
>3200 and ≤4000	25.0	32.0	44.0	64.0	80.0	90.0	100.0	—	—		N
>4000 and ≤5000	16.0	20.0	28.0	40.0	50.0	56.0	63.0		—	—	N
>4000 and ≤5000	16.0	20.0	28.0	40.0	50.0	56.0	63.0	—		—	N
>4000 and ≤5000	32.0	40.0	56.0	80.0	100.0	112.0	126.0	—	—		N
>5000 and ≤6300	20.0	25.0	36.0	50.0	63.0	71.0	80.0		—	—	N
>5000 and ≤6300	20.0	25.0	36.0	50.0	63.0	71.0	80.0	—		—	N
>5000 and ≤6300	40.0	50.0	72.0	100.0	126.0	142.0	160.0	—	—		N
>6300 and ≤8000	25.0	32.0	45.0	63.0	80.0	90.0	100.0		—	—	N
>6300 and ≤8000	25.0	32.0	45.0	63.0	80.0	90.0	100.0	—		—	N
>6300 and ≤8000	50.0	64.0	90.0	126.0	160.0	180.0	200.0	—	—		N
>8000 and ≤10000	32.0	40.0	56.0	80.0	100.0	110.0	125.0		—	—	N
>8000 and ≤10000	32.0	40.0	56.0	80.0	100.0	110.0	125.0	—		—	N
>8000 and ≤10000	64.0	80.0	112.0	160.0	200.0	220.0	250.0	—	—		N
>10000 and ≤12500	40.0	50.0	71.0	100.0	125.0	140.0	160.0		—	—	N
>10000 and ≤12500	40.0	50.0	71.0	100.0	125.0	140.0	160.0	—		—	N
>10000 and ≤12500	80.0	100.0	142.0	200.0	250.0	280.0	320.0	—	—		N

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

IEC 60335-2-80

Working voltage (V):	Creepage distance (mm) Pollution degree							
	1	2			3			
		Material group			Material group			
		I	II	IIIa/IIIb	I	II	IIIa/IIIb*	Verdict / Remark
≤10	0.08	0.4	0.4	0.4	1.0	1.0	**1.0**	P
50	0.16	0.56	0.8	1.1	1.4	1.6	1.8	N
125	0.25	0.71	1.0	1.4	1.8	2.0	2.2	N
250	0.42	1.0	1.4	2.0	2.5	2.8	3.2	N
400	0.75	1.6	2.2	3.2	4.0	4.5	5.0	N
500	1.0	2.0	2.8	4.0	5.0	5.6	6.3	N
>630 and ≤800	1.8	3.2	4.5	6.3	8.0	9.0	10.0	N
>800 and ≤1000	2.4	4.0	5.6	8.0	10.0	11.0	12.5	N
>1000 and ≤1250	3.2	5.0	7.1	10.0	12.5	14.0	16.0	N
>1250 and ≤1600	4.2	6.3	9.0	12.5	16.0	18.0	20.0	N
>1600 and ≤2000	5.6	8.0	11.0	16.0	20.0	22.0	25.0	N
>2000 and ≤2500	7.5	10.0	14.0	20.0	25.0	28.0	32.0	N
>2500 and ≤3200	10.0	12.5	18.0	25.0	32.0	36.0	40.0	N
>3200 and ≤4000	12.5	16.0	22.0	32.0	40.0	45.0	50.0	N
>4000 and ≤5000	16.0	20.0	28.0	40.0	50.0	56.0	63.0	N
>5000 and ≤6300	20.0	25.0	36.0	50.0	63.0	71.0	80.0	N
>6300 and ≤8000	25.0	32.0	45.0	63.0	80.0	90.0	100.0	N
>8000 and ≤10000	32.0	40.0	56.0	80.0	100.0	110.0	125.0	N
>10000 and ≤12500	40.0	50.0	71.0	100.0	125.0	140.0	160.0	N
Supplementary information: *) Material group IIIb is allowed if the working voltage does not exceed 50 V								

30.1	TABLE: Ball pressure			P
Part	Test temperature (°C)	Impression diameter (mm)	Allowed impression diameter (mm)	
Plastic enclosure	75	1.2	2.0	

30.2	TABLE: Glow-wire test							P
Part	550	650		750		850	Needle-flame test (NFT)	verdict
		te(s)	ti(s)	te(s)	ti(s)			

IEC 60335-2-80

Plastic enclosure	x	--	--	--	--	--	--	P
DC inlet	x	--	--	--	--	--	--	P
PCB material	x	--	--	--	--	--	--	P
DC motor bobbin	x	--	--	--	--	--	--	P
Remark: Ti = the time between glow wire touched the material and the material ignite Te = the time between glow wire touched the material and the flame extinguished;								

====== End of Report ======

EN 60335-2-80 – Attachment			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT

IEC 60335-1

EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

Household and similar electrical appliances – Safety –
Part 1: GENERAL REQUIREMENTS

Differences according to .....: EN 60335-1:2012 + AC:2014 + A11:2014 + A13:2017 + A1:2019 + A14:2019 + A2:2019
EN 62233:2008 + AC:2008

Attachment Form No.....: EU_GD_IEC60335_1X

Attachment Originator .....: Nemko AS

Master Attachment.....: 2019-09-24

	CENELEC COMMON MODIFICATIONS (EN)		
6.1	Delete “class 0” and “class 01”		P
7.1	Single-phase appliances to be connected to the supply mains: 230 V covered		N
	Multi-phase appliances to be connected to the supply mains: 400 V covered		N
7.12	The instructions include the substance of the following:		P
	- this appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved		P
	- children shall not play with the appliance		P
	- cleaning and user maintenance shall not be made by children without supervision		P
8.1.1	Also test probe 18 of EN 61032 is applied		N
	The appliance being in every possible position during the test, except that		N
	appliances normally used on the floor and having a mass exceeding 40 kg are not tilted		N
	The force on the probe in the straight position is increased to 10 N when probe 18 is used		N
	When using test probe 18 the appliance is fully assembled as in normal use without any parts removed, and		N
	parts intended to be removed for user maintenance are also not removed		N

EN 60335-2-80 – Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
8.1.3	Instead of test probe B, test probe 18 and test probe 13, for appliances other than those of class II, test probe 41 of IEC 61032 is applied with a force not exceeding 1 N to live parts of visibly glowing heating elements, all poles of which can be disconnected by a single switching action		N
8.2	Compliance is checked by inspection and by applying the test probes of EN 61032 in accordance with the conditions specified in 8.1.1		N
	Test probe B and probe 18 of EN 61032 are applied to built-in appliances and fixed appliances only after installation		N
15.1.2	Appliances with an automatic cord reel tested with the cord in the most unfavourable position so that the reeling of the wet cord may affect electrical insulation during operation, the cord not being dried before reeling		N
20.2	For appliances having dangerous moving parts, due to their working function, e.g. the needle of a sewing machine, tools of kitchen machines or the blade of an electrical knife, full protection is not possible for performing their intended use		N
	When using a test probe similar to test probe B of EN 61032, having a circular stop face and applied with a force of 5N, the accessories and detachable covers are removed		P
	When using test probe 18 it is applied with a force of 2,5N on the appliance fully assembled		P
22.12	Other parts intended to be detached during use, maintenance or cleaning (e.g. batteries, battery covers, lids, attachments, steam nozzles) are not considered as parts providing a similar function as handles, knobs, grips, levers		P
22.17	The requirement is not applicable to built-in appliances		N
24.1	Components comply with the safety requirements specified in the relevant EN standards as far as they reasonably apply		P
	Motors are not required to comply with EN 60034-1, but tested as part of the appliance according to this standard		P
	Relays are tested as part of the appliance according to this standard		N
	Relays may be alternatively tested to EN 60730-1 and the additional requirements in EN 60335-1		N
	The requirements of Clause 29 of this standard apply between live parts of components and accessible parts of the appliance		P

EN 60335-2-80 – Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
	Components may comply with the requirements for clearances and creepage distances for functional insulation as specified in the relevant component standard		P
	The requirements of 30.2 of this standard apply to parts of non-metallic material in components including parts of non-metallic material supporting current-carrying connections inside components		P
	Components that have not been tested and shown to comply with the EN standard for the relevant component are tested according to the requirements of 30.2 of this standard		P
	Components that have been tested and shown to comply with the resistance to fire requirements in the EN standard for the relevant component need not be retested provided that:		P
	- the severity specified in the component standard is not less than the severity specified in 30.2, and		P
	- the test report for the component states the values of t_e and t_i acc. to EN 60695-2-11		P
	If the above two conditions are not satisfied, the component is tested as part of the appliance		P
	Power electronic converter circuits are not required to comply with EN 62477-1, but tested as part of the appliance according to this standard		N
	Unless components have been tested and found to comply with the relevant EN 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 EN standard for the component are necessary other than those specified in 24.1.1 to 24.1.9		P
	Components that have not been tested and found to comply with the relevant EN standard, and		P
	components that are not marked or not used in accordance with their marking,		P
	are tested in accordance with the conditions occurring in the appliance, the number of samples being that required by the relevant standard		P
	Lamp-holders and starter-holders that have not been tested and found to comply with the relevant EN standard are tested as a part of the appliance and additionally comply with the gauging and interchangeability requirements of the relevant EN standard under the conditions occurring in the appliance		N

EN 60335-2-80 – Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
	Where the relevant EN standard specifies these gauging and interchangeability requirements at elevated temperatures, the temperatures measured during the tests of Clause 11 are used		P
	There are no additional tests specified for nationally standardized plugs such as those detailed in IEC/TR 60083 or connectors complying with the standard sheets of EN 60320-1 and EN 60309, unless they are specifically mentioned in the text of this standard		P
	Plugs and socket-outlets and other connecting devices of interconnection cords are not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1, or		P
	with connectors and appliance inlets complying with the standard sheets of EN 60320-1, if		N
	direct supply to these parts from the supply mains gives rise to a hazard		N
	For plugs used in CENELEC countries Annex ZH applies		N
24.1.7	When the remote operation of the appliance is via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is EN 41003		N
	Compliance with Clause 8 of this standard is not impaired by connecting the appliance to a device covered by EN 41003		N
24.Z1	Type S2 and S3 capacitors according to EN 60252-1 are not required to undergo the testing as required by 30.2.2 and 30.2.3.1		N
25.1	Plugs and pins for insertion into socket outlets follow the relevant standards sheets in Annex ZH		N
25.7	Rubber sheathed cords (60245 IEC 53) are not suitable for appliances intended to be used outdoors, or		N
	when they are liable to be exposed to significant amount of ultraviolet radiation		N
25.25	Instead of IEC/TR 60083, dimensions of the pins and engagement face of plugs of appliances that are inserted into socket-outlets are in accordance with the dimensions of the relevant plug standard		N
	Common plugs and socket-outlets types in CENELEC countries as shown in Annex ZH		N
26.11	Conductors connected by soldering are not considered to be positioned or fixed so that reliance is not placed upon the soldering alone to maintain them in position,		P

EN 60335-2-80 – Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
	unless they are held in place near the terminals independently of the solder		N
29.3.Z1	Appliance constructed so that if there is a possibility of damaging the insulation during installation, the insulation withstands the scratch and penetration test of 21.2		N
32	Compliance regarding electromagnetic fields is checked according to EN 62233		P
Annex I, 19.I.101	The appliance is supplied at rated voltage and operated under normal operation with each of the fault conditions specified		N
	The duration of any of the tests is as specified in 19.7		N
ZA	**ANNEX ZA (**NORMATIVE) **SPECIAL NATIONAL CONDITIONS (EN)**		P
	Denmark, Sweden, Norway and Finland		P
7.12.8	The maximum inlet water pressure is at least 1,0 MPa ....:		N
	Norway		P
19.5	The test is also applicable to appliances intended to be permanently connected to fixed wiring		N
	Norway		P
22.2	The second paragraph of this subclause, dealing with single-phase, permanently connected class I appliances having heating elements, is not applicable due to the supply system		N
	Denmark		P
22.47	The maximum inlet water pressure is at least 1,0 MPa ....:		N
	Ireland and United Kingdom		P
25.8	In the table, the line >10 A and ≤16 A is replaced with:		N
	> 10 and ≤ 13 1,25 (1,0)[b]		N
	> 13 and ≤ 16 1,5 (1,0)[b]		N
ZB	**ANNEX ZB** (INFORMATIVE) **A-DEVIATIONS**		P
	Ireland		P
25.1 and 25.25	These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and in general allow only plugs complying with I.S. 401:1997, or equivalent, to be fitted to domestic appliances		N
	United Kingdom		P

EN 60335-2-80 – Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
25.1 and 25.25	These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and in general allow only plugs to BS 1363 to be fitted to domestic appliances.		N
	It also allows plugs to BS 4573 and EN 50075 to be fitted to shavers and toothbrushes		N
ZC	ANNEX ZC **(NORMATIVE)** NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS		N
	A list of documents referred to in the text of this standard in such a way that some or all of their content constitutes requirements of this document		N
ZD	**ANNEX ZD** (INFORMATIVE) **IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS**		P
	List of IEC and CENELEC code designations for flexible cords		P
ZE	**ANNEX ZE** (INFORMATIVE) **SPECIFIC ADDITIONAL REQUIREMENTS FOR APPLIANCES AND MACHINES INTENDED FOR COMMERCIAL USE**		N
7.1	Business name and full address of the manufacturer and, where applicable, his authorized representative.....:		N
	Model or type reference .....:		N
	Serial number, if any		N
	Production year		N
	Designation of the appliance.....:		N
7.12	Instructions provided with the appliance so that the appliance can be used safely		N
	The instructions contain at least the following information:		N
	- the business name and full address of the manufacturer and, where applicable, his authorized representative		N
	- model or type reference of the appliance as marked on the appliance itself, except for the serial number		N
	- the designation of the appliance together with its explanation in case it is given by a combination of letters and/or numbers		N
	- the general description of the appliance, when needed due to the complexity of the appliance		N
	- specific precautions required during installation, operation, adjusting, user maintenance, cleaning, repairing or moving		N

EN 60335-2-80 – Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
	- when needed drawings, diagrams, descriptions and explanations necessary for the safe use and user maintenance of the appliance		N
	- the possible reasonably foreseeable misuse and, whenever relevant, a warning against the effects it may have on the safe use of the appliance		N
	The words “Original instructions” appear on the language version(s) verified by the manufacturer or by the authorized representative		N
	When a translation of the original instructions has been provided by a person introducing the appliance on the market; the meaning of the sentence “Translation of the original instructions” appear in the relevant instructions delivered with the appliance		N
	The instructions for maintenance/service to be done by specialized personnel, mandated by the manufacturer or the authorized representative may be supplied in only one Community language which the specialized personnel understand		N
	The instructions indicate the type and frequency of inspections and maintenance required for safe operation including the preventive maintenance measures		N
7.12.ZE1	If needed for specific appliances, the following information to be given:		N
	- on use, transportation, assembly, dismantling when out of service, testing or foreseeable breakdowns, if these operations have consequences on stability of the appliance in order to avoid overturning, falling or uncontrolled movements of the appliance or of its component parts		N
	- on how to maintain adequate mechanical stability when in use, during transportation, assembly, dismantling, scrapping and any other action involving the appliance		N
	- on the protective measures to be taken by the user, including, where appropriate, the personal protective equipment to be provided		N
	- on the operating method to be followed in the event of accident or breakdown; if a blockage is likely to occur the operating method to safely unblock the appliance		N
	- on the specifications on the spare parts to be used, when these affect the health and safety of the operator		N
	- on airborne noise emissions, determined and declared in accordance with the relevant Part 2, which includes:		N

EN 60335-2-80 – Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
	- the A-weighted emission sound pressure level at workstations, where this exceeds 70 dB(A) .....;		N
	- where this level does not exceed 70 dB(A), this fact is indicated		N
	- the peak C-weighted instantaneous sound pressure value at workstations, where this exceeds 63 Pa (130 dB in relation to 20 µPa).....:		N
	- the A-weighted sound power level emitted by the machinery, where the A-weighted emission sound pressure level at workstations exceeds 80 dB(A).....:		N
7.12.ZE2	The instructions include a warning to disconnect the appliance from its power source during service and when replacing parts		N
	If the removal of the plug is foreseen, it is clearly indicated that the removal of the plug is such that an operator can check from any of the points to which he has access that the plug remains removed		N
	If this is not possible, due to the construction of the appliance or its installation, a disconnection with a locking system in the isolated position is provided		N
19.11.4.8	The appliance continues to operate, without causing any hazard to the user, from the same point in its operating cycle at which the voltage fluctuation occurred, or		N
	a manual operation is required to restart it		N
20.1	Appliances and their components and fittings have adequate mechanical stability during transportation, assembly, dismantling and any other action involving the appliance		N
20.2	Dangerous moving transmission parts safeguarded either by design or guards		N
	When guards are used, they are fixed guards, interlocking movable guards or protective devices		N
	Moving parts directly involved in the function of the appliance which cannot be made completely inaccessible fitted with:		N
	- fixed guards or interlocking movable guards preventing access to those sections of the parts that are not used in the work, and		N
	- adjustable guards restricting access to those sections of the moving parts where access is necessary		N
	Interlocking movable guards used where frequent access is required		N

EN 60335-2-80 – Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
21.1	Appliances and their components and fittings have adequate mechanical strength and is constructed to withstand such rough handling that may be expected in normal use, during transportation, assembly, dismantling, scrapping and any other action involving the appliance		N
22.ZE.1	For appliances provided with a seat, the seat gives adequate stability		N
	The distance between the seat and the control devices capable of being adapted to the operator		N
22.ZE.2	For appliances provided with separate devices for the start and the stop functions, the stop function is unambiguously identifiable and does always override the start function		N
	For appliances provided with one device performing the start and the stop function, the stop function is unambiguously identifiable and does always override the start function		N
22.ZE.3	Appliances designed in such a way that incorrect mounting is avoided, if this can lead to an unsafe situation		N
	If this is not possible, information on the correct mounting is given directly on the part and/or the enclosure		N
22.ZE.4	Where the weight, size or shape prevents appliances from being moved manually, they are fitted with attachments for lifting gear, or		N
	so designed that they can be fitted with such attachments, or		N
	be shaped in such a way that standard lifting gear can easily be used		N
	Appliances to be moved manually are constructed or equipped so that they can be moved easily and safely		N
22.ZE.5	The fixing systems of fixed guards which prevent access to dangerous moving transmission parts only removable with the use of tools		N
	If such guards have to be removed by the user for routine cleaning or maintenance their fixing systems remain attached to the fixed guards or to the machine after removal		N
	Where possible, guards are incapable of remaining in place without their fixings		N
	This does not apply if, after removal of the screws, or if the component is incorrectly repositioned, the appliance becomes inoperative		N
	Movable guards are interlocked		N

EN 60335-2-80 – Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
	The interlocking devices prevent the start of hazardous appliance functions until the guards are fixed in their position, and give a stop command whenever they are no longer closed		N
	Where it is possible for an operator to reach the danger zone before the risk due to hazardous appliance functions has ceased, movable guards associated with a guard locking device in addition to an interlocking device that:		N
	- prevents the start of hazardous appliance functions until the guard is closed and locked, and		N
	- keeps the guard closed and locked until the risk of injury from the hazardous appliance functions has ceased		N
	Interlocking movable guards remain attached to the appliance when open, and		N
	they are designed and constructed in such a way that they can be adjusted only by means of an intentional action		N
22.ZE.6	Interlocking movable guards designed in such a way that the absence or failure of one of their components prevents starting or stops the hazardous appliance functions		N
	The guard is opened to the extent needed to cause the interlocking to operate and is then closed, the number of operations being defined in the specific Part 2.....:		N
	After this test any defect that may be expected in normal use is applied to the interlock system, including interruption of the supply, only one defect being simulated at a time		N
	After these tests the interlock system is fit for further use		N
22.ZE.7	Adjustable guards restricting access to areas of the moving parts strictly necessary for the work are:		N
	- adjustable manually or automatically, depending on the type of work involved, and		N
	- readily adjustable without the use of tools		N
22.ZE.8	In case of interruption, re-establishment after an interruption or fluctuation in whatever manner of the power supply, the appliance does not restart		N
	However, automatic restarting of the operation is allowed if the appliance may continue to operate, without causing any hazard to the user, from the same point in its operating cycle at which the voltage interruption or fluctuation occurred		N
22.ZE.9	Appliances fitted with means to isolate them from all energy sources		N

EN 60335-2-80 – Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
	Such isolators are clearly identified, and		N
	they are capable of being locked if reconnection endanger persons		N
	After the energy source is disconnected, it is possible to dissipate any energy remaining or stored in the circuits of the appliance without risk to persons		N
ZF	**ANNEX ZF** (INFORMATIVE) **CRITERIA APPLIED FOR THE ALLOCATION OF PRODUCTS COVERED BY STANDARDS IN THE EN 60335 SERIES UNDER LVD OR MD**		P
	List of standards under CENELEC/TC61 with the allocation under the LVD (Low Voltage Directive) or the MD (Machinery Directive) .....:	LVD	P
ZG	**ANNEX ZG** (NORMATIVE) **UV APPLIANCES**		N
	The following modifications to this standard apply to appliances having UV emitters		N
	This annex is not applicable to appliances covered by the scopes of IEC 60335-2-27, IEC 60335-2-59 or IEC 60335-2-109		N
7.12.ZG	The instructions for appliances incorporating UVC emitters include the substance of the following: WARNING — This appliance contains a UV emitter. Do not stare at the light source		N
32	For appliances incorporating UV emitters the manufacturer delivers a declaration providing evidence that the plastic material exposed to the radiation is UV resistant		N
ZH	**ANNEX ZH** (INFORMATIVE) **Common plug and socket-outlet types in CENELEC countries**		N
	In general, supply cords of single-phase appliances having a rated current not exceeding 16 A are fitted with a plug complying with the following standard sheets:		N
	- for class I appliances or class II appliances with functional earth, standard sheet EU2, EU3 or EU4 .....:		N
	- for class II appliances, standard sheet EU5, EU6 or EU7 .....:		N
	There are exemptions or differences in certain CENELEC countries		N
ZI	**ANNEX ZI** (INFORMATIVE) **Information on the application of A11:2014 to EN 60335-1:2012** **CENELEC CLC/TC 61(SEC)2096A**		N
	Clarification of the application of parts 2 in conjunction with the 2002 or 2012 version of EN 60335-1		N

EN 60335-2-80 – Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
ZZA	**ANNEX ZZA** (INFORMATIVE) **RELATIONSHIP BETWEEN THIS EUROPEAN STANDARD AND THE SAFETY OBJECTIVES OF DIRECTIVE 2014/35/EU [2014 OJ L96} AIMED TO BE COVERED**		P
	This standard provides one means of conforming to safety objectives of Directive 2014/35/EU		P
	When cited in the Official Journal under that Directive, compliance with the normative clauses of this standard given in Table ZZA.1 confers a presumption of conformity with the safety objectives of that Directive and associated EFTA regulations		P
	Compliance with this Part 1 when used together with the relevant Part 2 provides one means of conformity with the safety objectives		P
ZZB	**ANNEX ZZB** (INFORMATIVE) **RELATIONSHIP BETWEEN THIS EUROPEAN STANDARD AND THE ESSENTIAL REQUIREMENTS OF DIRECTIVE 2006/42/EC AIMED TO BE COVERED**		N
	This standard provides one means of conforming to essential requirements of EU Directive 2006/42/EC		N
	When cited in the Official Journal under that Directive, compliance with the normative clauses of this standard given in Table ZZB.1 confers a presumption of conformity with the essential requirements of that Directive and associated EFTA regulations		N
	Compliance with this Part 1 when used together with the relevant Part 2 provides one means of conformity with the essential health and safety requirements		N
	ANNEX EN 62233:2008 + AC:2008 **EMF- ELECTROMAGNETICS FIELDS**		P
	The tested product also complies with the requirements of EN 62233:2008		P
	Limit ……100%	Measured max. : 1.138%	P

Variations to EN 60335-1:2012/A15:2021			
20.2	Replace “dangerous” with “hazardous” (twice).		N
22.44	An appliance is child-appealing if one of the following criteria is present		N
	— appliance decorated using faces, cartoon like characters, or similar images;		N
	— appliance using shapes representing animals, characters, persons or scale models.		N
	An appliance is child-appealing if more than one of the following criteria are present:		N

EN 60335-2-80 – Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
	— using non-functional light (functional light is e.g. illumination of an object or area, signal indicating status of an appliance);		N
	— using non-functional sound (e.g. music);		N
	— using non-functional movement.		N
	If the appliance is child-appealing, has a mass less than 4 kg or is mounted or normally intended for use at a height less than 850 mm, the following conditions shall be met:		N
	— No surface (both **functional surfaces** and non-functional) that are accessible by means of test probe 19 of IEC 61032 located at a height less than 850 mm shall exceed the temperature rises stated below:		N
	Temperature rise		N
	– of bare metal 38K		N
	– of coated metal 42K		N
	– of glass and ceramic 51K		N
	– of plastic having a thickness exceeding 0,4 mm 58K		N
	— Hazardous **moving parts** shall not be accessible by means of test probe 19 of IEC 61032 under the conditions specified for test probe 18 in Clause 20.2.		N
	— **Live parts** shall not be accessible by means of test probe 19 of IEC 61032 under the conditions specified for test probe 18 in Clause 8.1.1.		N
	— Liquid in the appliance shall not exceed 38 °C in normal use when it is accessible by means of test probe 19 under the conditions specified for test probe 18 in Clause 20.2 or can get out of the appliance when positioned in different positions.		N
	Vessels in which two independent and sequential actions are needed to access the liquid are considered to meet the requirement.		N
	— The requirement of 22.12 is applicable for all accessible parts of the appliance.		N
	The requirement is not applicable to appliances where there is a toy shaped like the appliance.		N
	Compliance is checked by inspection and appropriate tests.		N
24.1.7	If the remote operation of the appliance is via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is IEC 62151.		N

A	**ANNEX ZA (**NORMATIVE) **SPECIAL NATIONAL CONDITIONS (EN)**		P
	Modify the reference for Clause 25.8 by adding Cyprus to the countries listed		P

EN 60335-2-80 – Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
	Annex ZB A-deviations		P
	*Delete the second paragraph, including the note, starting with: "*This European Standard/Harmonization Document …."		P
ZC	ANNEX ZC **(NORMATIVE)** NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS		P
	The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.		P
ZF	**ANNEX ZF** (INFORMATIVE) **CRITERIA APPLIED FOR THE ALLOCATION OF PRODUCTS COVERED BY STANDARDS IN THE EN 60335 SERIES UNDER LVD OR MD**		P
	Modify the elements of the Table ZF.1		P
ZH	**ANNEX ZH** (INFORMATIVE) **Common plug and socket-outlet types in CENELEC countries**		N
	ZH.1 General		N
	NOTE: The dimensions of the plugs are purely for information. The exact dimensions of the plugs can be found in the relevant national standards.		N
	ZH.3.2 Cyprus		N
	Only plugs according to standard sheets GB1, GB6 and GB7 of IEC/TR 60083 are allowed.		N
	They correspond with plug designations: EU9, EU6 and EU10.		N
	ZH.3.4 Finland		N
	Plugs according to Publications SFS 5610 and SFS-EN 50075 are allowed.		N
	Plugs according to Publications SFS 5215 and SFS-EN 60309 are allowed.		N
	ZH.3.9 Netherlands		N
	Only plugs according to NEN 1020:2019 are allowed, standard sheets:		N
	— IV or IVa 16 A 250 V class I plug (L+N+PE) with side earthing [= TR IEC 60083 - NL 2 / **EU2**]		N
	— VII or VIIa 16 A 250 V class I plug (L+N+PE) with dual (side and pin) earthing [= TR IEC 60083 - NL 2 / **EU4**]		N
	— XVI 2,5 A 250 V class II plug (L+N): [= TR IEC 60083 - NL 3 / **EU5**]		N

EN 60335-2-80 – Attachment			
Clause	Requirement + Test	Result - Remark	Verdict
	— XVII or XVIIa 16 A 250 V class II plug (L+N) [= TR IEC 60083 - NL 4 / **EU7**]		N
	— IX (Perilex) 16 A 400/230 V class I plug (L1+L2+L3+N+PE) [= **EU8**]		N
	Or plug according EN 50075 is allowed, standard sheet:		N
	— 1 2,5 A 250 V class II plug (L+N) [= TR IEC 60083 - NL 5 / **EU6**]		N
	These plugs are shown in IEC/TR 60083 as NL2, NL3, NL4, NL5 and DE4.		N
	They correspond with plug designations: EU 2, EU4, EU5, EU6, EU7 and EU8.		N
	ZH.3.14 Switzerland		N
	Supply cords of portable household and similar electrical appliances having a rated current not exceeding 16 A shall be provided with a plug complying with SN 441011-1:2019. The Table A is applicable for Plug with IP20 and Table B is applicable for plug with IP55:		N

====== End of Attachment ======

Photo Documentation

Model: MO2123

Photo 1

Photo 2

Photo Documentation

Photo 3

Photo 4

Photo Documentation

Photo 5

Photo 6

Photo Documentation

Photo 7

Photo 8

Photo Documentation

Photo 9

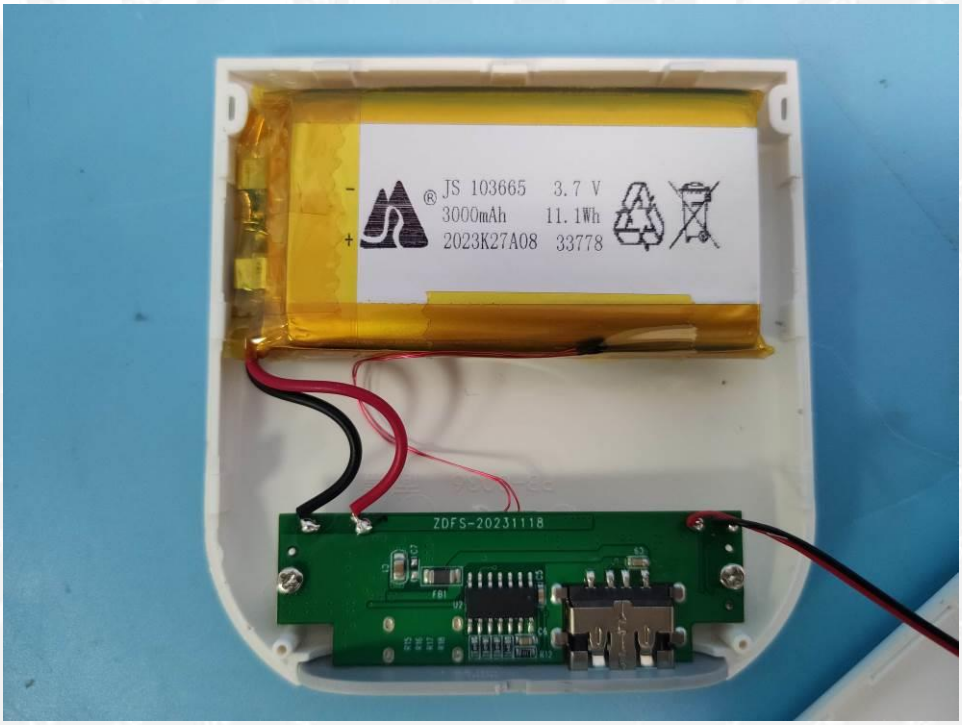


Photo 10

Photo Documentation

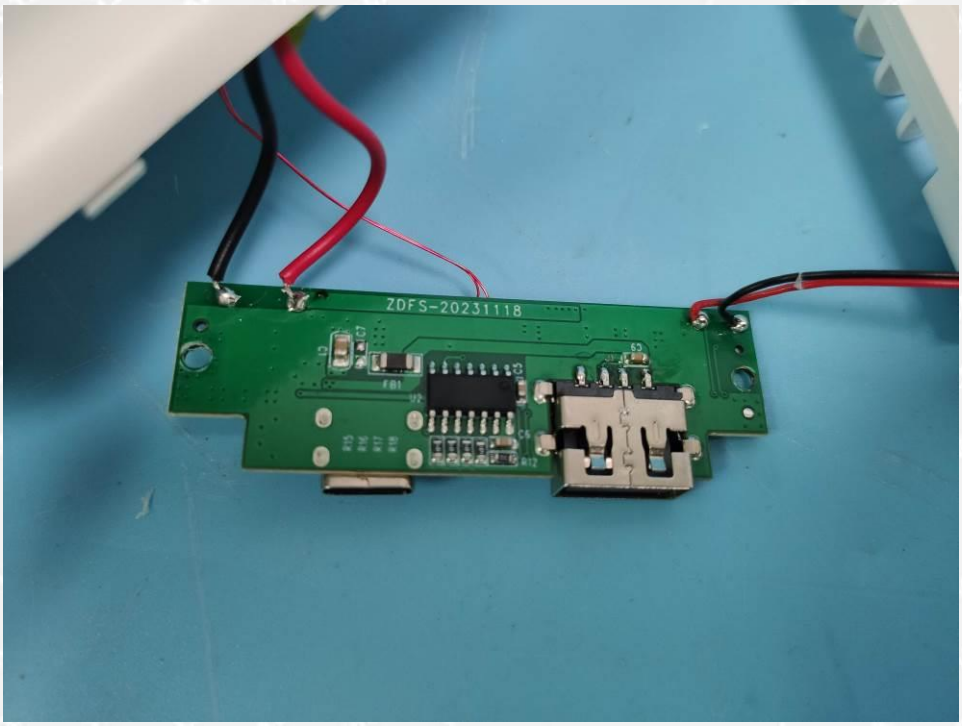


Photo 11

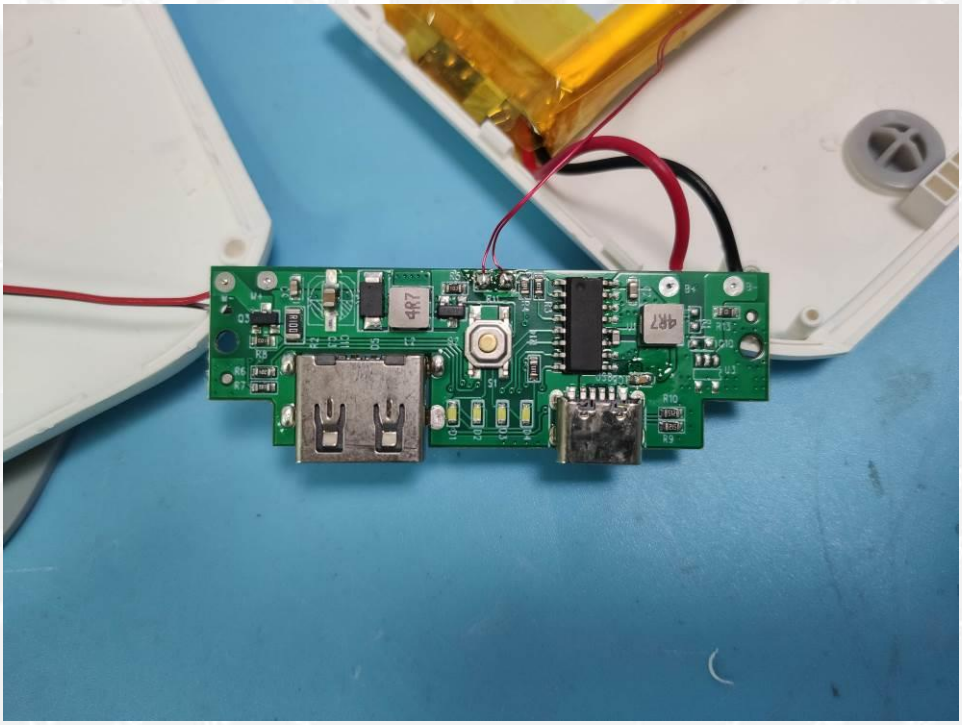


Photo 12

Photo Documentation

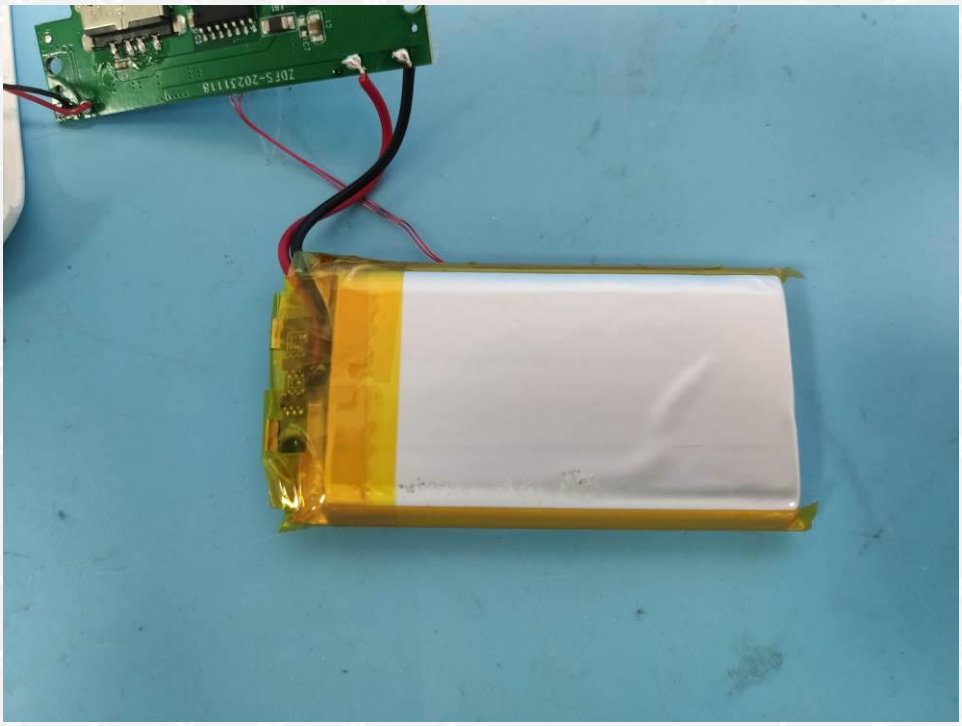


Photo 13

====== End of Photo ======

中国认可
国际互认
检测
TESTING
CNAS L3110

TEST REPORT

Reference No.	:	WTF23D10227616Y
Applicant	:	Mid Ocean Brands B.V.
Address	:	7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong
Manufacturer	:	118144
Address	:	--
Product	:	USB foldable desk fan
Model(s)	:	MO2123
Total pages	:	68 pages and 4 pages of photo.
Standards	:	☒ EN IEC 62368-1:2020+A11:2020 Audio/video, information and communication technology equipment-Part 1:Safety requirements
Date of Receipt sample	:	2023-10-26
Date of Test	:	2023-10-26 to 2023-12-12
Date of Issue	:	2023-12-15
Test Result	:	**Pass**

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:
Waltek Testing Group Co., Ltd.
Address: No. 77, Houjie Section, Guantai Road, Houjie Town, Dongguan City, Guangdong, China
Tel:+86-769-2267 6998
Fax:+86-769-2267 6828

Compiled by:

Jason Huang / Project Engineer

Approved by:

Almon Zhao / Designated Reviewer

Test item description.....:	USB foldable desk fan
Trademark .....:	MOB
Model and/or type reference .....:	MO2123
Rating(s).....:	Battery Capacity:3000mAh 11.1Wh Input (Type-C): DC 5V ⎓ 1A Output (USB-A) / Output (Type-C): DC 5V ⎓ 1A

Remark:

Whether parts of tests for the product have been subcontracted to other labs:

☐ Yes ☒ No

If Yes, list the related test items and lab information:

Test items: --

Lab information: --

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
- EN IEC 62368-1:2020+A11:2020 All applicable test The submitted samples were found to comply with the requirements of above specification.	No. 77, Houjie Section, Guantai Road, Houjie Town, Dongguan City, Guangdong, China

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

EU Group Differences

☒ The product fulfils the requirements of EN IEC 62368-1:2020+A11:2020 and BS EN IEC 62368-1:2020+A11:2020.

Use of uncertainty of measurement for decisions on conformity (decision rule) :

☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").

☐ Other:… (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)

Information on uncertainty of measurement:

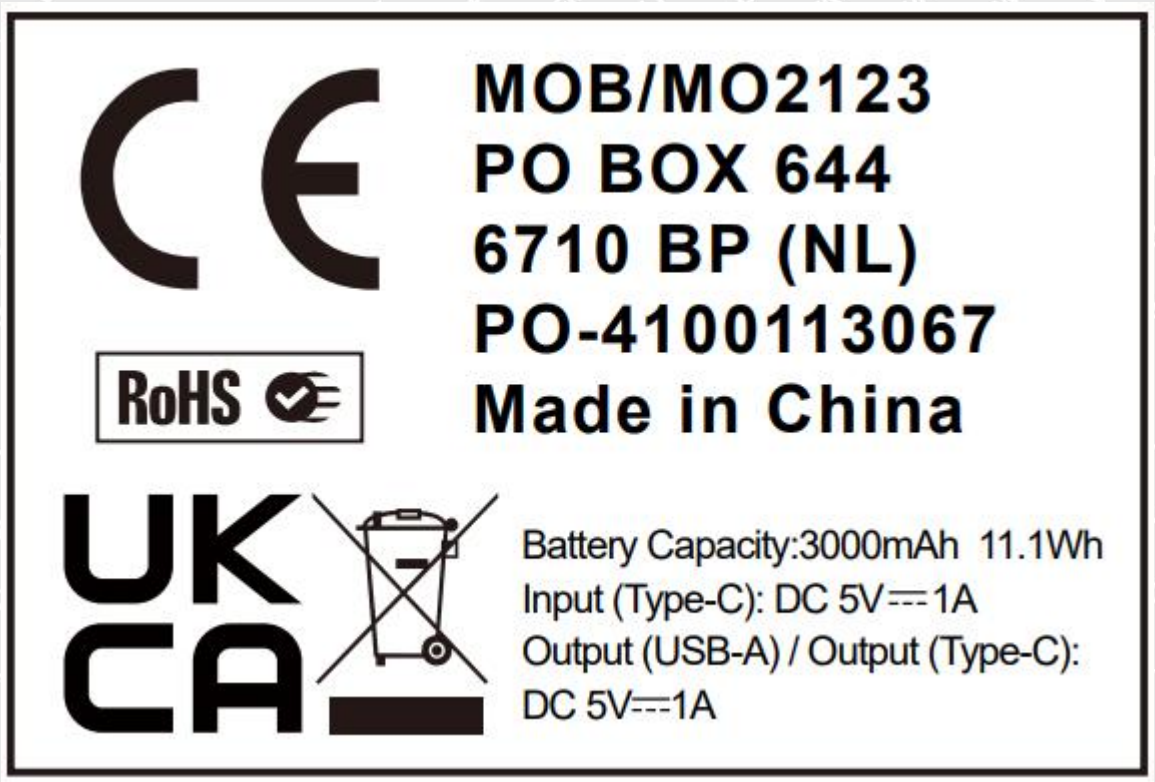
The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.

IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

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



Remark:

1. The above markings are the minimum requirements required by the safety standard. For the final production, the additional markings which do not give rise to misunderstanding may be added.
2. The CE, UKCA marking and WEEE symbol should be at least 5.0mm and 7.0mm respectively in height.
3. 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.

TEST ITEM PARTICULARS:	
Product group ..... :	☒ end product ☐ built-in component
Classification of use by..... :	☒ Ordinary person ☒ Children likely present ☐ Instructed person ☐ Skilled person
Supply Connection..... :	☐ AC mains ☐ DC mains ☒ not mains connected: ☒ ES1 ☐ ES2 ☐ ES3
Supply % Tolerance ..... :	☐ +10%/-10% ☐ +20%/-15% ☐ +___%/ -___% ☒ None
Supply Connection – Type ..... :	☐ pluggable equipment type A - ☐ non-detachable supply cord ☐ appliance coupler ☐ direct plug-in ☐ pluggable equipment type B - ☐ non-detachable supply cord ☐ appliance coupler ☐ permanent connection ☐ mating connector ☒ other: not Mains connected
Considered current rating of protective device as part of building or equipment installation..... :	☐ Location: ☐ building ☐ equipment ☒ N/A
Equipment mobility..... :	☒ movable ☒ hand-held ☒ transportable ☐ direct plug-in ☐ stationary ☐ for building-in ☐ wall/ceiling-mounted ☐ SRME/rack-mounted ☐ other: ____
Over voltage category (OVC) ..... :	☐ OVC I ☐ OVC II ☐ OVC III ☐ OVC IV ☒ other: not Mains connected
Class of equipment ..... :	☐ Class I ☐ Class II ☒ Class III ☐ Not classified ☐ ____
Access location ..... :	☒ N/A ☐ restricted access area ☐ outdoor location ☐ ____
Pollution degree (PD) ..... :	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified maxium operating ambient :	35°C ☐ Outdoor: minimum ____°C
IP protection class ..... :	☒ IPX0 ☐ IP___
Power Systems ..... :	☐ TN ☐ TT ☐ IT - ____V $_{L-L}$ ☒ not AC mains
Altitude during operation (m) ..... :	☒ 2000 m or less ☐ ____m
Altitude of test laboratory (m) ..... :	☒ 2000 m or less ☐ ____ m
Mass of equipment (kg) ..... :	☒ 0.122kg

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..... :	See the cover
Date (s) of performance of tests..... :	See the cover
GENERAL REMARKS:	
"(see Enclosure #)" refers to additional information appended to the report. "(see appended table)" refers to a table appended to the report. **Throughout this report a ☐ comma / ☒ point is used as the decimal separator.**	
GENERAL PRODUCT INFORMATION:	
Product Description 1. The EUT covered by this report is a USB foldable desk fan used as information apparatus. 2. The manufacturer specified maximum ambient temperature is 35°C. The specified altitude is up to and including 2000 m above sea level. 3. It is supplied by external power supply or by approved internal lithium-ion battery or USB type-C which complied with PS1. 4. All circuits complied with ES1 and PS1, no other circuit existed.	
Model Differences N/A	
Additional application considerations – (Considerations used to test a component or sub-assembly) N/A	

OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS				
Clause	**Possible Hazard**			
5	Electrically-caused injury			
Class and Energy Source (e.g. ES3: Primary circuit)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
ES1: All circuits	Ordinary	N/A	N/A	N/A
6	Electrically-caused fire			
Class and Energy Source (e.g. PS2: 100 Watt circuit)	Material part (e.g. Printed board)	Safeguards		
		B	1st S	2nd S
PS2: Battery	Enclosure	Equipment safeguard (clause 6.3.1 complied)	Equipment safeguard (clause 6.3.1 complied)	N/A
PS1:<15Watt circuit	Combustible materials within equipment	N/A	N/A	N/A
7	Injury caused by hazardous substances			
Class and Energy Source (e.g. Ozone)	Body Part (e.g., Skilled)	Safeguards		
		B	S	R
Battery (See Annex M)	Ordinary	N/A	N/A	N/A
8	Mechanically-caused injury			
Class and Energy Source (e.g. MS3: Plastic fan blades)	Body Part (e.g. Ordinary)	Safeguards		
		B	S	R
MS1: Edges and corners	Ordinary	N/A	N/A	N/A
MS1: Mass of the unit	Ordinary	N/A	N/A	N/A
9	Thermal burn			
Class and Energy Source (e.g. TS1: Keyboard caps)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
TS1: All accessible parts	Ordinary	N/A	N/A	N/A
10	Radiation			
Class and Energy Source (e.g. RS1: PMP sound output)	Body Part (e.g., Ordinary)	Safeguards		
		B	S	R
RS1: LED for indicating	Ordinary	N/A	N/A	N/A
Supplementary Information: "B" – Basic Safeguard; "S" – Supplementary Safeguard; "R" – Reinforced Safeguard				

ENERGY SOURCE DIAGRAM
Indicate which energy sources are included in the energy source diagram. Insert diagram below
☐ ES ☐ PS ☐ MS ☐ TS ☐ RS See details in OVERVIEW OF ENERGY SOURCES AND SAFEGUARDS

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
4	**GENERAL REQUIREMENTS**		P
4.1.1	Acceptance of materials, components and subassemblies	(See appended table 4.1.2)	P
4.1.2	Use of components	Components which are certified to IEC and/or national standards are used correctly within their ratings. Components not covered by IEC standards are tested under the conditions present in the equipment. See also Annex G	P
4.1.3	Equipment design and construction	Equipment is adequately designed and constructed.	P
4.1.4	Specified ambient temperature for outdoor use (°C)..... :	Indoor use only	N/A
4.1.5	Constructions and components not specifically covered	No such constructions and components.	N/A
4.1.8	Liquids and liquid filled components (LFC)	No such parts.	N/A
4.1.15	Markings and instructions	(See Annex F)	P
4.4.3	Safeguard robustness	See below	P
4.4.3.1	General		P
4.4.3.2	Steady force tests	(See Clause T.4)	P
4.4.3.3	Drop tests	(See Annex T.7)	P
4.4.3.4	Impact tests		N/A
4.4.3.5	Internal accessible safeguard tests	No such parts.	N/A
4.4.3.6	Glass impact tests	No such glass used.	N/A
4.4.3.7	Glass fixation tests	No such parts.	N/A
	Glass impact test (1J)		N/A
	Push/pull test (10 N)		N/A
4.4.3.8	Thermoplastic material tests	(See Annex T.8)	P
4.4.3.9	Air comprising a safeguard		N/A
4.4.3.10	Accessibility, glass, safeguard effectiveness	After tests, no safeguard damaged.	P
4.4.4	Displacement of a safeguard by an insulating liquid	No such liquid.	N/A
4.4.5	Safety interlocks	No such parts.	N/A
4.5	**Explosion**		P
4.5.1	General		P
4.5.2	No explosion during normal/abnormal operating condition	(See Clause B.2, B.3)	P

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	No harm by explosion during single fault conditions	(See Clause B.4)	P
4.6	**Fixing of conductors**	See below	P
	Fix conductors not to defeat a safeguard		P
	Compliance is checked by test.....	(See Clause T.2)	P
4.7	**Equipment for direct insertion into mains socket–outlets**		N/A
4.7.2	Mains plug part complies with relevant standard...	Not direct plug-in equipment.	N/A
4.7.3	Torque (Nm).....		N/A
4.8	**Equipment containing coin/button cell batteries**		N/A
4.8.1	General	No coin/button cell batteries used.	N/A
4.8.2	Instructional safeguard.....		N/A
4.8.3	Battery compartment door/cover construction		N/A
	Open torque test		N/A
4.8.4.2	Stress relief test		N/A
4.8.4.3	Battery replacement test		N/A
4.8.4.4	Drop test		N/A
4.8.4.5	Impact test		N/A
4.8.4.6	Crush test		N/A
4.8.5	Compliance		N/A
	30N force test with test probe		N/A
	20N force test with test hook		N/A
4.9	**Likelihood of fire or shock due to entry of conductive object**		P
4.10	**Component requirements**		N/A
4.10.1	Disconnect Device		N/A
4.10.2	Switches and relays		N/A
5	**ELECTRICALLY-CAUSED INJURY**		P
5.2	**Classification and limits of electrical energy sources**		P
5.2.2	ES1, ES2 and ES3 limits	All internal circuits are considered to be ES1	P
5.2.2.2	Steady-state voltage and current limits.....	(See appended table 5.2)	P
5.2.2.3	Capacitance limits.....	No such capacitors	N/A
5.2.2.4	Single pulse limits.....	No such single pulses	N/A
5.2.2.5	Limits for repetitive pulses.....	No such repetitive pulses	N/A
5.2.2.6	Ringing signals	No such ringing signals	N/A
5.2.2.7	Audio signals		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
5.3	**Protection against electrical energy sources**		N/A
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons		N/A
5.3.1 a)	Accessible ES1/ES2 derived from ES2/ES3 circuits		N/A
5.3.1 b)	Skilled persons not unintentional contact ES3 bare conductors		N/A
5.3.2.1	Accessibility to electrical energy sources and safeguards	Only ES1 circuit	N/A
	Accessibility to outdoor equipment bare parts		N/A
5.3.2.2	Contact requirements		N/A
	Test with test probe from Annex V		—
5.3.2.2 a)	Air gap – electric strength test potential (V).....		N/A
5.3.2.2 b)	Air gap – distance (mm)		N/A
5.3.2.3	Compliance		N/A
5.3.2.4	Terminals for connecting stripped wire	No stripped wire used.	N/A
5.4	**Insulation materials and requirements**		P
5.4.1.2	Properties of insulating material	No insulation as a safeguard.	N/A
5.4.1.3	Material is non-hygroscopic		N/A
5.4.1.4	Maximum operating temperature for insulating materials.....	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6, B.3, B.4)	P
5.4.1.5	Pollution degrees.....		N/A
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling test		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses		N/A
5.4.1.8	Determination of working voltage.....		N/A
5.4.1.9	Insulating surfaces		N/A
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted		N/A
5.4.1.10.2	Vicat test.....		N/A
5.4.1.10.3	Ball pressure test.....		N/A
5.4.2	Clearances		N/A
5.4.2.1	General requirements		N/A
	Clearances in circuits connected to AC Mains, Alternative method		N/A
5.4.2.2	Procedure 1 for determining clearance		N/A
	Temporary overvoltage		—

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
5.4.2.3	Procedure 2 for determining clearance		N/A
5.4.2.3.2.2	a.c. mains transient voltage.....		—
5.4.2.3.2.3	d.c. mains transient voltage		—
5.4.2.3.2.4	External circuit transient voltage.....		—
5.4.2.3.2.5	Transient voltage determined by measurement.....		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test.....		N/A
5.4.2.5	Multiplication factors for clearances and test voltages.....		N/A
5.4.2.6	Clearance measurement.....		N/A
5.4.3	Creepage distances		N/A
5.4.3.1	General		N/A
5.4.3.3	Material group.....		—
5.4.3.4	Creepage distances measurement.....		N/A
5.4.4	Solid insulation		N/A
5.4.4.1	General requirements		N/A
5.4.4.2	Minimum distance through insulation		N/A
5.4.4.3	Insulating compound forming solid insulation		N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Insulating compound forming cemented joints		N/A
5.4.4.6	Thin sheet material		N/A
5.4.4.6.1	General requirements		N/A
5.4.4.6.2	Separable thin sheet material		N/A
	Number of layers (pcs).....		N/A
5.4.4.6.3	Non-separable thin sheet material		N/A
	Number of layers (pcs)		N/A
5.4.4.6.4	Standard test procedure for non-separable thin sheet material.....		N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components		N/A
5.4.4.9	Solid insulation at frequencies >30 kHz, E_P, K_R, d, V_{PW} (V).....		N/A
	Alternative by electric strength test, tested voltage (V), K_R.....		N/A
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
5.4.5.3	Insulation resistance (MΩ).....		N/A
	Electric strength test.....		N/A
5.4.6	Insulation of internal wire as part of supplementary safeguard		N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning		N/A
	Relative humidity (%), temperature (°C), duration (h).....		—
5.4.9	Electric strength test		N/A
5.4.9.1	Test procedure for type test of solid insulation.....		N/A
5.4.9.2	Test procedure for routine test		N/A
5.4.10	Safeguards against transient voltages from external circuits		N/A
5.4.10.1	Parts and circuits separated from external circuits		N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test.....		N/A
5.4.10.2.3	Steady-state test.....		N/A
5.4.10.3	Verification for insulation breakdown for impulse test.....		N/A
5.4.11	Separation between external circuits and earth		N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	SPDs bridge separation between external circuit and earth		N/A
	Rated operating voltage U_{op}(V).....		—
	Nominal voltage U_{peak}(V).....		—
	Max increase due to variation U_{sp}.....		—
	Max increase due to ageing U_{sa}.....		—
5.4.11.3	Test method and compliance.....		N/A
5.4.12	Insulating liquid		N/A
5.4.12.1	General requirements		N/A
5.4.12.2	Electric strength of an insulating liquid.....		N/A
5.4.12.3	Compatibility of an insulating liquid.....		N/A
5.4.12.4	Container for insulating liquid.....		N/A
5.5	**Components as safeguards**		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
5.5.1	General	No such components as safeguards.	N/A
5.5.2	Capacitors and RC units		N/A
5.5.2.1	General requirement		N/A
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector.....		N/A
5.5.3	Transformers		N/A
5.5.4	Optocouplers		N/A
5.5.5	Relays		N/A
5.5.6	Resistors		N/A
5.5.7	SPDs		N/A
5.5.8	Insulation between the mains and an external circuit consisting of a coaxial cable.....		N/A
5.5.9	Safeguards for socket-outlets in outdoor equipment		N/A
	RCD rated residual operating current (mA).....		—
5.6	**Protective conductor**		N/A
5.6.2	Requirement for protective conductors		N/A
5.6.2.1	General requirements	Class III equipment	N/A
5.6.2.2	Colour of insulation		N/A
5.6.3	Requirement for protective earthing conductors		N/A
	Protective earthing conductor size (mm^2)		—
	Protective earthing conductor serving as a reinforced safeguard		N/A
	Protective earthing conductor serving as a double safeguard		N/A
5.6.4	Requirements for protective bonding conductors		N/A
5.6.4.1	Protective bonding conductors		N/A
	Protective bonding conductor size (mm^2).....		—
5.6.4.2	Protective current rating (A).....		N/A
5.6.5	Terminals for protective conductors		N/A
5.6.5.1	Terminal size for connecting protective earthing conductors (mm).....		N/A
	Terminal size for connecting protective bonding conductors (mm).....		N/A
5.6.5.2	Corrosion		N/A
5.6.6	Resistance of the protective bonding system		N/A
5.6.6.1	Requirements		N/A
5.6.6.2	Test Method.....		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
5.6.6.3	Resistance (Ω) or voltage drop.....		N/A
5.6.7	Reliable connection of a protective earthing conductor		N/A
5.6.8	Functional earthing		N/A
	Conductor size (mm^2).....		N/A
	Class II with functional earthing marking		N/A
	Appliance inlet cl &cr (mm).....		N/A
5.7	**Prospective touch voltage, touch current and protective conductor current**		N/A
5.7.2	Measuring devices and networks		N/A
5.7.2.1	Measurement of touch current		N/A
5.7.2.2	Measurement of voltage		N/A
5.7.3	Equipment set-up, supply connections and earth connections		N/A
5.7.4	Unearthed accessible parts.....		N/A
5.7.5	Earthed accessible conductive parts.....		N/A
5.7.6	Requirements when touch current exceeds ES2 limits		N/A
	Protective conductor current (mA).....		N/A
	Instructional Safeguard.....		N/A
5.7.7	Prospective touch voltage and touch current associated with external circuits		N/A
5.7.7.1	Touch current from coaxial cables		N/A
5.7.7.2	Prospective touch voltage and touch current associated with paired conductor cables		N/A
5.7.8	Summation of touch currents from external circuits		N/A
	a) Equipment connected to earthed external circuits, current (mA).....		N/A
	b) Equipment connected to unearthed external circuits, current (mA).....		N/A
5.8	**Backfeed safeguard in battery backed up supplies**		N/A
	Mains terminal ES.....	No battery used	N/A
	Air gap (mm).....		N/A

6	**ELECTRICALLY- CAUSED FIRE**		P
6.2	**Classification of PS and PIS**		P
6.2.2	Power source circuit classifications.....	All internal and output circuits are considered to be PS1 circuits.	P
6.2.3	Classification of potential ignition sources		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
6.2.3.1	Arcing PIS	All internal circuits are not considered as arcing PIS. They are supplied by external power supply whose open voltage is less than 50V.	N/A
6.2.3.2	Resistive PIS		P
6.3	**Safeguards against fire under normal operating and abnormal operating conditions**		P
6.3.1	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials.....	(See appended table 5.4.1.5, 6.3.2, 9.0, B.2.6)	P
	Combustible materials outside fire enclosure.....		P
6.4	**Safeguards against fire under single fault conditions**		P
6.4.1	Safeguard method	Method by control of fire spread applied	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	Supplementary safeguards		N/A
6.4.3.2	Single Fault Conditions.....		N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits	PS1 circuits inside.	P
6.4.5	Control of fire spread in PS2 circuits		P
6.4.5.2	Supplementary safeguards		P
6.4.6	Control of fire spread in PS3 circuits		N/A
6.4.7	Separation of combustible materials from a PIS		N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers	V-0 fire enclosure used	P
6.4.8.2	Fire enclosure and fire barrier material properties	V-0 fire enclosure used	P
6.4.8.2.1	Requirements for a fire barrier		N/A
6.4.8.2.2	Requirements for a fire enclosure		N/A
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		N/A
6.4.8.3.1	Fire enclosure and fire barrier openings		N/A
6.4.8.3.2	Fire barrier dimensions		N/A
6.4.8.3.3	Top openings and properties		N/A
	Openings dimensions (mm).....		N/A
6.4.8.3.4	Bottom openings and properties		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Openings dimensions (mm).....		N/A
	Flammability tests for the bottom of a fire enclosure		N/A
	Instructional Safeguard.....		N/A
6.4.8.3.5	Side openings and properties		N/A
	Openings dimensions (mm).....		N/A
6.4.8.3.6	Integrity of a fire enclosure, condition met: a), b) or c).....		N/A
6.4.8.4	Separation of a PIS from a fire enclosure and a fire barrier distance (mm) or flammability rating.....		N/A
6.4.9	Flammability of insulating liquid.....		N/A
6.5	Internal and external wiring		P
6.5.1	General requirements		P
6.5.2	Requirements for interconnection to building wiring.....		N/A
6.5.3	Internal wiring size (mm2) for socket-outlets.....		N/A
6.6	Safeguards against fire due to the connection to additional equipment		P
7	**INJURY CAUSED BY HAZARDOUS SUBSTANCES**		P
7.2	**Reduction of exposure to hazardous substances**		N/A
7.3	**Ozone exposure**		N/A
7.4	**Use of personal safeguards or personal protective equipment (PPE)**		N/A
	Personal safeguards and instructions.....		—
7.5	**Use of instructional safeguards and instructions**		N/A
	Instructional safeguard (ISO 7010).....		—
7.6	**Batteries and their protection circuits**		P
8	**MECHANICALLY-CAUSED INJURY**		P
8.2	**Mechanical energy source classifications**		P
8.3	**Safeguards against mechanical energy sources**		P
8.4	**Safeguards against parts with sharp edges and corners**		P
8.4.1	Safeguards		P
	Instructional Safeguard.....:	MS1: Edges and corners of enclosure	P
8.4.2	Sharp edges or corners	Edges and corners of the enclosure are rounded.	P
8.5	**Safeguards against moving parts**		N/A
8.5.1	Fingers, jewellery, clothing, hair, etc., contact with MS2 or MS3 parts	No moving parts.	N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	MS2 or MS3 part required to be accessible for the function of the equipment	See above.	N/A
	Moving MS3 parts only accessible to skilled person		N/A
8.5.2	Instructional safeguard.....:		N/A
8.5.4	Special categories of equipment containing moving parts		N/A
8.5.4.1	General		N/A
8.5.4.2	Equipment containing work cells with MS3 parts		N/A
8.5.4.2.1	Protection of persons in the work cell		N/A
8.5.4.2.2	Access protection override		N/A
8.5.4.2.2.1	Override system		N/A
8.5.4.2.2.2	Visual indicator		N/A
8.5.4.2.3	Emergency stop system		N/A
	Maximum stopping distance from the point of activation (m).....:		N/A
	Space between end point and nearest fixed mechanical part (mm)..... :		N/A
8.5.4.2.4	Endurance requirements		N/A
	Mechanical system subjected to 100 000 cycles of operation		N/A
	- Mechanical function check and visual inspection		N/A
	- Cable assembly.....:		N/A
8.5.4.3	Equipment having electromechanical device for destruction of media		N/A
8.5.4.3.1	Equipment safeguards		N/A
8.5.4.3.2	Instructional safeguards against moving parts..... :		N/A
8.5.4.3.3	Disconnection from the supply		N/A
8.5.4.3.4	Cut type and test force (N)..... :		N/A
8.5.4.3.5	Compliance		N/A
8.5.5	High pressure lamps	No high pressure lamps used.	N/A
	Explosion test.....:		N/A
8.5.5.3	Glass particles dimensions (mm)..... :		N/A
8.6	**Stability of equipment**		N/A
8.6.1	General	MS1: Mass of the unit	N/A
	Instructional safeguard.....:		N/A
8.6.2	Static stability		N/A
8.6.2.2	Static stability test.....:		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
8.6.2.3	Downward force test		N/A
8.6.3	Relocation stability		N/A
	Wheels diameter (mm)..... :		—
	Tilt test		N/A
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test..... :		N/A
8.7	**Equipment mounted to wall, ceiling or other structure**		N/A
8.7.1	Mount means type.....:	No wall or ceiling	N/A
8.7.2	Test methods		N/A
	Test 1, additional downwards force (N)..... :		N/A
	Test 2, number of attachment points and test force (N).....:		N/A
	Test 3 Nominal diameter (mm) and applied torque (Nm)..... :		N/A
8.8	**Handles strength**		N/A
8.8.1	General	No handles	N/A
8.8.2	Handle strength test		N/A
	Number of handles.....:		—
	Force applied (N).....:		—
8.9	**Wheels or casters attachment requirements**		N/A
8.9.2	Pull test	No such parts	N/A
8.10	**Carts, stands and similar carriers**		N/A
8.10.1	General	No carts, stands or similar carriers	N/A
8.10.2	Marking and instructions.....:		N/A
8.10.3	Cart, stand or carrier loading test		N/A
	Loading force applied (N)..... :		N/A
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Force applied (N).....:		—
8.10.6	Thermoplastic temperature stability		N/A
8.11	**Mounting means for slide-rail mounted equipment (SRME)**		N/A
8.11.1	General	No such parts	N/A
8.11.2	Requirements for slide rails		N/A
	Instructional Safeguard.....:		N/A
8.11.3	Mechanical strength test		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
8.11.3.1	Downward force test, force (N) applied..... :		N/A
8.11.3.2	Lateral push force test		N/A
8.11.3.3	Integrity of slide rail end stops		N/A
8.11.4	Compliance		N/A
8.12	**Telescoping or rod antennas**		N/A
	Button/ball diameter (mm)..... :	No such parts	—
9	**THERMAL BURN INJURY**		P
9.2	**Thermal energy source classifications**		P
9.3	**Touch temperature limits**		P
9.3.1	Touch temperatures of accessible parts.....:	(See appended table 5.4.1.4, 9.3, B.1.5, B.2.6)	P
9.3.2	Test method and compliance	See B.1.6 & B.2.3	P
9.4	**Safeguards against thermal energy sources**		P
9.5	**Requirements for safeguards**		P
9.5.1	Equipment safeguard	Enclosure provided to limit the transfer of thermal energy of internal parts under normal operating conditions and abnormal operating conditions.	P
9.5.2	Instructional safeguard.....:	Instructional safeguard is not required.	N/A
9.6	**Requirements for wireless power transmitters**		N/A
9.6.1	General		N/A
9.6.2	Specification of the foreign objects		N/A
9.6.3	Test method and compliance.....:	(See appended table 9.6)	N/A
10	**RADIATION**		P
10.2	**Radiation energy source classification**		P
10.2.1	General classification	See below	P
	Lasers..... :		—
	Lamps and lamp systems.....:	RS1: LED (exempt group), See IEC/EN 62471 test report.	—
	Image projectors..... :		—
	X-Ray.....:		—
	Personal music player.....:		—
10.3	**Safeguards against laser radiation**		N/A
	The standard(s) equipment containing laser(s) comply.....:	No laser radiation	N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
10.4	**Safeguards against optical radiation from lamps and lamp systems (including LED types)**		P
10.4.1	General requirements	LED indication light: Classed as RS1 (Exempt Group)	P
	Instructional safeguard provided for accessible radiation level needs to exceed		N/A
	Risk group marking and location..... :		N/A
	Information for safe operation and installation		N/A
10.4.2	Requirements for enclosures		N/A
	UV radiation exposure..... :		N/A
10.4.3	Instructional safeguard.....:		N/A
10.5	**Safeguards against X-radiation**		N/A
10.5.1	Requirements	No X-radiation	N/A
	Instructional safeguard for skilled persons..... :		—
10.5.3	Maximum radiation (pA/kg)..... :		—
10.6	**Safeguards against acoustic energy sources**		N/A
10.6.1	General	No such equipment	N/A
10.6.2	Classification		N/A
	Acoustic output $L_{Aeq,T}$, dB(A)..... :		N/A
	Unweighted RMS output voltage (mV)..... :		N/A
	Digital output signal (dBFS).....:		N/A
10.6.3	Requirements for dose-based systems		N/A
10.6.3.1	General requirements		N/A
10.6.3.2	Dose-based warning and automatic decrease		N/A
10.6.3.3	Exposure-based warning and requirements		N/A
	30 s integrated exposure level (MEL30).....:		N/A
	Warning for MEL ≥ 100 dB(A).....:		N/A
10.6.4	Measurement methods		N/A
10.6.5	Protection of persons		N/A
	Instructional safeguards.....:		N/A
10.6.6	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.6.1	Corded listening devices with analogue input		N/A
	Listening device input voltage (mV).....:		N/A
10.6.6.2	Corded listening devices with digital input		N/A
	Max. acoustic output $L_{Aeq,T}$, dB(A)..... :		N/A
10.6.6.3	Cordless listening devices		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Max. acoustic output $L_{Aeq,T}$, dB(A)..... :		N/A
B	**NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS**		P
B.1	**General**		P
B.1.5	Temperature measurement conditions	(See appended table B.1.5)	P
B.2	**Normal operating conditions**		P
B.2.1	General requirements..... :	(See Test Item Particulars and appended test tables)	P
	Audio Amplifiers and equipment with audio amplifiers..... :		N/A
B.2.3	Supply voltage and tolerances	Rated input 5Vdc	P
B.2.5	Input test..... :	(See appended table B.2.5)	P
B.3	**Simulated abnormal operating conditions**		P
B.3.1	General	(See appended table B.3, B.4)	P
B.3.2	Covering of ventilation openings	No ventilation openings.	N/A
	Instructional safeguard..... :		N/A
B.3.3	DC mains polarity test	Not supplied by D.C. mains	N/A
B.3.4	Setting of voltage selector	No such selector	N/A
B.3.5	Maximum load at output terminals		N/A
B.3.6	Reverse battery polarity	No such battery	N/A
B.3.7	Audio amplifier abnormal operating conditions	No such audio amplifier	N/A
B.3.8	Safeguards functional during and after abnormal operating conditions..... :	All safeguards remained effective	P
B.4	**Simulated single fault conditions**		P
B.4.1	General		P
B.4.2	Temperature controlling device	(See appended table B.3, B.4)	P
B.4.3	Blocked motor test	(See appended table B.3, B.4)	P
B.4.4	Functional insulation	See below.	P
B.4.4.1	Short circuit of clearances for functional insulation	(See appended table B.3, B.4)	P
B.4.4.2	Short circuit of creepage distances for functional insulation	(See appended table B.3, B.4)	P
B.4.4.3	Short circuit of functional insulation on coated printed boards	No coated printed boards within the EUT	N/A
B.4.5	Short-circuit and interruption of electrodes in tubes and semiconductors	(See appended table B.3, B.4)	P
B.4.6	Short circuit or disconnection of passive components	(See appended table B.3, B.4)	P

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
B.4.7	Continuous operation of components	The EUT is continuous operating type and no such components intended for short time operation or intermittent operation	N/A
B.4.8	Compliance during and after single fault conditions..... :	(See appended table B.3, B.4)	P
B.4.9	Battery charging and discharging under single fault conditions	See annex M	P
C	**UV RADIATION**		N/A
C.1	**Protection of materials in equipment from UV radiation**		N/A
C.1.2	Requirements	No such UV generated from the equipment.	N/A
C.1.3	Test method		N/A
C.2	**UV light conditioning test**		N/A
C.2.1	Test apparatus..... :		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure test		N/A
C.2.4	Xenon-arc light-exposure test		N/A
D	**TEST GENERATORS**		N/A
D.1	**Impulse test generators**		N/A
D.2	**Antenna interface test generator**		N/A
D.3	**Electronic pulse generator**		N/A
E	**TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS**		N/A
E.1	**Electrical energy source classification for audio signals**		N/A
	Maximum non-clipped output power (W)..... :		—
	Rated load impedance (Ω) ..... :		—
	Open-circuit output voltage (V)..... :		—
	Instructional safeguard..... :		—
E.2	**Audio amplifier normal operating conditions**		N/A
	Audio signal source type..... :		—
	Audio output power (W)..... :		—
	Audio output voltage (V)..... :		—
	Rated load impedance (Ω) ..... :		—
	Requirements for temperature measurement		N/A
E.3	Audio amplifier abnormal operating conditions		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
F	**EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS**		P
F.1	**General**		P
	Language ..... :	English	—
F.2	**Letter symbols and graphical symbols**		P
F.2.1	Letter symbols according to IEC60027-1	Letter symbols for quantities and units are complied with IEC 60027-1.	P
F.2.2	Graphic symbols according to IEC, ISO or manufacturer specific	Graphical symbols are complied with IEC 60417, ISO 3864-2, ISO 7000 or ISO 7010.	P
F.3	**Equipment markings**		P
F.3.1	Equipment marking locations	The required marking is located on the enclosure of the equipment and is easily visible.	P
F.3.2	Equipment identification markings	See below for details.	P
F.3.2.1	Manufacturer identification ..... :	See copy of marking plate	P
F.3.2.2	Model identification ..... :	See copy of marking plate	P
F.3.3	Equipment rating markings	See below for details.	P
F.3.3.1	Equipment with direct connection to mains		N/A
F.3.3.2	Equipment without direct connection to mains	Rated input 5Vdc	P
F.3.3.3	Nature of the supply voltage..... :	See copy of marking plate.	P
F.3.3.4	Rated voltage..... :	See copy of marking plate.	P
F.3.3.5	Rated frequency..... :	DC supply	N/A
F.3.3.6	Rated current or rated power..... :	See copy of marking plate.	P
F.3.3.7	Equipment with multiple supply connections	Single supply connection.	N/A
F.3.4	Voltage setting device	No voltage setting device.	N/A
F.3.5	Terminals and operating devices		N/A
F.3.5.1	Mains appliance outlet and socket-outlet markings..... :		N/A
F.3.5.2	Switch position identification marking..... :		N/A
F.3.5.3	Replacement fuse identification and rating markings..... :		N/A
	Instructional safeguards for neutral fuse..... :		N/A
F.3.5.4	Replacement battery identification marking..... :	No such battery.	N/A
F.3.5.5	Neutral conductor terminal	No such parts.	N/A
F.3.5.6	Terminal marking location		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
F.3.6	Equipment markings related to equipment classification	Class III equipment	N/A
F.3.6.1	Class I equipment		N/A
F.3.6.1.1	Protective earthing conductor terminal.....:		N/A
F.3.6.1.2	Protective bonding conductor terminals .....:		N/A
F.3.6.2	Equipment class marking..... :		N/A
F.3.6.3	Functional earthing terminal marking..... :		N/A
F.3.7	Equipment IP rating marking.....:	This equipment is classified as IPX0.	—
F.3.8	External power supply output marking..... :	No such parts.	N/A
F.3.9	Durability, legibility and permanence of marking	Marking is considered to be legible and easily discernible. See also the following details.	P
F.3.10	Test for permanence of markings	The label was subjected to the permanence of marking test. The label was rubbed with cloth soaked with water for 15 sec. And then again for 15 sec, with the cloth soaked with petroleum spirit. After this test there was no damage to the label. The marking on the label did not fade. There was no curling and lifting of the label edge. After each test, the marking remained legible.	P
F.4	**Instructions**		P
	a) Information prior to installation and initial use	See user manual	P
	b) Equipment for use in locations where children not likely to be present		N/A
	c) Instructions for installation and interconnection		N/A
	d) Equipment intended for use only in restricted access area		N/A
	e) Equipment intended to be fastened in place		N/A
	f) Instructions for audio equipment terminals		N/A
	g) Protective earthing used as a safeguard		N/A
	h) Protective conductor current exceeding ES2 limits		N/A
	i) Graphic symbols used on equipment		N/A
	j) Permanently connected equipment not provided with all-pole mains switch		N/A
	k) Replaceable components or modules providing safeguard function		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	l) Equipment containing insulating liquid		N/A
	m) Installation instructions for outdoor equipment		N/A
F.5	Instructional safeguards		N/A
G	**COMPONENTS**		P
G.1	**Switches**		N/A
G.1.1	General	No switch used	N/A
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.1.3	Test method and compliance		N/A
G.2	**Relays**		N/A
G.2.1	Requirements	No relay used.	N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supplying power to other equipment		N/A
G.2.4	Test method and compliance		N/A
G.3	**Protective devices**		N/A
G.3.1	Thermal cut-offs	No such component	N/A
	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Test method and compliance		N/A
G.3.2	Thermal links	No such component	N/A
G.3.2.1	a) Thermal links tested separately according to IEC 60691 with specifics		N/A
	b) Thermal links tested as part of the equipment		N/A
G.3.2.2	Test method and compliance		N/A
G.3.3	PTC thermistors	No such component	N/A
G.3.4	Overcurrent protection devices	No such component	N/A
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.4		N/A
G.3.5.1	Non-resettable devices suitably rated and marking provided		N/A
G.3.5.2	Single faults conditions..... :		N/A
G.4	**Connectors**		N/A
G.4.1	Spacings	No such component	N/A
G.4.2	Mains connector configuration.....:		N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
G.5	**Wound components**		N/A
G.5.1	Wire insulation in wound components	No such component	N/A
G.5.1.2	Protection against mechanical stress		N/A
G.5.2	Endurance test		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Test time (days per cycle)..... :		—
	Test temperature (°C)..... :		—
G.5.2.3	Wound components supplied from the mains		N/A
G.5.2.4	No insulation breakdown		N/A
G.5.3	Transformers		N/A
G.5.3.1	Compliance method..... :		N/A
	Position..... :		N/A
	Method of protection..... :		N/A
G.5.3.2	Insulation		N/A
	Protection from displacement of windings..... :		—
G.5.3.3	Transformer overload tests		N/A
G.5.3.3.1	Test conditions		N/A
G.5.3.3.2	Winding temperatures		N/A
G.5.3.3.3	Winding temperatures - alternative test method		N/A
G.5.3.4	Transformers using FIW		N/A
G.5.3.4.1	General		N/A
	FIW wire nominal diameter..... :		—
G.5.3.4.2	Transformers with basic insulation only		N/A
G.5.3.4.3	Transformers with double insulation or reinforced insulation..... :		N/A
G.5.3.4.4	Transformers with FIW wound on metal or ferrite core		N/A
G.5.3.4.5	Thermal cycling test and compliance		N/A
G.5.3.4.6	Partial discharge test		N/A
G.5.3.4.7	Routine test		N/A
G.5.4	Motors	No motors used.	N/A
G.5.4.1	General requirements		N/A
G.5.4.2	Motor overload test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4.2	Locked-rotor overload test		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Test duration (days) ..... :		—
G.5.4.5	Running overload test for DC motors		N/A
G.5.4.5.2	Tested in the unit		N/A
G.5.4.5.3	Alternative method		N/A
G.5.4.6	Locked-rotor overload test for DC motors		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature .....:		N/A
G.5.4.6.3	Alternative method		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage ..... :		—
G.6	**Wire Insulation**		N/A
G.6.1	General	Only ES1 existed	N/A
G.6.2	Enamelled winding wire insulation		N/A
G.7	**Mains supply cords**		N/A
G.7.1	General requirements	No such component	N/A
	Type..... :		—
G.7.2	Cross sectional area (mm^2 or AWG)..... :		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords		N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A
	Strain relief test force (N).....:		N/A
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm).....:		N/A
G.7.3.2.4	Strain relief and cord anchorage material		N/A
G.7.4	Cord Entry		N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Test method and compliance		N/A
	Overall diameter or minor overall dimension, *D* (mm).....:		—
	Radius of curvature after test (mm)..... :		—
G.7.6	Supply wiring space		N/A
G.7.6.1	General requirements		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Requirements		N/A
G.7.6.2.2	Test with 8 mm strand		N/A
G.8	**Varistors**		N/A
G.8.1	General requirements	No such component	N/A
G.8.2	Safeguards against fire		N/A
G.8.2.1	General		N/A
G.8.2.2	Varistor overload test		N/A
G.8.2.3	Temporary overvoltage test		N/A
G.9	**Integrated circuit (IC) current limiters**		N/A
G.9.1	Requirements	No such component	N/A
	IC limiter output current (max. 5A)..... :		—
	Manufacturers' defined drift ..... :		—
G.9.2	Test Program		N/A
G.9.3	Compliance		N/A
G.10	**Resistors**		N/A
G.10.1	General	No such component	N/A
G.10.2	Conditioning		N/A
G.10.3	Resistor test		N/A
G.10.4	Voltage surge test		N/A
G.10.5	Impulse test		N/A
G.10.6	Overload test		N/A
G.11	**Capacitors and RC units**		N/A
G.11.1	General requirements	No such component	N/A
G.11.2	Conditioning of capacitors and RC units		N/A
G.11.3	Rules for selecting capacitors		N/A
G.12	**Optocouplers**		N/A
	Optocouplers comply with IEC 60747-5-5 with specifics	No such component	N/A
	Type test voltage $V_{ini,a}$..... :		—
	Routine test voltage, $V_{ini,b}$..... :		—
G.13	**Printed boards**		P
G.13.1	General requirements		P
G.13.2	Uncoated printed boards		P
G.13.3	Coated printed boards		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
G.13.4	Insulation between conductors on the same inner surface		N/A
G.13.5	Insulation between conductors on different surfaces		N/A
	Distance through insulation.....:		N/A
	Number of insulation layers (pcs).....:		—
G.13.6	Tests on coated printed boards		N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2	Test method and compliance		N/A
G.14	**Coating on components terminals**		N/A
G.14.1	Requirements .....:		N/A
G.15	**Pressurized liquid filled components**		N/A
G.15.1	Requirements	No such component	N/A
G.15.2	Test methods and compliance		N/A
G.15.2.1	Hydrostatic pressure test		N/A
G.15.2.2	Creep resistance test		N/A
G.15.2.3	Tubing and fittings compatibility test		N/A
G.15.2.4	Vibration test		N/A
G.15.2.5	Thermal cycling test		N/A
G.15.2.6	Force test		N/A
G.15.3	Compliance		N/A
G.16	**IC including capacitor discharge function (ICX)**		N/A
G.16.1	Condition for fault tested is not required	No such component	N/A
	ICX with associated circuitry tested in equipment		N/A
	ICX tested separately		N/A
G.16.2	Tests		N/A
	Smallest capacitance and smallest resistance specified by ICX manufacturer for impulse test.... :		—
	Mains voltage that impulses to be superimposed on.....:		—
	Largest capacitance and smallest resistance for ICX tested by itself for 10000 cycles test.....:		—
G.16.3	Capacitor discharge test.....:		N/A
H	**CRITERIA FOR TELEPHONE RINGING SIGNALS**		N/A
H.1	**General**		N/A
H.2	**Method A**		N/A
H.3	**Method B**		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
H.3.1	Ringing signal	No telephone ringing signal generated within the equipment.	N/A
H.3.1.1	Frequency (Hz) ..... :		—
H.3.1.2	Voltage (V) ..... :		—
H.3.1.3	Cadence; time (s) and voltage (V) ..... :		—
H.3.1.4	Single fault current (mA):..... :		—
H.3.2	Tripping device and monitoring voltage		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V)..... :		N/A
J	**INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION**		N/A
J.1	**General**		N/A
	Winding wire insulation..... :		—
	Solid round winding wire, diameter (mm)..... :		N/A
	Solid square and rectangular (flatwise bending) winding wire, cross-sectional area (mm^2)..... :		N/A
J.2/J.3	Tests and Manufacturing		—
K	**SAFETY INTERLOCKS**		N/A
K.1	**General requirements**		N/A
	Instructional safeguard..... :	No safety interlock provided within the equipment.	N/A
K.2	**Components of safety interlock safeguard mechanism**		N/A
K.3	**Inadvertent change of operating mode**		N/A
K.4	**Interlock safeguard override**		N/A
K.5	**Fail-safe**		N/A
K.5.1	Under single fault condition		N/A
K.6	**Mechanically operated safety interlocks**		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Test method and compliance..... :		N/A
K.7	**Interlock circuit isolation**		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements		N/A
	In circuit connected to mains, separation distance for contact gaps (mm)..... :		N/A
	In circuit isolated from mains, separation distance for contact gaps (mm)..... :		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Electric strength test before and after the test of K.7.2.....:		N/A
K.7.2	Overload test, Current (A)..... :		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test		N/A
L	**DISCONNECT DEVICES**		N/A
L.1	**General requirements**		N/A
L.2	**Permanently connected equipment**		N/A
L.3	**Parts that remain energized**		N/A
L.4	**Single-phase equipment**		N/A
L.5	**Three-phase equipment**		N/A
L.6	**Switches as disconnect devices**		N/A
L.7	**Plugs as disconnect devices**		N/A
L.8	**Multiple power sources**		N/A
	Instructional safeguard.....:		N/A
M	**EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS**		P
M.1	**General requirements**		P
M.2	**Safety of batteries and their cells**		P
M.2.1	Batteries and their cells comply with relevant IEC standards..... :	IEC 62133-2:2017 considered. See test report.	P
M.3	**Protection circuits for batteries provided within the equipment**		P
M.3.1	Requirements		P
M.3.2	Test method		P
	Overcharging of a rechargeable battery		P
	Excessive discharging		P
	Unintentional charging of a non-rechargeable battery	Rechargeable Li-ion battery used.	N/A
	Reverse charging of a rechargeable battery	The design of the connector prevents reverse polarity connections.	N/A
M.3.3	Compliance	(See appended table M.3)	P
M.4	**Additional safeguards for equipment containing a portable secondary lithium battery**		P
M.4.1	General		P
M.4.2	Charging safeguards		P
M.4.2.1	Requirements		P
M.4.2.2	Compliance.....:	(See appended table M.4.2)	P

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
M.4.3	Fire enclosure.....:	PS2 battery, fire enclosures or barriers required	P
M.4.4	Drop test of equipment containing a secondary lithium battery	(See appended table M.4.4)	P
M.4.4.2	Preparation and procedure for the drop test		P
M.4.4.3	Drop, Voltage on reference and dropped batteries (V); voltage difference during 24 h period (%): ....:	The voltage difference not exceed 5%.	P
M.4.4.4	Check of the charge/discharge function		P
M.4.4.5	Charge / discharge cycle test		P
M.4.4.6	Compliance		P
M.5	**Risk of burn due to short-circuit during carrying**		P
M.5.1	Requirement	No bare conductive terminal used	P
M.5.2	Test method and compliance		N/A
M.6	**Safeguards against short-circuits**		P
M.6.1	External and internal faults		N/A
M.6.2	Compliance	The battery complied with IEC 62133-2 which considered the internal fault tests. No such explosion or fire likely to result from short circuits.	P
M.7	**Risk of explosion from lead acid and NiCd batteries**		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
	Calculated hydrogen generation rate..... :		N/A
M.7.2	Test method and compliance		N/A
	Minimum air flow rate, Q (m^3/h).....:		N/A
M.7.3	Ventilation tests		N/A
M.7.3.1	General		N/A
M.7.3.2	Ventilation test – alternative 1		N/A
	Hydrogen gas concentration (%).....:		N/A
M.7.3.3	Ventilation test – alternative 2		N/A
	Obtained hydrogen generation rate.....:		N/A
M.7.3.4	Ventilation test – alternative 3		N/A
	Hydrogen gas concentration (%).....:		N/A
M.7.4	Marking.....:		N/A
M.8	**Protection against internal ignition from external spark sources of batteries with aqueous electrolyte**		N/A
M.8.1	General		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
M.8.2	Test method		N/A
M.8.2.1	General		N/A
M.8.2.2	Estimation of hypothetical volume V_Z (m^3/s)..... :		—
M.8.2.3	Correction factors..... :		—
M.8.2.4	Calculation of distance *d* (mm) .....:		—
M.9	**Preventing electrolyte spillage**		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse		N/A
	Instructional safeguard.....:		N/A
N	**ELECTROCHEMICAL POTENTIALS**		N/A
	Material(s) used..... :		—
O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		N/A
	Value of *X* (mm)..... :		—
P	**SAFEGUARDS AGAINST CONDUCTIVE OBJECTS**		N/A
P.1	**General**		N/A
P.2	**Safeguards against entry or consequences of entry of a foreign object**		N/A
P.2.1	General		N/A
P.2.2	Safeguards against entry of a foreign object		N/A
	Location and Dimensions (mm) .....:		—
P.2.3	Safeguards against the consequences of entry of a foreign object		N/A
P.2.3.1	Safeguard requirements		N/A
	The ES3 and PS3 keep-out volume in Figure P.3 not applicable to transportable equipment		N/A
	Transportable equipment with metalized plastic parts..... :		N/A
P.2.3.2	Consequence of entry test..... :		N/A
P.3	**Safeguards against spillage of internal liquids**		N/A
P.3.1	General	No such liquids.	N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Compliance		N/A
P.4	**Metallized coatings and adhesives securing parts**		N/A
P.4.1	General	No such construction.	N/A
P.4.2	Tests		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Conditioning, T_C (°C)..... :		—
	Duration (weeks)..... :		—
Q	**CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING**		P
Q.1	**Limited power sources**		P
Q.1.1	Requirements		P
	a) Inherently limited output		P
	b) Impedance limited output		N/A
	c) Regulating network limited output		N/A
	d) Overcurrent protective device limited output		N/A
	e) IC current limiter complying with G.9		N/A
Q.1.2	Test method and compliance..... :	(See appended table Q.1)	P
	Current rating of overcurrent protective device (A) ..... :		N/A
Q.2	**Test for external circuits – paired conductor cable**		N/A
	Maximum output current (A) ..... :		N/A
	Current limiting method..... :		—
R	**LIMITED SHORT CIRCUIT TEST**		N/A
R.1	**General**	No such consideration.	N/A
R.2	**Test setup**		N/A
	Overcurrent protective device for test..... :		—
R.3	**Test method**		N/A
	Cord/cable used for test..... :		—
R.4	**Compliance**		N/A
S	**TESTS FOR RESISTANCE TO HEAT AND FIRE**		N/A
S.1	**Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W**		N/A
	Samples, material..... :		—
	Wall thickness (mm)..... :		—
	Conditioning (°C)..... :		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A
S.2	**Flammability test for fire enclosure and fire barrier integrity**		N/A
	Samples, material..... :		—

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Wall thickness (mm)..... :		—
	Conditioning (°C)..... :		—
S.3	**Flammability test for the bottom of a fire enclosure**		N/A
S.3.1	Mounting of samples		N/A
S.3.2	Test method and compliance		N/A
	Mounting of samples ..... :		—
	Wall thickness (mm)..... :		—
S.4	**Flammability classification of materials**		N/A
S.5	**Flammability test for fire enclosure materials of equipment with a steady state power exceeding 4 000 W**		N/A
	Samples, material..... :		—
	Wall thickness (mm)..... :		—
	Conditioning (°C)..... :		—
T	**MECHANICAL STRENGTH TESTS**		P
T.1	**General**		P
T.2	**Steady force test, 10 N ..... :**	(See appended table T.2)	P
T.3	**Steady force test, 30 N ..... :**		N/A
T.4	**Steady force test, 100 N ..... :**		N/A
T.5	**Steady force test, 250 N ..... :**	(See appended table T.5)	P
T.6	**Enclosure impact test**	(See appended table T.6)	N/A
	Fall test		N/A
	Swing test		N/A
T.7	**Drop test ..... :**	(See appended table T.7)	P
T.8	**Stress relief test..... :**	(See appended table T.8)	P
T.9	**Glass Impact Test..... :**	No such glass	N/A
T.10	**Glass fragmentation test**		N/A
	Number of particles counted..... :	No such glass	N/A
T.11	**Test for telescoping or rod antennas**		N/A
	Torque value (Nm)..... :	No such antennas provided within the equipment.	N/A
U	**MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION**		N/A
U.1	**General**		N/A
	Instructional safeguard:	No CRT provided within the equipment.	N/A
U.2	**Test method and compliance for non-intrinsically protected CRTs**		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
U.3	**Protective screen**		N/A
V	**DETERMINATION OF ACCESSIBLE PARTS**		N/A
V.1	**Accessible parts of equipment**		N/A
V.1.1	General		N/A
V.1.2	Surfaces and openings tested with jointed test probes		N/A
V.1.3	Openings tested with straight unjointed test probes		N/A
V.1.4	Plugs, jacks, connectors tested with blunt probe		N/A
V.1.5	Slot openings tested with wedge probe		N/A
V.1.6	Terminals tested with rigid test wire		N/A
V.2	**Accessible part criterion**		N/A
X	**ALTERNATIVE METHOD FOR DETERMINING CLEARANCES FOR INSULATION IN CIRCUITS CONNECTED TO AN AC MAINS NOT EXCEEDING 420 V PEAK (300 V RMS)**		N/A
	Clearance..... :		N/A
Y	**CONSTRUCTION REQUIREMENTS FOR OUTDOOR ENCLOSURES**		N/A
Y.1	**General**	Indoor equipment	N/A
Y.2	**Resistance to UV radiation**		N/A
Y.3	**Resistance to corrosion**		N/A
Y.3	**Resistance to corrosion**		N/A
Y.3.1	Metallic parts of outdoor enclosures are resistant to effects of water-borne contaminants by.....:		N/A
Y.3.2	Test apparatus		N/A
Y.3.3	Water – saturated sulphur dioxide atmosphere		N/A
Y.3.4	Test procedure.....:		N/A
Y.3.5	Compliance		N/A
Y.4	**Gaskets**		N/A
Y.4.1	General		N/A
Y.4.2	Gasket tests		N/A
Y.4.3	Tensile strength and elongation tests		N/A
	Alternative test methods..... :		N/A
Y.4.4	Compression test		N/A
Y.4.5	Oil resistance		N/A
Y.4.6	Securing means		N/A
Y.5	**Protection of equipment within an outdoor enclosure**		N/A
Y.5.1	General		N/A
Y.5.2	Protection from moisture		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Relevant tests of IEC 60529 or Y.5.3..... :		N/A
Y.5.3	Water spray test		N/A
Y.5.4	Protection from plants and vermin		N/A
Y.5.5	Protection from excessive dust		N/A
Y.5.5.1	General		N/A
Y.5.5.2	IP5X equipment		N/A
Y.5.5.3	IP6X equipment		N/A
Y.6	**Mechanical strength of enclosures**		N/A
Y.6.1	General		N/A
Y.6.2	Impact test..... :		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

ATTACHMENT TO TEST REPORT

IEC 62368-1

EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

(Audio/video, information and communication technology equipment - Part 1: Safety requirements)

Differences according to.....: EN IEC 62368-1:2020+A11:2020

Attachment Form No..... : EU_GD_IEC62368_1E

Attachment Originator.....: UL(Demko)

Master Attachment.....: 2021-02-04

	CENELEC COMMON MODIFICATIONS (EN)		P
	Clause numbers in the cells that are shaded light grey are clause references in EN IEC 62368-1:2020+A11:2020. All other clause numbers in that column, except for those in the paragraph below, refers to IEC 62368-1:2018. Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2018 are prefixed “Z”.		P
	Add the following annexes: Annex ZA (normative)Normative references to international publications with their corresponding European publications Annex ZB (normative)Special national conditions Annex ZC (informative)A-deviations Annex ZD (informative)IEC and CENELEC code designations for flexible cords		P
1	**Modification to Clause 3.**		N/A
3.3.19	**Sound exposure** *Replace 3.3.19 of IEC 62368-1 with the following definitions:*		N/A
3.3.19.1	**momentary exposure level, MEL** metric for estimating 1 s sound exposure level from the HD 483-1 S2 test signal applied to both channels, based on EN 50332-1:2013, 4.2. Note 1 to entry: MEL is measured as A-weighted levels in dB. Note 2 to entry: See B.3 of EN 50332-3:2017 for additional information.	Not such equipment	N/A
3.3.19.3	**sound exposure, E** A-weighted sound pressure (p) squared and integrated over a stated period of time, T Note 1 to entry: The SI unit is Pa^2 s. $E = \int_0^T p(t)^2 \, dt$		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
3.3.19.4	**sound exposure level, SEL** logarithmic measure of sound exposure relative to a reference value, E_0, typically the 1 kHz threshold of hearing in humans. Note 1 to entry: *SEL* is measured as A-weighted levels in dB. $SEL = 10 \lg \left(\frac{E}{E_0}\right)$ dB Note 2 to entry: See B.4 of EN 50332-3:2017 for additional information.		N/A
3.3.19.5	**digital signal level relative to full scale, dBFS** levels reported in dBFS are always r.m.s. Full scale level, 0 dBFS, is the level of a dc-free 997-Hz sine wave whose undithered positive peak value is positive digital full scale, leaving the code corresponding to negative digital full scale unused Note 1 to entry: It is invalid to use dBFS for non-r.m.s. levels. Because the definition of full scale is based on a sine wave, the level of signals with a crest factor lower than that of a sine wave may exceed 0 dBFS. In particular, square wave signals may reach +3,01 dBFS.		N/A
2	**Modification to Clause 10**		N/A
10.6	**Safeguards against acoustic energy sources** Replace 10.6 of IEC 62368-1 with the following:		N/A
10.6.1.1	**Introduction** **Safeguard** requirements for protection against long-term exposure to excessive sound pressure levels from personal music players closely coupled to the ear are specified below. Requirements for earphones and headphones intended for use with personal music players are also covered. A personal music player is a portable equipment intended for use by an **ordinary person**, that: – is designed to allow the user to listen to audio or audiovisual content / material; and – uses a listening device, such as headphones or earphones that can be worn in or on or around the ears; and – has a player that can be body worn (of a size suitable to be carried in a clothing pocket) and is intended for the user to walk around with while in continuous use (for example, on a street, in a subway, at an airport, etc.). EXAMPLES Portable CD players, MP3 audio players, mobile phones with MP3 type features, PDAs or similar equipment. Personal music players shall comply with the requirements of either 10.6.2 or 10.6.3.	Not such equipment	N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	NOTE 1 Protection against acoustic energy sources from telecom applications is referenced to ITU-T P.360. NOTE 2 It is the intention of the Committee to allow the alternative methods for now, but to only use the dose measurement method as given in 10.6.5 in future. Therefore, manufacturers are encouraged to implement 10.6.5 as soon as possible. Listening devices sold separately shall comply with the requirements of 10.6.6. These requirements are valid for music or video mode only. The requirements do not apply to: – professional equipment; NOTE 3Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment. – hearing aid equipment and other devices for assistive listening; – the following type of analogue personal music players: • long distance radio receiver (for example, a multiband radio receiver or world band radio receiver, an AM radio receiver), and • cassette player/recorder; NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies. – a player while connected to an external amplifier that does not allow the user to walk around while in use. For equipment that is clearly designed or intended primarily for use by children, the limits of the relevant toy standards may apply. The relevant requirements are given in EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.		
10.6.1.2	**Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz** The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz). For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body mounted devices, attention is drawn to EN 50360 and EN 50566.		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
10.6.2	**Classification of devices without the capacity to estimate sound dose**		N/A
10.6.2.1	**General** This standard is transitioning from short-term based (30 s) requirements to long-term based (40 hour) requirements. These clauses remain in effect only for devices that do not comply with sound dose estimation as stipulated in EN 50332-3. For classifying the acoustic output $L_{Aeq,T}$, measurements are based on the A-weighted equivalent sound pressure level over a 30 s period. For music where the average sound pressure (long term $L_{Aeq,T}$) measured over the duration of the song is lower than the average produced by the programme simulation noise, measurements may be done over the duration of the complete song. In this case, T becomes the duration of the song. NOTE Classical music, acoustic music and broadcast typically has an average sound pressure (long term $L_{Aeq,T}$) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the content and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song does not exceed the required limit. For example, if the player is set with the programme simulation noise to 85 dB, but the average music level of the song is only 65 dB, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dB.	Not such equipment	N/A
10.6.2.2	**RS1 limits (to be superseded, see 10.6.3.2)** RS1 is a class 1 acoustic energy source that does not exceed the following: – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the $L_{Aeq,T}$ acoustic output shall be ≤ 85 dB when playing the fixed "programme simulation noise" described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 27 mV (analogue interface) or -25 dBFS (digital interface) when playing the fixed "programme simulation noise" described in EN 50332-1. – The RS1 limits will be updated for all devices as per 10.6.3.2.		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
10.6.2.3	**RS2 limits (to be superseded, see 10.6.3.3)** RS2 is a class 2 acoustic energy source that does not exceed the following: – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or when the combination of player and listening device is known by other means such as setting or automatic 130 detection, the $L_{Aeq,T}$ acoustic output shall be ≤ 100 dB(A) when playing the fixed "programme simulation noise" as described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 150 mV (analogue interface) or -10 dBFS (digital interface) when playing the fixed "programme simulation noise" as described in EN 50332-1.		N/A
10.6.2.4	**RS3 limits** RS3 is a class 3 acoustic energy source that exceeds RS2 limits.		N/A
10.6.3	**Classification of devices (new)**		N/A
10.6.3.1	**General** Previous limits (10.6.2) created abundant false negative and false positive PMP sound level warnings. New limits, compliant with The Commission Decision of 23 June 2009, are given below.	Not such equipment	N/A
10.6.3.2	**RS1 limits (new)** RS1 is a class 1 acoustic energy source that does not exceed the following: – for equipment provided as a package (player with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the $L_{Aeq,T}$ acoustic output shall be ≤ 80 dB when playing the fixed "programme simulation noise" described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output voltage shall be ≤ 15 mV (analogue interface) or -30 dBFS (digital interface) when playing the fixed "programme simulation noise" described in EN 50332-1.		N/A
10.6.3.3	**RS2 limits (new)** RS2 is a class 2 acoustic energy source that does not exceed the following: – for equipment provided as a package (player		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	with its listening device), and with a proprietary connector between the player and its listening device, or where the combination of player and listening device is known by other means such as setting or automatic detection, the weekly sound exposure level, as described in EN 50332-3, shall be ≤ 80 dB when playing the fixed "programme simulation noise" described in EN 50332-1. – for equipment provided with a standardized connector (for example, a 3,5 phone jack) that allows connection to a listening device for general use, the unweighted r.m.s. output level, integrated over one week, as described in EN50332-3, shall be ≤ 15 mV (analogue interface) or -30 dBFS (digital interface) when playing the fixed "programme simulation noise" described in EN 50332-1.		
10.6.4	**Requirements for maximum sound exposure**		N/A
10.6.4.1	**Measurement methods** All volume controls shall be turned to maximum during tests. Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable.	Not such equipment	N/A
10.6.4.2	**Protection of persons** Except as given below, protection requirements for parts **accessible** to **ordinary persons**, **instructed persons** and **skilled persons** are given in 4.3. NOTE 1 Volume control is not considered a **safeguard.** Between RS2 and an **ordinary person**, the **basic safeguard** may be replaced by an **instructional safeguard** in accordance with Clause F.5, except that the **instructional safeguard** shall be placed on the equipment, or on the packaging, or in the instruction manual. Alternatively, the **instructional safeguard** may be given through the equipment display during use. The elements of the **instructional safeguard** shall be as follows: – element 1a: the symbol  , IEC 60417-6044 (2011-01) – element 2: "High sound pressure" or equivalent wording – element 3: "Hearing damage risk" or equivalent wording – element 4: "Do not listen at high volume levels for long periods." or equivalent wording An **equipment safeguard** shall prevent exposure		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	of an **ordinary person** to an RS2 source without intentional physical action from the **ordinary person** and shall automatically return to an output level not exceeding what is specified for an RS1 source when the power is switched off. The equipment shall provide a means to actively inform the user of the increased sound level when the equipment is operated with an output exceeding RS1. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an output exceeding RS1. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time. NOTE 2 Examples of means include visual or audible signals. Action from the user is always needed. NOTE 3 The 20 h listening time is the accumulative listening time, independent of how often and how long the personal music player has been switched off. A **skilled person** shall not be unintentionally exposed to RS3.		
10.6.5	**Requirements for dose-based systems**		N/A
10.6.5.1	**General requirements** Personal music players shall give the warnings as provided below when tested according to EN 50332-3, using the limits from this clause. The manufacturer may offer optional settings to allow the users to modify when and how they wish to receive the notifications and warnings to promote a better user experience without defeating the safeguards. This allows the users to be informed in a method that best meets their physical capabilities and device usage needs. If such optional settings are offered, an administrator (for example, parental restrictions, business/educational administrators, etc.) shall be able to lock any optional settings into a specific configuration. The personal music player shall be supplied with easy to understand explanation to the user of the dose management system, the risks involved, and how to use the system safely. The user shall be made aware that other sources may significantly contribute to their sound exposure, for example work, transportation, concerts, clubs, cinema, car races, etc.	Not such equipment	N/A
10.6.5.2	**Dose-based warning and requirements** When a dose of 100 % *CSD* is reached, and at least at every 100 % further increase of *CSD*, the device shall warn the user and require an		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	acknowledgement. In case the user does not acknowledge, the output level shall automatically decrease to compliance with class RS1. The warning shall at least clearly indicate that listening above 100 % *CSD* leads to the risk of hearing damage or loss.		
10.6.5.3	**Exposure-based requirements** With only dose-based requirements, cause and effect could be far separated in time, defying the purpose of educating users about safe listening practice. In addition to dose-based requirements, a PMP shall therefore also put a limit to the short-term sound level a user can listen at. The exposure-based limiter (EL) shall automatically reduce the sound level not to exceed 100 dB(A) or 150 mV integrated over the past 180 s, based on methodology defined in EN 50332-3. The EL settling time (time from starting level reduction to reaching target output) shall be 10 s or faster. Test of EL functionality is conducted according to EN 50332-3, using the limits from this clause. For equipment provided as a package (player with its listening device), the level integrated over 180 s shall be 100 dB or lower. For equipment provided with a standardized connector, the unweighted level integrated over 180 s shall be no more than 150 mV for an analogue interface and no more than -10 dBFS for a digital interface. NOTE In case the source is known not to be music (or test signal), the EL may be disabled.		N/A
10.6.6	**Requirements for listening devices (headphones, earphones, etc.)**		N/A
10.6.6.1	**Corded listening devices with analogue input** With 94 dB L_{Aeq} acoustic pressure output of the listening device, and with the volume and sound settings in the listening device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the input voltage of the listening device when playing the fixed “programme simulation noise” as described in EN 50332-1 shall be ≥ 75 mV. NOTE The values of 94 dB and 75 mV correspond with 85 dB and 27 mV or 100 dB and 150 mV.	Not such equipment	N/A
10.6.6.2	**Corded listening devices with digital input** With any playing device playing the fixed “programme simulation noise” described in EN 50332-1, and with the volume and sound settings in the listening device (for example, built-in volume		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output, the $L_{Aeq,T}$ acoustic output of the listening device shall be ≤ 100 dB with an input signal of -10 dBFS.		
10.6.6.3	**Cordless listening devices** In cordless mode, – with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and – respecting the cordless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and – with volume and sound settings in the receiving device (for example, built-in volume level control, additional sound features like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the above mentioned programme simulation noise, the $L_{Aeq,T}$ acoustic output of the listening device shall be ≤ 100 dB with an input signal of -10 dBFS.		N/A
10.6.6.4	**Measurement method** *Measurements shall be made in accordance with EN 50332-2 as applicable.*		N/A
3	**Modification to the whole document**		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

Delete all the "country" notes in the reference document according to the following list: N/A

0.2.1	Note 1 and 2	1	Note 4 and 5	3.3.8.1	Note 2
3.3.8.3	Note 1	4.1.15	Note	4.7.3	Note 1 and 2
5.2.2.2	Note	5.4.2.3.2.2 Table 12	Note c	5.4.2.3.2.4	Note 1 and 3
5.4.2.3.2.4 Table 13	Note 2	5.4.2.5	Note 2	5.4.5.1	Note
5.4.10.2.1	Note	5.4.10.2.2	Note	5.4.10.2.3	Note
5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3 and 4
5.6.8	Note 2	5.7.6	Note	5.7.7.1	Note 1 and Note 2
8.5.4.2.3	Note	10.2.1 Table 39	Note 3 and 4 and 5	10.5.3	Note 2
~~10.6.1~~	Note 3	F.3.3.6	Note 3	Y.4.1	Note
Y.4.5	Note				

4	**Modification to Clause 1**		N/A
1	**Add** the following note: *NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.*		N/A
5	**Modification to 4.Z1**		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
4.Z1	**Add** the following new subclause after 4.9: To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. **mains**, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for **pluggable equipment type B** or **permanently connected equipment**, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for **pluggable equipment type A** the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.	Not directly connected to the mains	N/A
6	**Modification to 5.4.2.3.2.4**		N/A
5.4.2.3.2.4	**Add** the following to the end of this subclause: The requirement for interconnection with **external circuit** is in addition given in EN 50491-3:2009.	No connection to external circuit.	N/A
7	**Modification to 10.2.1**		N/A
10.2.1	**Add** the following to c) and d) in table 39: For additional requirements, see 10.5.1.	No such radiation from the equipment.	N/A
8	**Modification to 10.5.1**		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
10.5.1	**Add** the following after the first paragraph: For RS 1 compliance is checked by measurement under the following conditions: In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or pre-sets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made. NOTE Z1 Soldered joints and paint lockings are examples of adequate locking. The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus. Moreover, the measurement shall be made under fault conditions causing an increase of the high voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made. For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level. NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.		N/A
9	**Modification to G.7.1**		N/A
G.7.1	**Add** the following note: NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.		N/A
10	**Modification to Bibliography**		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Add the following notes for the standards indicated: IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1. IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4. IEC 60664-5 NOTE Harmonized as EN 60664-5. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61508-1 NOTE Harmonized as EN 61508-1. IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1. IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4. IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6. IEC 61643-1 NOTE Harmonized as EN 61643-1. IEC 61643-21 NOTE Harmonized as EN 61643-21. IEC 61643-311 NOTE Harmonized as EN 61643-311. IEC 61643-321 NOTE Harmonized as EN 61643-321. IEC 61643-331 NOTE Harmonized as EN 61643-331.		N/A
11	**ADDITION OF ANNEXES**		N/A
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		N/A
4.1.15	**Denmark, Finland, Norway** and **Sweden** To the end of the subclause the following is added: **Class I pluggable equipment type A** intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and **accessible** parts, have a marking stating that the equipment shall be connected to an earthed **mains** socket-outlet. The marking text in the applicable countries shall be as follows: In **Denmark**: “Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord.” In **Finland**: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In **Norway**: “Apparatet må tilkoples jordet stikkontakt” In **Sweden**: “Apparaten skall anslutas till jordat uttag”	Not directly connected to the mains	N/A
4.7.3	**United Kingdom** To the end of the subclause the following is added: The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
5.2.2.2	**Denmark** After the 2nd paragraph add the following: A warning (marking safeguard) for high touch current is required if the touch current exceeds the limits of 3,5 mA a.c. or 10 mA d.c.	No high touch current measured.	N/A
5.4.11.1 and Annex G	**Finland and Sweden** To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5 kV. It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: • the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3	No such external circuits.	N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	testing, is tested with an impulse test of 2,5 kV defined in 5.4.11; • the additional testing shall be performed on all the test specimens as described in EN 60384-14; the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.		
5.5.2.1	**Norway** After the 3rd paragraph the following is added: Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A
5.5.6	**Finland, Norway** and **Sweden** To the end of the subclause the following is added: Resistors used as **basic safeguard** or bridging **basic insulation** in **class I pluggable equipment type A** shall comply with G.10.1 and the test of G.10.2.	No such resistors.	N/A
5.6.1	**Denmark** **Add** to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. *Justification:* In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.	No such equipment.	N/A
5.6.4.2.1	**Ireland and United Kingdom** After the indent for **pluggable equipment type A**, the following is added: – the **protective current rating** is taken to be 13 A, this being the largest rating of fuse used in the **mains** plug.		N/A
5.6.4.2.1	**France** After the indent for **pluggable equipment type A**, the following is added: – in certain cases, the **protective current rating** of the circuit supplied from the mains is taken as 20 A instead of 16 A.		N/A
5.6.5.1	To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm^2 to 1,5 mm^2 in cross-sectional area.		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
5.6.8	**Norway** To the end of the subclause the following is added: Equipment connected with an earthed mains plug is classified as **class I equipment**. See the Norway marking requirement in 4.1.15. The symbol IEC 60417-6092, as specified in F.3.6.2, is accepted.		N/A
5.7.6	**Denmark** To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if the **protective conductor current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A
5.7.6.2	**Denmark** To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .		N/A
5.7.7.1	**Norway and Sweden** To the end of the subclause the following is added: The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system. It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: “Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)” NOTE In Norway, due to regulation for CATV-installations, and	Not such system.	N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): “Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet.” Translation to Swedish: ”Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”		
8.5.4.2.3	**United Kingdom** Add the following after the 2nd dash bullet in 3rd paragraph: An emergency stop system complying with the requirements of IEC 60204-1 and ISO 13850 is required where there is a risk of personal injury.	No external circuits.	N/A
B.3.1 and B.4	**Ireland and United Kingdom** The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of **direct plug-in equipment**, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the **direct plug-in equipment**, until the requirements of Annexes B.3.1 and B.4 are met	Not directly connected to the mains	N/A
G.4.2	**Denmark** To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring	Not directly connected to the mains	N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
	rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a polyphase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a *Justification:* Heavy Current Regulations, Section 6c		
G.4.2	**United Kingdom** To the end of the subclause the following is added: The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.	Not directly connected to the mains	N/A
G.7.1	**United Kingdom** To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc. (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict
G.7.1	**Ireland** To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard		N/A
G.7.2	**Ireland and United Kingdom** To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm^2 is allowed for equipment which is rated over 10 A and up to and including 13 A.		N/A
ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		N/A
10.5.2	**Germany** The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking. *Justification*: German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM. **NOTE** Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int+49-531-592-6320, Internet: http://www.ptb.de	No CRT within the equipment.	N/A
ZD	**IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS (EN)**		P

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

P

Type of flexible cord	Code designations	
	IEC	CENELEC
PVC insulated cords		
Flat twin tinsel cord	60227 IEC 41	H03VH-Y
Light polyvinyl chloride sheathed flexible cord	60227 IEC 52	H03VV-F H03VVH2-F
Ordinary polyvinyl chloride sheathed flexible cord	60227 IEC 53	H05VV-F H05VVH2-F
Rubber insulated cords		
Braided cord	60245 IEC 51	H03RT-F
Ordinary tough rubber sheathed flexible cord	60245 IEC 53	H05RR-F
Ordinary polychloroprene sheathed flexible cord	60245 IEC 57	H05RN-F
Heavy polychloroprene sheathed flexible cord	60245 IEC 66	H07RN-F
Cords having high flexibility		
Rubber insulated and sheathed cord	60245 IEC 86	H03RR-H
Rubber insulated, crosslinked PVC sheathed cord	60245 IEC 87	H03RV4-H
Crosslinked PVC insulated and sheathed cord	60245 IEC 88	H03V4V4-H
Cords insulated and sheathed with halogen-free thermoplastic compounds		
Light halogen-free thermoplastic insulated and sheathed flexible cords		H03Z1Z1-F H03Z1Z1H2-F
Ordinary halogen-free thermoplastic insulated and sheathed flexible cords		H05Z1Z1-F H05Z1Z1H2-F

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

5.2	TABLE: Classification of electrical energy sources						P
Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters				ES Class
			U (V)	I (mA)	Type[1)]	Additional Info [2)]	
5.0Vdc	The EUT is designed to be supplied by USB type-C port	Normal	<60Vdc	--	SS	DC	ES1 (declare)
		Abnormal	--	--	--	--	
		Single fault – SC/OC	--	--	--	--	
5.0Vdc	The EUT is designed to be supplied by Internal Li-ion battery	Normal	<60Vdc	--	SS	DC	ES1 (declare)
		Abnormal	--	--	--	--	
		Single fault – SC/OC	--	--	--	--	
3.7Vdc	USB-A Output	Normal	5.08Vdc	--	SS	DC	ES1
		Abnormal	5.08Vdc	--	SS	DC	
		Single fault – SC Q2	0	--	SS	DC	
		Single fault – SC Q3	0	--	SS	DC	
3.7Vdc	Type-C Output	Normal	5.07Vdc	--	SS	DC	ES1
		Abnormal	5.07Vdc	--	SS	DC	
		Single fault – SC Q2	0	--	SS	DC	
		Single fault – SC Q3	0	--	SS	DC	
Supplementary information:							
1) Type: Steady state (SS), Capacitance (CP), Single pulse (SP), Repetitive pulses (RP), etc. 2) Additional Info: Frequency, Pulse duration, Pulse off time, Capacitance value, etc. 3) Test Conditions: Normal –Full load and no load. Abnormal - Overload output SC= short circuit; OC= open circuit							

5.4.1.8	TABLE: Working voltage measurement			N/A
Location	RMS voltage (V)	Peak voltage (V)	Frequency (Hz)	Comments
--	--	--	--	--
--	---	--	--	--
Supplementary information:				

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics			N/A
Method..... :		ISO 306 / B50		—
Object/ Part No./Material	Manufacturer/trademark	Thickness (mm)	T softening (°C)	
--	--	--	--	
Supplementary information:				

5.4.1.10.3	TABLE: Ball pressure test of thermoplastics				N/A
Allowed impression diameter (mm)..... :		≤ 2 mm			—
Object/Part No./Material	Manufacturer/trademark	Thickness (mm)	Test temperature (°C)	Impression diameter (mm)	
--	--	--	--	--	
Supplementary information:					

5.4.2, 5.4.3	TABLE: Minimum Clearances/Creepage distance							N/A
Clearance (cl) and creepage distance (cr) at/of/between:	U_p (V)	U_{rms} (V)	Freq[1] (kHz)	Required cl (mm)	cl (mm)	E.S.[2] (V)	Required cr (mm)	cr (mm)
--	--	--	--	--	--	--	--	--
Supplementary information:								
1) Only for frequency above 30 kHz 2) Complete Electric Strength voltage (E.S. (V) when 5.4.2.4 applied)								

5.4.4.2	TABLE: Minimum distance through insulation				N/A
Distance through insulation (DTI) at/of	Peak voltage (V)	Insulation*	Required DTI (mm)	Measured DTI (mm)	
--	--	--	--	--	
Supplementary information:					
*See also sub-clause 5.4.4.9					

5.4.4.9	TABLE: Solid insulation at frequencies >30 kHz						N/A
Insulation material	E_P	Frequency (kHz)	K_R	Thickness d (mm)	Insulation	V_{PW} (Vpk)	
--	--	--	--	--	--	--	
Supplementary information:							

5.4.9	TABLE: Electric strength tests	N/A

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

Test voltage applied between:	Voltage shape (Surge, Impulse, AC, DC, etc.)	Test voltage (V)	Breakdown Yes / No
Functional:			
--	--	--	--
Basic/supplementary:			
--	--	--	--
Reinforced:			
--	--	--	--
Routine Tests:			
--	--	--	--
Supplementary information:			

5.5.2.2	TABLE: Stored discharge on capacitors				N/A
Location	Supply voltage (V)	Operating and fault condition [1)]	Switch position	Measured voltage (Vpk)	ES Class
--	--	Normal	--	--	--
--	--	Single fault: SC/ OC	--	--	--
Supplementary information:					
X-capacitors installed for testing are: [ ] bleeding resistor rating: [ ] ICX: 1) Normal operating condition (e.g., normal operation, or open fuse), SC= short circuit, OC= open circuit					

5.6.6	TABLE: Resistance of protective conductors and terminations			N/A
Location	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)
--	--	--	--	--
Supplementary information:				

5.7.4	TABLE: Unearthed accessible parts					N/A
Location	Operating and fault conditions	Supply Voltage (V)	Parameters			ES class
			Voltage (V_{rms} or V_{pk})	Current (A_{rms} or A_{pk})	Freq. (Hz)	
--	Normal	--	--	--	--	--
	Abnormal: overload	--	--	--	--	--

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

	Single fault: SC/OC	--	--	--	--	--
Supplementary information:						
SC= short circuit; OC= open circuit						

5.7.5	TABLE: Earthed accessible conductive part			N/A
Supply voltage (V)..... :	--			—
Phase(s) ..... :	[ ] Single Phase; [ ] Three Phase: [ ] Delta [ ] Wye			
Power Distribution System ..... :	[ ] TN [ ]TT [ ] IT			
Location	Fault Condition No in IEC 60990 clause 6.2.2	Touch current (mA)	Comment	
--	--	--	--	
Supplementary Information:				

5.8	TABLE: Backfeed safeguard in battery backed up supplies					N/A
Location	Supply voltage (V)	Operating and fault condition	Time (s)	Open-circuit voltage (V)	Touch current (A)	ES Class
--	--	--	--	--	--	--
Supplementary information:						

6.2.2	TABLE: Power source circuit classifications					P
Location	Operating and fault condition	Voltage (V)	Current (A)	Max. Power[1)] (W)	Time (S)	PS class
Type-C Input	Normal	5.02	0.88	4.41	3s	PS1
Battery Output	Normal / Abnormal	3.0	5.8	17.4	5s	PS2
Battery Output	Single fault – SC U1 pin 10-15	0	0	0	3s	PS1
Battery Output	Single fault – SC U1 pin 16-15	0	0	0	3s	PS1
Type-C output	normal	4.97	1.3	6.5	3s	PS1
Type-C output	Single fault – SC Q2	0	0	0	3s	PS1
Type-C output	Single fault – SC Q3	0	0	0	3s	PS1
USB-A output	normal	4.97	1.3	6.5	3s	PS1
USB-A output	Single fault – SC Q2	0	0	0	3s	PS1

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

USB-A output	Single fault – SC Q3	0	0	0	3s	PS1
Supplementary information:						
1) Measured after 3 s for PS1 and measured after 5 s for PS2 and PS3.						

6.2.3.1	TABLE: Determination of Arcing PIS				N/A
Location		Open circuit voltage after 3 s (Vpk)	Measured r.m.s current (A)	Calculated value	Arcing PIS? Yes / No
--		--	--	--	--
Supplementary information:					
--					

6.2.3.2	TABLE: Determination of resistive PIS			P
Location		Operating and fault condition	Dissipate power (W)	Arcing PIS? Yes / No
--		--	--	--
Supplementary information:				
Supplementary Information: All circuits are considered as resistive PIS; A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter. If a separate voltmeter and ammeter are used, the product of (VA x IA) is used to determine Resistive PIS classification. A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation, or (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits, regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault. All conductors and devices are considered as PIS.				

8.5.5	TABLE: High pressure lamp				N/A
Lamp manufacturer		Lamp type	Explosion method	Longest axis of glass particle (mm)	Particle found beyond 1 m Yes / No
--		--	--	--	--
Supplementary information:					

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

9.6	TABLE: Temperature measurements for wireless power transmitters								N/A
Supply voltage (V).....:	--								—
Max. transmit power of transmitter (W)..... :	--								—
	w/o receiver and direct contact		with receiver and direct contact		with receiver and at distance of 2 mm		with receiver and at distance of 5 mm		
Foreign objects	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	Object (°C)	Ambient (°C)	
Steel disc	--	--	--	--	--	--	--	--	
Aluminium ring	--	--	--	--	--	--	--	--	
Aluminium foil	--	--	--	--	--	--	--	--	
Supplementary information:									

5.4.1.4, 9.3, B.1.5, B.2.6	TABLE: Temperature measurements					P
Supply voltage (V).....:	5Vdc (1)	3.7Vdc (2)	--	--	—	
Ambient temperature during test T_{amb} (°C).....:	See below	See below	--	--	—	
Maximum measured temperature T of part/at:	T (°C)				Allowed T_{max} (°C)	
PCB near U1	95.9	96.3	--	--	105.0	
PCB near U2	89.2	84.5	--	--	105.0	
L1	82.0	98.5	--	--	130.0	
Battery Body	47.2	59.9	--	--	Ref.	
Enclosure inside Top near Battery	47.1	47.1	--	--	60.0	
Enclosure inside Bottom near Battery	45.3	45.3	--	--	60.0	
Battery Wire	57.4	57.4	--	--	70.0	
Enclosure inside near motor	44.2	44.2	--	--	60.0	
Ambient	40.0	40.0	--	--	--	
Button	44.4	44.4	--	--	48	
Enclosure Outside Top near Battery	31.1	31.1	--	--	48	
Enclosure Outside Bottom near Battery	29.3	29.3	--	--	48	
Ambient	25.0	25.0	--	--	--	

Temperature T of winding:	t_1 (°C)	R_1 (Ω)	t_2 (°C)	R_2 (Ω)	T (°C)	Allowed T_{max} (°C)	Insulation class
--	--	--	--	--	--	--	--

Supplementary information:

* Temperature limit for TS1 of accessible enclosure according to Table 38 to be measured at normal ambient temperature.

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

Note 1: The apparatus was submitted and evaluated for maximum manufacturer's recommended ambient (Tma) of 40°C.

Note 2: The temperatures were measured under the worse case normal mode defined in clause B.2.1.

(1) means condition 1: Charging condition with empty battery, fan normal operation.

(2) means condition 2: Discharging condition with fully charged battery, fan normal operation, USB-A normal 5Vdc 1A.

B.2.5	TABLE: Input test							P
U (V)	Hz	I (A)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
5.0Vdc	--	0.88	1	4.42	--	--	--	Normal operation. Charging condition with empty battery.
Supplementary information:								
The maximum measured current under rated voltage did not exceed 110% of the rated current.								

B.3, B.4	TABLE: Abnormal operating and fault condition tests					P
Ambient temperature T_{amb} (°C)..... :			See below			—
Power source for EUT: Manufacturer, model/type, outputrating... :			--			—
Component No.	Condition	Supply voltage (V)	Test time	Fuse no.	Fuse current (A)	Observation
U1 pin 10-15	s-c	5VDC	10mins	--	--	Unit shut down immediately, No damage, no hazards. Input current: 0A.
U1 pin 16-15	s-c	5VDC	10mins	--	--	Unit shut down immediately, No damage, no hazards. Input current: 0A.
Q3	s-c	5VDC	10mins	--	--	Unit shut down immediately, No damage, no hazards. Input current: 0A.
Q4	s-c	5VDC	10mins	--	--	Unit shut down immediately, No damage, no hazards. Input current: 0A.
Supplementary information:						
[1] Supply by external DC source, Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column "Abnormal/Fault." Specify if test condition by indicating "Abnormal" then the condition for a Clause B.3 test or "Single Fault" then the condition for Clause B.4. 1) s-c: Short-circuited; o-l: Overloaded. 2) The test result shown all safeguards remained effective and didn't lead to a single fault condition during abnormal operating condition; In addition all safeguards complied with applicable requirements in this standard after restoration of normal operating conditions. 3) The test result showed no Class 1 or 2 energy source become Class 3 level during and after single fault condition.						

M.3	TABLE: Protection circuits for batteries provided within the equipment	P

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

Is it possible to install the battery in a reverse polarity position?.....:			No			—
Equipment Specification	Charging					
	Voltage (V)		Current (A)			
	5		1			
Manufacturer/type	Battery specification					
	Non-rechargeable batteries		Rechargeable batteries			
	Discharging current (A)	Unintentional charging current (A)	Charging		Discharging current (A)	Reverse charging current (A)
			Voltage (V)	Current (A)		
UFX 105050	--	--	3.379	0.914	1.615	--
Note: The tests of M.3.2 are applicable only when above appropriate data is not available.						
Specified battery temperature (°C).....:			0-50			

Component No.	Fault condition	Charge/ discharge mode	Test time	Temp. (°C)	Current (A)	Voltage (V)	Observation
U1 pin 10-15	SC	Charge mode	7hours	--	0	--	NL, NS, NE, NF
U1 pin 16-15	SC	Discharge mode	7hours	--	0	--	NL, NS, NE, NF
Supplementary information:							
Abbreviation: SC= short circuit; OC= open circuit NL= no chemical leakage; NS= no spillage of liquid; NE= no explosion; NF= no emission of flame or expulsion of molten metal.							

M.4.2	TABLE: Charging safeguards for equipment containing a secondary lithium battery				P
Maximum specified charging voltage (V)..... :			3.7		—
Maximum specified charging current (A) .....:			2		—
Highest specified charging temperature (°C) .....:			50		--
Lowest specified charging temperature (°C) .....:			0		--

Battery manufacturer/type	Operating and fault condition	Measurement			Observation
		Charging voltage (V)	Charging current (A)	Temp. (°C)	
Lowest specified charging temperature:					
UFX 105050	Normal	3.7	0.914	0	The charging voltage does not exceed 3.7V and the charging current does not exceed 1A.
UFX 105050	Single fault – (U1 pin 10-15 SC)	3.7	0.817	0	The charging voltage does not exceed 3.7V and the charging current does not exceed 1A.
Highest specified charging temperature:					

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

UFX 105050	Normal	3.7	0	45	Stop charging.
UFX 105050	Single fault – (U1 pin 16-15 SC)	3.7	0	45	Stop charging.
Supplementary information:					
Abbreviation: SC= short circuit; OC= open circuit; MSCV= maximum specified charging voltage; MSCC= maximum specified charging current; HSCT= highest specified charging temperature; LSCT= lowest specified charging temperature					

Q.1	**TABLE: Circuits intended for interconnection with building wiring (LPS)**						N/A
Output Circuit	Condition	U_{oc} (V)	Time (s)	I_{sc}(A)		S (VA)	
				Meas.	Limit	Meas.	Limit
--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--
Supplementary Information:							
SC = short circuit, OC = open circuit							

T.2, T.3, T.4, T.5	**TABLE: Steady force test**					P
Location / Part	Material	Thickness (mm)	Probe	Force (N)	Test Duration (s)	Observation
Enclosure (T.4)	Plastics*	1.5	--	100	5	Enclosure remained intact, no crack/ opening developed
Supplementary information:						
*See table 4.1.2 enclosure materials. Test was performed for all sources of enclosure material.						

T.6, T.9	**TABLE: Impact test**			N/A
Location/Part	Material	Thickness (mm)	Height (mm)	Observation
--	--	--	--	--
Supplementary information:				

T.7	**TABLE: Drop test**			P
Location/Part	Material	Thickness (mm)	Height (mm)	Observation
Enclosure	Plastics*	1.5	1000	Enclosure remained intact, no crack/ opening developed. No hazards.
Supplementary information:				
*See table 4.1.2 enclosure materials. Test was performed for all sources of enclosure material.				

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

T.8	TABLE: Stress relief test					P
Location/Part	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation	
Enclosure	Plastic*	See table 4.1.2	70°C	7h	Enclosure remained intact, no cracking/opening developed in the enclosure joint. No hazards.	
Supplementary information:						
*See table 4.1.2 enclosure materials. Test was performed for all sources of enclosure material.						

X	TABLE: Alternative method for determining minimum clearances distances		N/A
Clearance distanced between:	Peak of working voltage (V)	Required cl (mm)	Measured cl (mm)
--	--	--	--
Supplementary information:			

EN IEC 62368-1			
Clause	Requirement – Test	Result – Remark	Verdict

4.1.2	TABLE: Critical components information				P
Object / part No.	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity[1]**
Plastic enclosure	SABIC INNOVATIVE PLASTICS US L L C	945(GG)	V-0, 120°C, Min. thickness 1.6mm	UL 94	UL E121562
PCB	KINGBOARD LAMINATES HOLDINGS LTD	KB-5150, KB-5152	V-0, 130°C	UL 94, UL 796	UL E123995
Internal wire	Various	2468	Min. 30V, Min. 80°C, Min. 26AWG, VW-1	UL 758	UL
Battery lead wire	Various	1007	Min. 30V, Min. 80°C, Min. 26AWG, VW-1	UL 758	UL
Li-ion Battery	Guangdong Cvasun New Energy Technology Co., Ltd.	103665	3.7Vd.c., 3000mAh, 11.1Wh	IEC/EN 62133-2:2017+A1:2021	UL CB Report BCTC2212703937B

Supplementary information:

1) License available upon request. Provided evidence ensures the agreed level of compliance. See OD-CB2039.
2) License available upon request.

Photo Documentation

Reference No.: WTF23D10227616Y

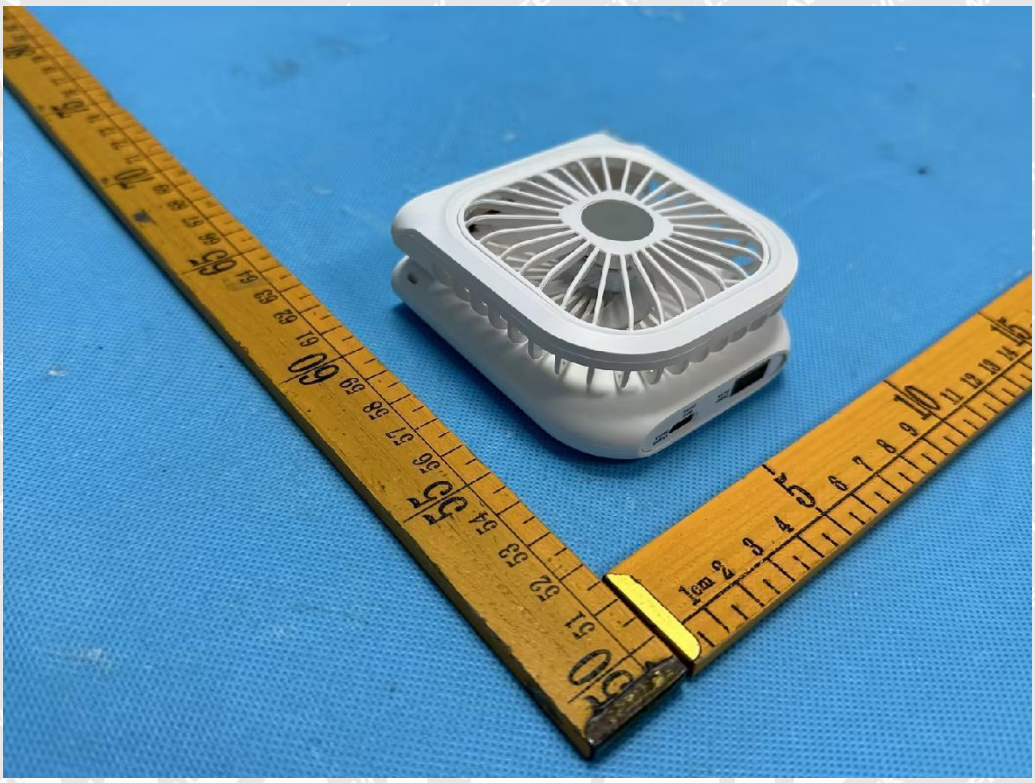


Figure 1 Overall view

Figure 2 Overall view

Photo Documentation

Reference No.: WTF23D10227616Y

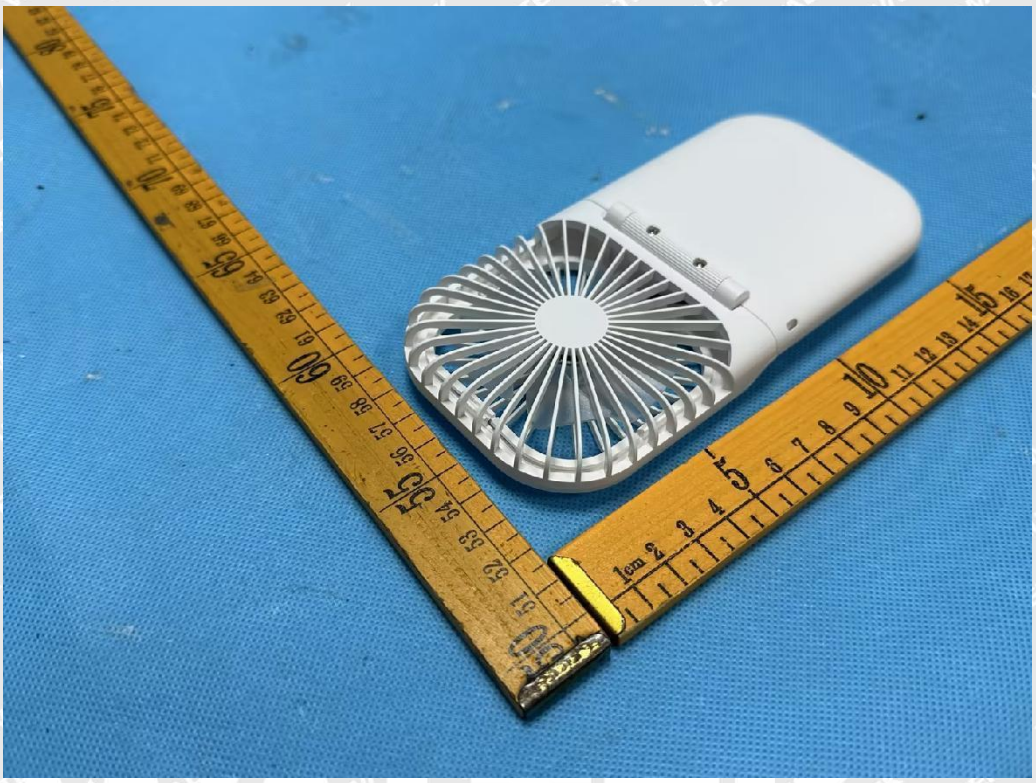


Figure 3 Overall view

Figure 4 Internal view

Photo Documentation

Reference No.: WTF23D10227616Y

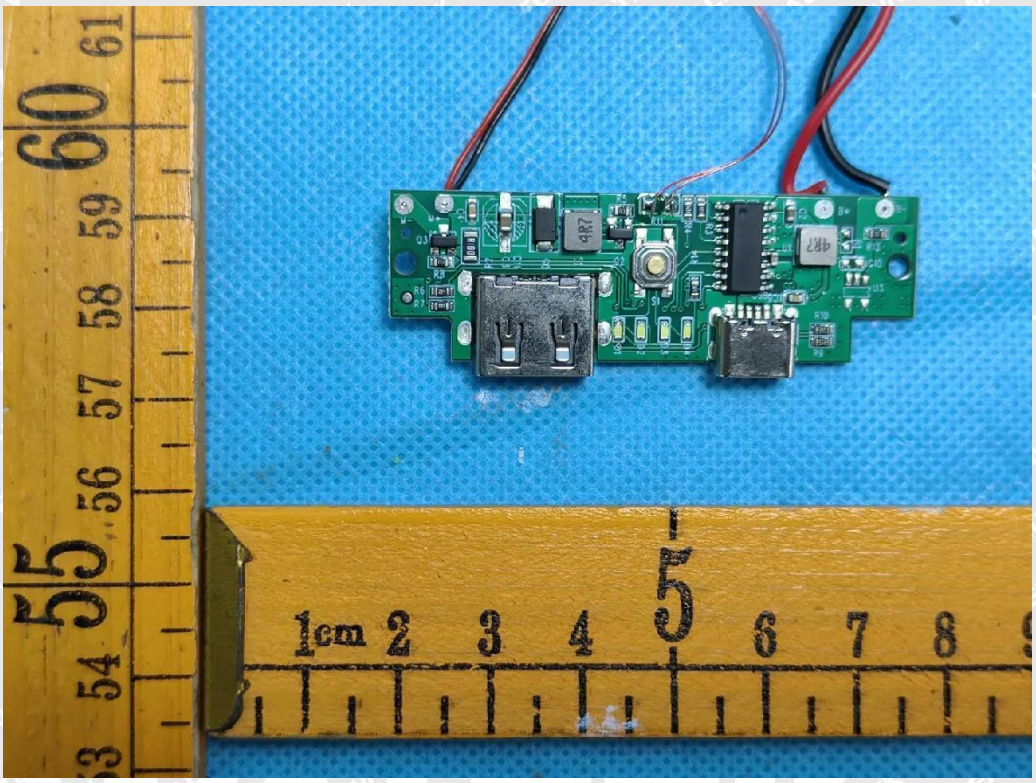


Figure 5 PCB trace view

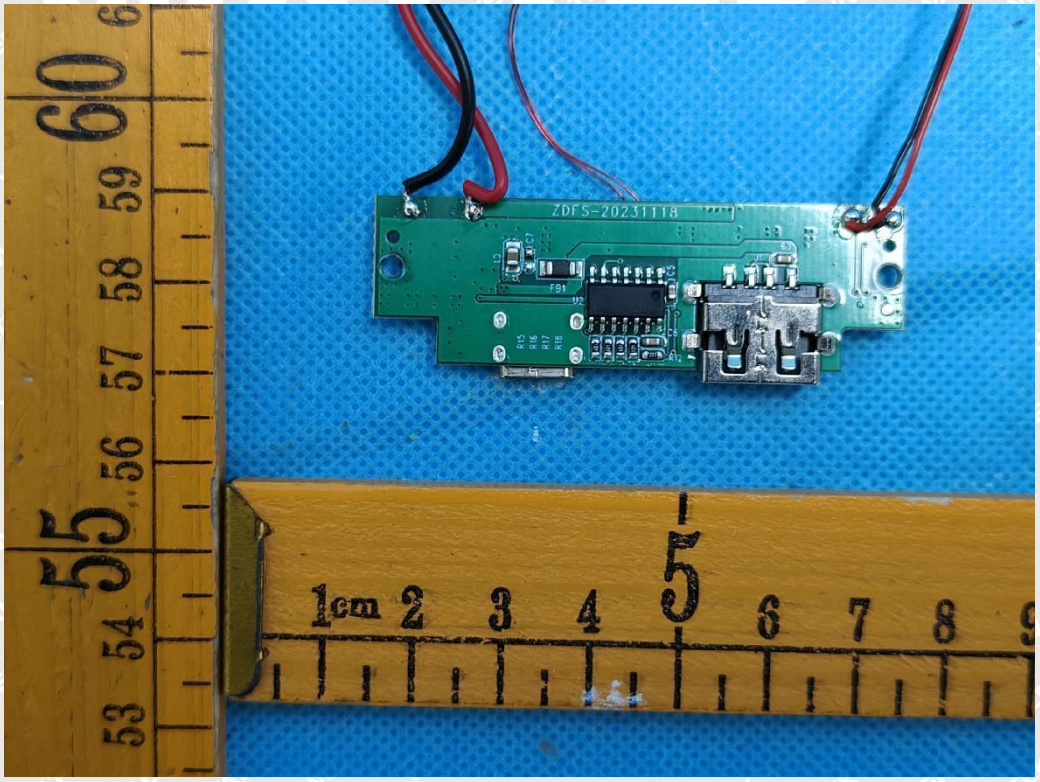


Figure 6 PCB trace view

Photo Documentation

Reference No.: WTF23D10227616Y

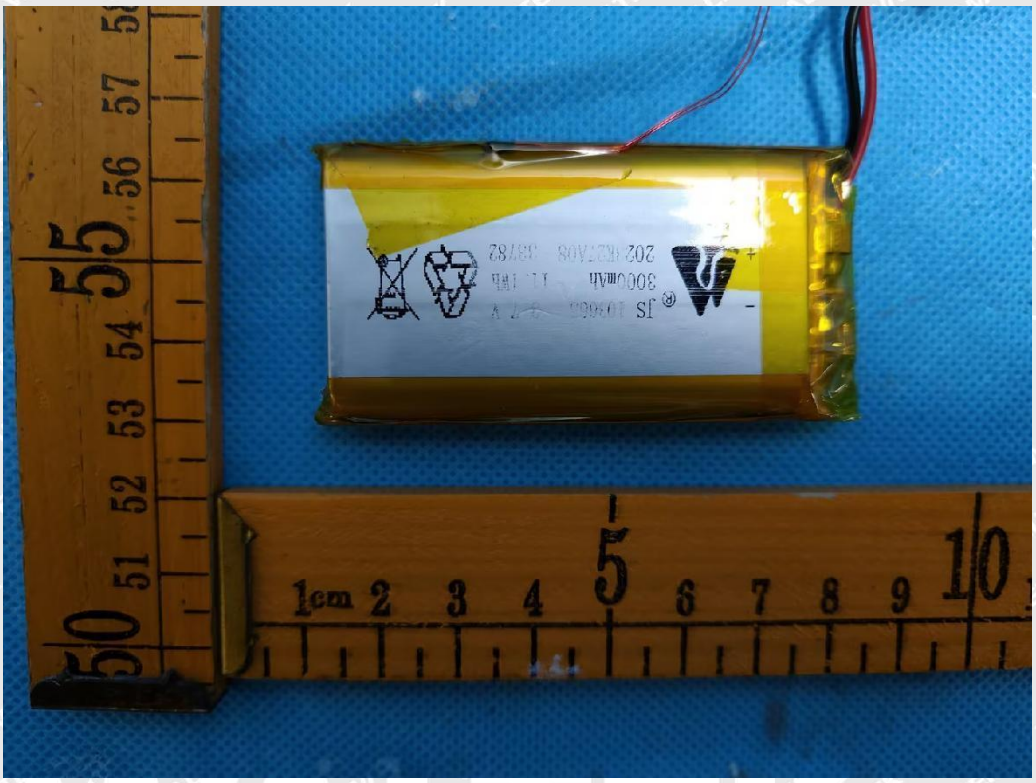


Figure 7 Battery view

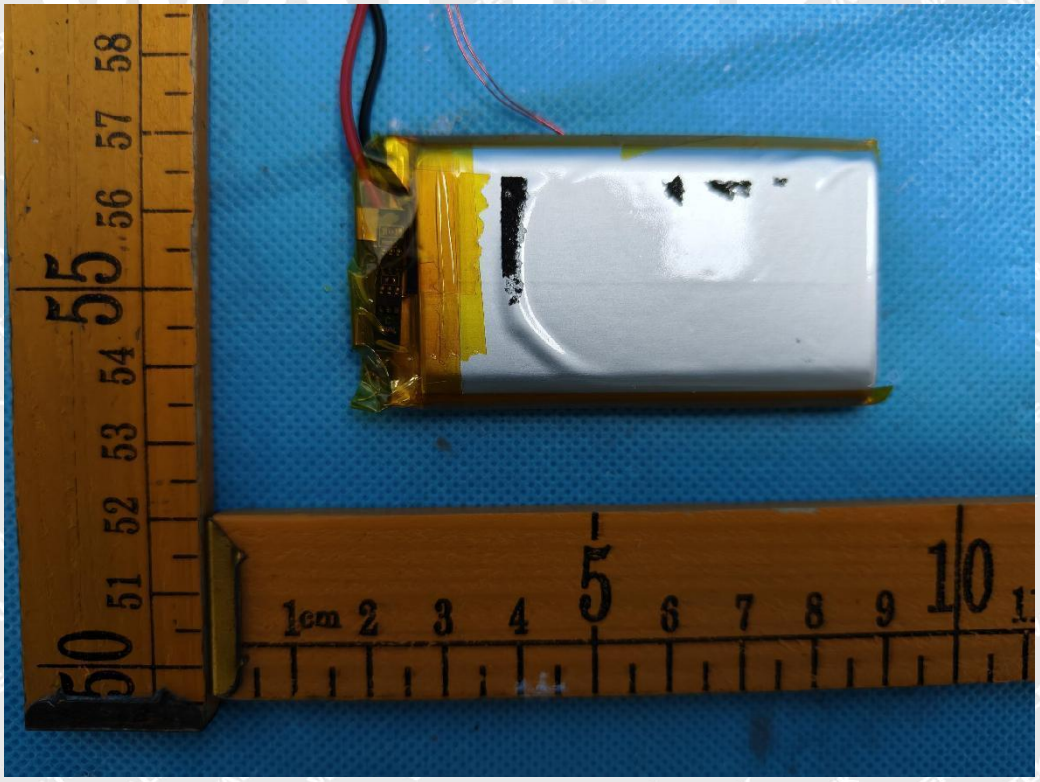


Figure 8 Battery view

====== End of Report ======