TEST REPORT
IEC 60335-2-40
Safety of household and similar electrical appliances
Part 2-40: Particular requirements for electrical heat pumps, air conditioners and dehumidifiers

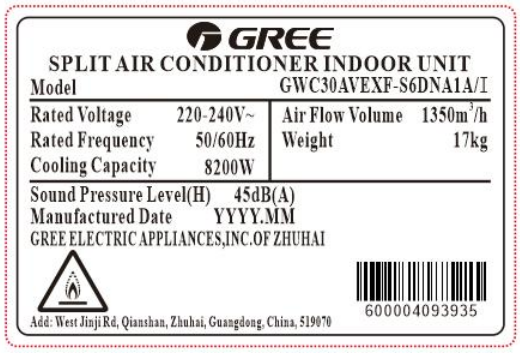
Report Number.....:	E-202503DQAQSZDQGX241376.05005
Date of issue.....:	March 3, 2025
Total number of pages.....:	59
Applicant's name.....:	Gree Electric Appliances, Inc. of Zhuhai
Address.....:	West Jinji Rd, Qianshan, Zhuhai, Guangdong, China, 519070
Manufacturer's name.....:	Gree Electric Appliances, Inc. of Zhuhai
Manufacturer's Address.....:	West Jinji Rd, Qianshan, Zhuhai, Guangdong, China, 519070
Factory's name.....:	Gree Electric Appliances, Inc. of Zhuhai
Factory's Address.....:	West Jinji Rd, Qianshan, Zhuhai, Guangdong, China, 519070
Test specification:	
Standard.....:	PNS IEC 60335-1:2011 PNS IEC 60335-2-40:2013
Test procedure.....:	Safety report
Non-standard test method……..:	N/A
Testing location:	
Testing Laboratory.....:	Testing Center of Gree Electric Appliances Inc. of Zhuhai
Testing address.....:	West Jinji Rd, Qianshan, Zhuhai, Guangdong, China, 519070
Tested by(name+signature) .....:	Yan Caihui
Approved by(name+signature) ....:	Luo Liangchen
Test item description.....:	Split Type Air Conditioner
Trade Mark.....:	GREE
Model/Type reference.....:	GWC30AVEXF-S6DNA1A(KS-IW30-GPAI13P1M32)
Manufacturer.....:	Same as applicant
Ratings.....:	220-240V~,50/ 60Hz.,Class I, R32, IPX4 for outdoor part Rated power input(Cooling): 3000W

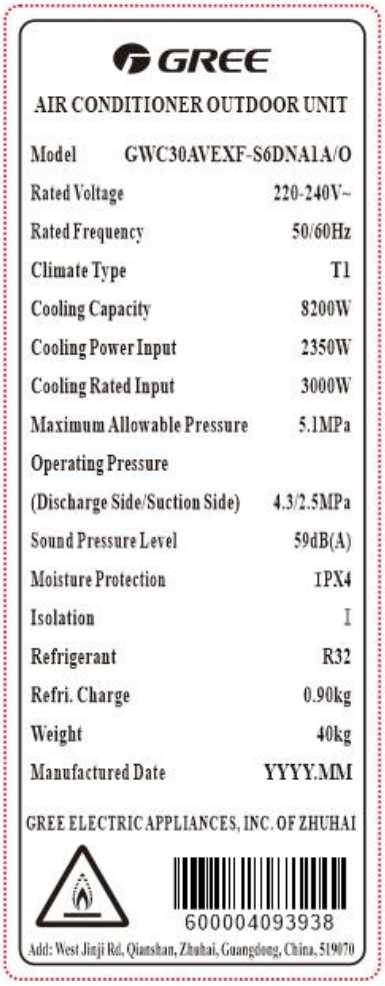
General disclaimer:

The test results presented in this report relate only to the object tested.

Classification of installation and use.....:	Fixed appliance
Supply Connection.....:	Type Y, supply cord with plug
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)
List of Attachments (including a total number of pages in each attachment):	
N/A	
Summary of testing: The product complies with the following standards: PNS IEC 60335-1:2011 PNS IEC 60335-2-40:2013	
Tests performed (name of test and test clause): After review,clause 7、10、11、13、19、23、25、27were conducted on the model GWC30AVEXF-S6DNA1A。	**Testing location:** Gree Electric Appliances, Inc. of Zhuhai West Jinji Rd, Qianshan, Zhuhai, Guangdong, China, 519070
Summary of compliance with National Differences N/A ☒ **The product fulfils the requirements of PNS IEC 60335-1:2011 and PNS IEC 60335-2-40:2013**	

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.





Testing..... :

Date of receipt of test item..... : March 3, 2025

Date (s) of performance of tests..... : March 2, 2025 ~March 3, 2025

General product information:

The appliance is a split type air conditioner intended for household use.The appliance has cooling function only.

7	MARKING AND INSTRUCTIONS		—
7.1	Rated voltage or voltage range (V).....:	See marking plates	P
	Symbol for nature of supply, or.....:	~	P
	Rated frequency (Hz).....:	60	P
	Rated power input (W), or.....:	See marking plates	P
	Rated current (A) .....:		N/A
	Manufacturer's or responsible vendor's name, trademark or identification mark.....:	KOLIN	P
	Model or type reference.....:	See marking plates	P
	Symbol IEC 60417-5172, for class II appliances		N/A
	IP number, other than IPX0.....:	outdoor part: IPX4	P
	Symbol IEC 60417-5180, for class III appliances, unless		N/A
	the appliance is operated by batteries only, or		N/A
	for appliances powered by rechargeable batteries recharged in the appliance		N/A
	Symbol IEC 60417-5018, for class II and class III appliances incorporating a functional earth		N/A
	Symbol IEC 60417-5036, for the enclosure of electrically-operated water valves in external hose-sets for connection of an appliance to the water mains, if the working voltage exceeds extra-low voltage		N/A
	Refrigerant charge .....:	See marking plates	P
	Refrigerant as designated under ISO 817 or ANSI/ASHRAE 34 .....:	R32	P
	Permissible excessive operating pressure for sanitary hot water heat pumps .....:		N/A
	Maximum operating pressure in the water and/or brine for the heat exchanger for hydronic fan coil units .....:		N/A
	Maximum operating pressure for the refrigerant circuit; if the permissible excessive operating pressure for the suction and discharge side differ, a separate indication is required; .....:	See marking plates	P
	Symbol for degree of protection against ingress of water, other than IPX0 .....:	outdoor part: IPX4	P
	Separate marking of appliances with all rated characteristics of supplementary heaters .....:		N/A
	Marking of direction of fluid flow		N/A
7.2	Warning for stationary appliances for multiple supply		N/A
	Warning placed in vicinity of terminal cover		N/A
7.3	Range of rated values marked with the lower and upper limits separated by a hyphen		N/A

	Different rated values marked with the values separated by an oblique stroke		N/A
7.4	Appliances adjustable for different rated voltages or rated frequencies, the voltage or the frequency setting is clearly discernible		N/A
	Requirement met if frequent changes are not required and the rated voltage or rated frequency to which the appliance is to be adjusted is determined from a wiring diagram		N/A
7.5	Appliances with more than one rated voltage or one or more rated voltage ranges, marked with rated input or rated current for each rated voltage or range, unless		N/A
	the power input or current are related to the arithmetic mean value of the rated voltage range		N/A
	Relation between marking for upper and lower limits of rated power input or rated current and voltage is clear		N/A
7.6	Correct symbols used		P
	Symbol for nature of supply placed next to rated voltage		P
	Symbol for class II appliances placed unlikely to be confused with other marking		N/A
	Units of physical quantities and their symbols according to international standardized system		P
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply, unless		N/A
	correct mode of connection is obvious		P
7.8	Except for type Z attachment, terminals for connection to the supply mains indicated as follows:		—
	- marking of terminals exclusively for the neutral conductor (letter N)		P
	- marking of protective earthing terminals (symbol IEC 60417-5019)		P
	- marking of functional earthing terminals (symbol IEC 60417-5018)		N/A
	- marking not placed on removable parts		P
7.9	Marking or placing of switches which may cause a hazard		N/A
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 figures, letters or other visual means	P
	This applies also to switches which are part of a control		N/A
	If figures are used, the off position indicated by the figure 0		N/A
	The figure 0 indicates only OFF position, unless no confusion with the OFF position		N/A

7.11	Indication for direction of adjustment of controls		N/A
7.12	Instructions for safe use provided		P
	Details concerning precautions during user maintenance		P
	Appliances not accessible to general public, classification of clause 6.101 included		N/A
	Appliances using flammable refrigerants, an installation, service and operation manual, either separate or combined manuals, provided and include information given in annex DD		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/A
	Instructions for class III appliances state that it must only be supplied at SELV, unless		N/A
	it is a battery- operated appliance, the battery being charged outside the appliance		N/A
	For appliances for altitudes exceeding 2000 m, the maximum altitude is stated..... :		N/A
	The instructions for appliances incorporating a functional earth states that the appliance incorporates an earth connection for functional purposes only		N/A
7.12.1	Sufficient details for installation supplied		P
	For an appliance intended to be permanently connected to the water mains and not connected by a hose- set, this is stated		N/A
	If different rated voltages or different rated frequencies are marked, the instructions state what action to be taken to adjust the appliance		N/A
	Sufficient details for installation or maintenance supplied :		----
	- that the appliance shall be installed in accordance with national wiring regulations		P
	- the dimensions of the space necessary for correct installation of the appliance including the minimum permissible distance to adjacent structures		P
	- for appliances with supplementary heaters, the minimum clearance from the appliance to combustible surfaces		N/A

	- a wiring diagram with a clear indication of the connections and wiring to external control devices and supply cord		P
	- the range of external static pressures at which the appliance was tested (add- on heat pumps and appliances with supplementary heaters only)		N/A
	- the method of connection to the appliance to the electrical supply and interconnection of separate components		N/A
	- indication of which parts of the appliance are suitable for outdoor use, if applicable		P
	- details of type and rating of fuses , or rating of circuit breakers;		P
	- details of supplementary heating elements that may be used in conjunction with the appliance, including fitting instructions either with the appliance or with the supplementary heater		N/A
	- maximum and minimum water or brine operating temperatures		N/A
	- maximum and minimum water or brine operating pressures		N/A
	Open storage tanks of heat pumps for water heating, accompanied by an instruction sheet which state that the vent shall not be obstructed		N/A
7.12.2	Stationary appliances not fitted with means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under overvoltage category III, the instructions state that means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules		N/A
7.12.3	Insulation of the fixed wiring in contact with parts exceeding 50 K during clause 11; instructions state that the fixed wiring must be protected		N/A
7.12.4	Instructions for built- in appliances:		—
	- dimensions of space		P
	- dimensions and position of supporting and fixing		P
	- minimum distances between parts and surrounding structure		P
	- minimum dimensions of ventilating openings and arrangement		P
	- connection to supply mains and interconnection of separate components		P
	- allow disconnection of the appliance after installation, by accessible plug or a switch in the fixed wiring, unless		P
	a switch complying with 24.3		N/A
7.12.5	Replacement cord instructions, type X attachment with a specially prepared cord		N/A
	Replacement cord instructions, type Y attachment		P

	Replacement cord instructions, type Z attachment		N/A
7.12.6	Caution in the instructions for appliances incorporating a non-self-resetting thermal cut-out that is reset by disconnection of the supply mains, if this cut-out is required to comply with the standard		N/A
7.12.7	Instructions for fixed appliances stating how the appliance is to be fixed		P
7.12.8	Instructions for appliances connected to the water mains:		—
	- max. inlet water pressure (Pa)..... :		N/A
	- min. inlet water pressure, if necessary (Pa).....:		N/A
	Instructions concerning new and old hose-sets for appliances connected to the water mains by detachable hose-sets		N/A
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.....:		P
7.13	Instructions and other texts in an official language	In English	P
7.14	Markings clearly legible and durable:		—
	Signal words WARNING, CAUTION, DANGER in uppercase having a height as specified.....:		P
	Uppercase letter of the text explaining the signal word not smaller than 1,6 mm..... :		N/A
	Moulded in, engraved, or stamped markings either raised above or have a depth below the surface of at least 0,25 mm, unless		N/A
	contrasting colours are used		N/A
	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/A

	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation		P
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions		P
	Indications for switches and controls placed on or near the components. Marking not on parts which can be positioned or repositioned in such a way that the marking is misleading		P
	The symbol IEC 60417-5018 placed next to the symbol IEC 60417-5172 or IEC 60417-5180		N/A
	Marking on panel allowed, provided panel in place for intended operation of appliance		N/A
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		P
7.101	Marking of fuses and overload protective devices, if replaceable :		----
	- fuse rated current in amperes, type and rated voltage or		P
	- manufacturer and model of overload protective device		N/A
7.102	Marking for connection with aluminium wire, if necessary		N/A
7.103	For appliances made up of more than one factory made assembly specified by the manufacturer to be used together, instructions shall be provided for completing the assembly to ensure compliance with the requirements.		N/A
7.104	For partial units, the instructions or markings shall include the following additional information:		----
	- For evaporating units and condensing units, the instructions or markings shall include wording to assure that the maximum operating pressure is considered when connecting to any condenser unit or evaporator unit.		N/A
	- For evaporating units, condensing units and condenser units, the instructions or markings shall include refrigerant charging instructions.		N/A
	- A warning to assure that partial units shall only be connected to an appliance suitable for the same refrigerant.		N/A
	- This unit <model xxx> is a partial unit air conditioner, complying with partial unit requirements of this International Standard, and must only be connected to other units that have been confirmed as complying to corresponding partial unit requirements of this International Standard.		N/A

	- The electrical interfaces shall be specified with purpose, voltage, current, and safety class of construction.		N/A
	- The SELV connection points, if provided, are to be clearly indicated in the instructions. The connection point should be marked with the “read the instructions” symbol per ISO 7000-0790 (2004-01) and the Class III symbol according to IEC 60417-5180 (2003- 02).		N/A
8	**PROTECTION AGAINST ACCESS TO LIVE PARTS**		**—**
8.1	Adequate protection against accidental contact with live parts		P
8.1.1	Requirement applies for all positions, detachable parts removed		P
	Lamps behind a detachable cover not removed, if conditions met		N/A
	Insertion or removal of lamps, protection against contact with live parts of the lamp cap		N/A
	Use of test probe B of IEC 61032, with a force not exceeding 1 N: no contact with live parts		P
	Use of test probe B of IEC 61032 through openings, with a force of 20 N: no contact with live parts		P
8.1.2	Use of test probe 13 of IEC 61032, with a force not exceeding 1 N, through openings in class 0 appliances and class II appliances/constructions: no contact with live parts		P
	Test probe 13 also applied through openings in earthed metal enclosures having a non- conductive coating: no contact with live parts		P
8.1.3	For appliances other than class II, use of test probe 41 of IEC 61032, with a force not exceeding 1 N: no contact with live parts of visible glowing heating elements or supporting parts		N/A
	For a single switching action obtained by a switching device, requirements as specified		N/A
	For appliances with a supply cord and without a switching device, the single switching action may be obtained by the withdrawal of the plug		N/A
8.1.4	Accessible part not considered live if:		—
	- safety extra- low a.c. voltage: peak value not exceeding 42,4 V		N/A
	- safety extra- low d.c. voltage: not exceeding 42,4 V		N/A
	- or separated from live parts by protective impedance		N/A
	If protective impedance: d.c. current not exceeding 2 mA, and		N/A
	a.c. peak value not exceeding 0,7 mA		N/A

	- for peak values over 42,4 V up to and including 450 V, capacitance not exceeding 0,1 μF		N/A
	- for peak values over 450 V up to and including 15 kV, discharge not exceeding 45 μC		N/A
	- for peak values over 15 kV, the energy in the discharge not exceeding 350 mJ		N/A
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		—
	- built-in appliances		P
	- fixed appliances		P
	- appliances delivered in separate units		N/A
	As regards the products which have a dedicated installation panel or cover and which cannot be installed without them, compliance is checked according to 5.10 (after the installation as instructed in the installation manual).		N/A
8.2	Class II appliances and constructions constructed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only		P
	Only possible to touch parts separated from live parts by double or reinforced insulation		P
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)	P
	If the power input varies throughout the operating cycle and the maximum value of the power input exceeds, by a factor greater than two, the arithmetic mean value of the power input occurring during a representative period, the power input is the maximum value that is exceeded for more than 10 % of the representative period		N/A
	Otherwise the power input is the arithmetic mean value		P
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		N/A
	the rated power input is related to the arithmetic mean value		N/A
10.2	Current at normal operating temperature, rated voltage and normal operation not deviating from rated current by more than shown in table 2.....:	(see appended table)	N/A
	If the current varies throughout the operating cycle and the maximum value of the current exceeds, by a factor greater than two, the arithmetic mean value of the current occurring during a representative period, the current is the maximum value that is exceeded for more than 10 % of the representative period		N/A

	Otherwise the current is the arithmetic mean value		P
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		N/A
	the rated current is related to the arithmetic mean value of the range		N/A
11	**HEATING**		P
11.1	No excessive temperatures in normal use		P
	Compliance is checked by the tests of annex C, if :		——
	- temperature of motor winding exceeds values shown in table 3		N/A
	- there is doubt about classification of insulation system of the motor		N/A
11.2	Placing and mounting of appliance :		---
	- clearances to adjacent surfaces		P
	- flow rates for liquid source or sink equipment be minimum, except for hydronic fan coil units where flow rates and liquid temperatures be maximum		N/A
	- static pressures		N/A
	- means of adjusting the flow, flow for tests be minimum obtainable		N/A
	- adjustable limit controls set at maximum cut-out setting and minimum differential		N/A
	Appliances with supplementary heaters, use test casing of clause 11.9		N/A
11.2.1	Appliances with supplementary heaters, inlet duct connected to inlet air opening		N/A
	Appliance that includes or has provision for supplementary heater is fitted with a metal outlet duct in accordance with Figure 101a) or Figure 101b), depending on the direction of the airflow.		N/A
11.2.2	Ducted appliance without supplementary heaters, air outlet used		N/A
11.2.3	For the evaluation and testing of partial units, the following test setup and conditions are to be applied.		N/A
	- evaporator units and condenser units are tested as individual units at the maximum ambient temperature stated in the instructions. If not stated in the instructions, these units shall be tested at an ambient temperature that is equal to the saturated temperature of the refrigerant at the marked maximum allowable operating pressure (± 0,1 MPa) minus 10 K (± 1 K). (IEC 60335-2-40:2013/,am1:2016)		N/A

	- condensing units are tested in the cooling mode only, at the maximum specified ambient temperature with 9 K (± 1 K) sub-cooling and the maximum specified evaporating pressure with 11 K (± 1 K) superheat. For condensing units provided with expansion device(s), the superheat/sub-cooling is to be as under the normal control of the expansion device(s).		N/A
	- evaporating units, intended for cooling only, are tested in the cooling mode only with a condensing pressure that is equal to the marked maximum allowable operating pressure (± 0,1 MPa) with 9 K (± 1 K) sub-cooling.		N/A
	- evaporating units that are intended for reverse cycle operation are tested in the heating mode only, at the maximum specified evaporating pressure. (IEC 60335-2-40:2013/,am1:2016)		N/A
11.3	Temperature rise determine by thermocouples or resistance method	Thermocouples	P
11.4	Test performed at supply voltage between 0,94 and 1,06 times the rated voltage		P
	Heating elements energized at voltage which gives an electrical input of 1,15 times maximum rated power input		N/A
11.5	Test conducted in heating mode and cooling mode, if both exist	Cooling only	N/A
	All supplementary heating elements operative simultaneously		N/A
11.6	Defrost test in most unfavourable conditions, if needed		N/A
11.7	Appliances operated continuously until steady conditions except for defrost tests		P
11.8	Temperatures not exceeding values of table 3	(See appended tables)	P
	Protective devices do not operate		P
	Sealing compound not flowing out		P
	Temperature of air in outlet duct not exceed 90 °C		N/A
11.9	Test casing and installation of appliances in accordance with manufacturer's instructions		N/A
	Glass fibre insulation for appliances without indication of minimum clearances according to manufacturer; thermocouple in contact with enclosure		N/A
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/A

	Motor-operated appliances and combined appliances supplied at 1,06 times the rated voltage (V)..... :	1,06x240=254.4V;	P
	Protective impedance and radio interference filters disconnected before carrying out the tests		N/A
13.2	The leakage current is measured by means of the circuit described in figure 4 of IEC 60990:1999		P
b			
	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
19	**ABNORMAL OPERATION**		**----**
19.1	The risk of fire, mechanical damage or electric shock under abnormal or careless operation obviated		P
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe ..... :	(see appended table)	P
	Failure of the transfer medium flow, or of any control devices, shall not result in a hazard.		P
	Appliances are subjected to the tests specified in 19.2 to 19.10, 19.101, 19.102, 19.103, and 19.104 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		P
	Appliances incorporating voltage selector switches subjected to the test of 19.15		N/A
	Unless otherwise specified, the tests are continued until a non-self-resetting thermal cut-out operates, or		N/A
	until steady conditions are established		P
	If a heating element or intentionally weak part becomes open-circuited, the relevant test is repeated on a second sample		N/A
19.2	This subclause of Part 1 is not applicable for appliances with supplementary air heaters.		N/A
19.3	This subclause of Part 1 is not applicable for appliances with supplementary air heaters.		N/A
19.4	Test conditions as in clause 11, any control limiting the temperature during tests of clause 11 short-circuited		N/A

	The appliance is operated under the conditions in Clause 11 and at rated voltage, with any form of operation or any defect that can be expected during normal use. Only one fault condition is reproduced at a time, the tests being made consecutively.		P
	Examples of fault conditions are		—
	– the timer, if any, stopping in any position;		P
	– disconnection and reconnection of one or more phases of the supply;		P
	– open-circuiting or short-circuiting of components, like relays, contactors, timers, thermostats, etc.		P
	In general, tests are limited to those cases which are expected to give the most unfavourable results.		P
19.5	Test of 19.4 repeated on class 0I and I appliances with tubular sheathed or embedded heating elements. No short-circuiting, but one end of the element connected to the sheath		N/A
	The test repeated with reversed polarity and the other end of the heating element connected to the sheath		N/A
	The test is not carried out on appliances intended to be permanently connected to fixed wiring and on appliances where an all-pole disconnection occurs during the test of 19.4		N/A
19.6	Appliances with PTC heating elements tested at rated voltage, establishing steady conditions		N/A
	The working voltage of the PTC heating element is increased by 5 % and the appliance is operated until steady conditions are re-established. The voltage is then increased in similar steps until 1,5 times working voltage or until the PTC heating element ruptures (V)..... :		N/A
19.7	The motors, other than motor-compressors and stationary circulation pumps in compliance with IEC 60335-2-51, are mounted on a support of wood or similar material. The motor rotors are locked; fan blades and brackets are not removed.		P
	The motors are supplied at their supplied voltage when the appliance is supplied at rated voltage or at the upper limit of the rated voltage range, in a circuit as shown in Figure 103. Care shall be taken to complete the earthing system to permit the correct operation of the RCCB/RCBO.		P
	Under these conditions, the motor is operated for 15 days (360 h) or until a protection device permanently opens the circuit, whichever is the shorter period.		P
	During the test, the ambient temperature is maintained at 23 °C ± 5 °C.		P

	If the temperature of the motor windings does not exceed 90 °C when steady conditions are established, the test is considered to be ended.		P
	During the test, the temperature of the enclosure not exceed 150 °C and the temperature of the windings shall not exceed the values shown in Table 8.		P
	Three days (72 h) after the beginning of the test, the motor withstand an electric strength test as specified in 16.3.		P
	At the end of the test, the leakage current, when measured as specified in 16.2 but with a test voltage of twice the rated voltage between all windings and the enclosure, shall not exceed 2 mA.		P
	If the motor-compressor has not been type-tested against the requirements of IEC 60335-2-34, then it subject to the following test.		P
	A sample provided with the rotor locked and being filled with oil and refrigerant as intended.		----
	The sample shall then be subjected to the tests specified in 19.101, 19.102, 19.103 and 19.105 of IEC 60335-2-34:2021, if applicable, and comply with the requirements in 19.104 of IEC 60335-2-34:2021.		P
19.8	Three phase motors other than motor compressors are operated under the conditions of Clause 11 at rated voltage or at the upper limit of the rated voltage range with one phase disconnected, until steady conditions are obtained or the protective device operates.		N/A
19.9	This subclause of Part 1 is not applicable for motor-compressors, stationary circulation pumps in compliance with IEC 60335-2-51, and fans.		N/A
19.10	Series motor operated at 1,3 times rated voltage for 1 min (V).....:		N/A
	During the test, parts not being ejected from the appliance		N/A
19.11	Electronic circuits, compliance checked by evaluation of the fault conditions specified in 19.11.2 for all circuits or parts of circuits, unless		P
	they comply with the conditions specified in 19.11.1		N/A
	Appliances incorporating an electronic circuit that relies upon a programmable component to function correctly, subjected to the test of 19.11.4.8, unless		N/A
	restarting does not result in a hazard		P

	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	No dangerous malfunctions	N/A
	If the safety of the appliance under any of the fault conditions depends on the operation of a miniature fuse-link complying with IEC 60127, the test of 19.12 is carried out		P
	During and after each test the following is checked:		----
	- 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/A
	If a conductor of a printed board becomes open-circuited, the appliance is considered to have withstood the particular test, provided both of the following conditions are met:		----
	- the base material of the printed circuit board withstands the test of annex E		N/A
	- any loosened conductor does not reduce clearance or creepage distances between live parts and accessible metal parts below the values specified in clause 29		N/A
19.11.1	Fault conditions a) to g) in 19.11.2 are not applied to circuits or parts of circuits meeting both of the following conditions:		----
	- the electronic circuit is a low-power circuit, that is, the maximum power at low-power points does not exceed 15 W according to the tests specified		N/A
	- the protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction of other parts of the appliance does not rely on the correct functioning of the electronic circuit		N/A
19.11.2	Fault conditions applied one at a time, the appliance operating under conditions specified in clause 11, but supplied at rated voltage, duration of the tests as specified:		----
	a) short circuit of functional insulation if clearances or creepage distances are less than the values specified in clause 29		P
	b) open circuit at the terminals of any component		P
	c) short circuit of capacitors, unless		P
	they comply with IEC 60384-14		P
	d) short circuit of any two terminals of an electronic component, other than integrated circuits		P

	This fault condition is not applied between the two circuits of an optocoupler		P
	e) failure of triacs in the diode mode		P
	f) failure of microprocessors and integrated circuits		P
	g) failure of an electronic power switching device		N/A
	Each low power circuit is short-circuited by connecting the low-power point to the pole of the supply source from which the measurements were made		N/A
19.11.3	If the appliance incorporates a protective electronic circuit that operates to ensure compliance with clause 19, the appliance is tested as specified		N/A
19.11.4	The first paragraph of Part 1 in not applicable if unintentional operation does not cause any hazards.	No dangerous malfunctions	P
	Appliances having a device with an off position obtained by electronic disconnection, or		N/A
	a device that can be placed in the stand-by mode,		N/A
	subjected to the tests of 19.11.4.1 to 19.11.4.7, the device being set in the off position or in the stand-by mode		N/A
	Appliances incorporating a protective electronic circuit are subjected to the tests of 19.11.4.1 to 19.11.4.7. The tests are carried out after the protective electronic circuit has operated during the relevant tests of Clause 19, except 19.2, 19.6, 19.11.3, 19.102 and 19.103.		N/A
	If the appliance incorporates more than one protective electronic circuit, each protective electronic circuit tested individually with the appliance operated under normal operation at any temperature within the working range.		N/A
	Components protected by a protective electronic circuit that has been previously tested and shown to comply with the requirements of 19.11.4 of its standard need not to be retested in the final application.		N/A
	For these tests, it can be necessary to provide specially prepared component samples, e.g. compressors with locked rotor.		N/A
	Surge protective devices disconnected, unless		N/A
	They incorporate spark gaps		N/A

19.11.4.1	The appliance is subjected to electrostatic discharges in accordance with IEC 61000-4-2, test level 4		N/A
19.11.4.2	The appliance is subjected to radiated fields in accordance with IEC 61000-4-3, at frequency ranges specified		N/A
19.11.4.3	The appliance is subjected to fast transient bursts in accordance with IEC 61000-4-4, test level 3 or 4 as specified		N/A
19.11.4.4	The power supply terminals of the appliance subjected to voltage surges in accordance with IEC 61000-4-5, test level 3 or 4 as specified		N/A
	An open circuit test voltage of 2 kV is applicable for the line-to-line coupling mode		N/A
	An open circuit test voltage of 4 kV is applicable for the line-to-earth coupling		N/A
	Earthed heating elements in class I appliances disconnected		N/A
19.11.4.5	The appliance is subjected to injected currents in accordance with IEC 61000-4-6, test level 3		N/A
19.11.4.6	Appliances having a rated current not exceeding 16 A are subjected to the class 3 voltage dips and interruptions in accordance with IEC 61000-4-11		N/A
	Appliances having a rated current exceeding 16 A are subjected to the class 3 voltage dips and interruptions in accordance with IEC 61000-4-34		N/A
19.11.4.7	The appliance is subjected to mains signals in accordance with IEC 61000-4-13, test level class 2		N/A
19.11.4.8	The appliance is supplied at rated voltage and operated under normal operation at any temperature within the working range. After 60 s 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 at any temperature within the working range.		N/A
	The appliance continues to operate normally, or		N/A
	requires a manual operation to restart		N/A
19.12	If the safety of the appliance for any of the fault conditions specified in 19.11.2 depends on the operation of a miniature fuse-link complying with IEC 60127, the test is repeated, measuring the current flowing through the fuse-link; measured current (A); rated current of the fuse-link (A).....:		N/A
19.13	During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts		P

	Temperature rises not exceeding the values shown in table 9.....:	(see appended table)	P
	Compliance with clause 8 not impaired		P
	If the appliance can still be operated it complies with 20.2		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).....:	1300	P
	- supplementary insulation (V).....:	2050	P
	- reinforced insulation (V)..... :	3600	P
	After operation or interruption of a control, clearances and creepage distances across the functional insulation withstand the electric strength test of 16.3, the test voltage being twice the working voltage		P
	The appliance does not undergo a dangerous malfunction, and		P
	no failure of protective electronic circuits, if the appliance is still operable		N/A
	Appliances tested with an electronic switch in the off position, or in the stand-by mode:		----
	- do not become operational, or		N/A
	- if they become operational, do not result in a dangerous malfunction during or after the tests of 19.11.4		N/A
	If the appliance contains lids or doors that are controlled by one or more interlocks, one of the interlocks may be released provided that:		----
	- the lid or door does not move automatically to an open position when the interlock is released, and		N/A
	- the appliance does not start after the cycle in which the interlock was released		N/A
19.14	Appliances operated under the conditions of clause 11, any contactor or relay contact operating under the conditions of clause 11 being short-circuited		P
	For a relay or contactor with more than one contact, all contacts are short-circuited at the same time		N/A
	A relay or contactor operating only to ensure the appliance is energized for normal use is not short-circuited		P

	If more than one relay or contactor operates in clause 11, they are short-circuited in turn		P
	Locking in the "on" position of the main contacts of a contact intended for switching on and off the heating element(s) in normal use is considered to be a fault condition, unless the appliance is provided with at least two sets of contacts connected in series.		N/A
	For example, achieved by providing two contactors operating independently of each other or by providing one contactor having two independent armatures operating two independent sets of main contacts.		N/A
19.15	For appliances with a mains voltage selector switch, the switch is set to the lowest rated voltage position and the highest value of rated voltage is applied		N/A
19.101	The appliance is operated under the conditions in Clause 11 at rated voltage or at the upper limit of the rated voltage range, at an ambient temperature of 23 °C ± 5 °C.		P
	When steady conditions are attained, the heat transfer medium flow of the outdoor heat exchanger is restricted or shut off, whichever is the most unfavourable without the appliance being non-operative.		P
	After this test, protective devices that may have operated are reset, and the test is repeated, with the heat transfer medium flow, fluid or air, of the indoor heat exchanger, restricted or shut off, whichever is the most unfavourable without the appliance being non-operative.		P
	In the case of appliances with defrosting systems, the heat transfer medium flow rate is additionally shut off at the beginning of the defrosting phase.		N/A
	Appliances incorporating a motor common to both the indoor and outdoor heat exchangers are subjected to the above test, the motor being disconnected once steady conditions are attained.		N/A
19.102	The indoor heat exchanger of appliances using water as a heat transfer medium is subjected to the following test.		N/A
19.103	Air to air appliances are operated under the conditions specified in Clause 11		P
	The dry-bulb temperature is then reduced to a value 5 K below the minimum value specified by the manufacturer.		P
	The test is repeated except that the dry-bulb temperature is increased to a value 10 K above the maximum temperature specified by the manufacturer, but not to exceed 55 °C.		P
	The appliances are operated at rated voltage or at the upper limit of the rated voltage range.		P

19.104	Appliances with supplementary air heater		N/A
19.104.1	General		----
	Appliances provided with supplementary air heaters or provisions for supplementary air heaters are subjected to the test of 19.104.2 through 19.104.8 under the conditions specified in Clause 11 unless otherwise indicated.		N/A
	All appliances with supplementary air heaters configured with inlet and outlet ducts as applicable and instrumented in accordance with the applicable subclauses of Clause 11		N/A
	Appliances are tested in the operating state and configuration which give the most unfavourable results.		N/A
	Appliances are operated at an ambient temperature of 23 °C ± 5 °C and rated voltage or at the upper limit of the rated voltage range of the supplementary air heaters		N/A
19.104.2	Restricted inlet – 1st limit cut-out		----
	To test limit cut-out conditions, the airflow conditions specified are established, the indoor airflow is reduced by restricting the inlet air opening to a rate resulting in not more than 1 K/min outlet air temperature rise until a self-resetting thermal cut-out device operates for the first time as a result of slowly restricting the free area of the inlet.		N/A
	The outlet air temperature, measured by means of the thermocouple grid, not exceed 90 °C.		N/A
19.104.3	Restricted inlet – minimum airflow		----
	To test heating operation conditions, after the airflow conditions specified are established, the indoor airflow is reduced by restricting the inlet air opening to such an extent that the temperature of the air in the outlet is 3 K below the temperature obtained after a self-resetting thermal cut-out device operates for the first time as a result of slowly restricting the free area of the inlet.		N/A
	The appliance shall be operated until steady state conditions are established or for 1 h, whichever is longer. During the test, the temperatures are monitored continuously and not exceed the values shown in Table 3		N/A
	To facilitate this test, the self-resetting thermal cut-out which has operated in 19.104.2 be short-circuited, if necessary.		N/A
19.104.4	Restricted inlet – restrict inlet to fully blocked		----

	To test restricted inlet conditions, after the airflow conditions specified are established, the indoor airflow is reduced by restricting the inlet air opening at a rate resulting in not more than 1 K/min outlet air temperature rise until a self-resetting thermal cut-out device operates.		N/A
	The restriction halted after any protective device operates until steady state conditions are established. After steady state conditions are reached, the restriction is resumed. The test continue until the inlet is fully restricted.		N/A
	The temperatures are monitored continuously. Temperatures shall not exceed the values shown in (Table 3 + 30 K) during the first hour and Table 3 thereafter.		N/A
19.104.5	Fan failure		----
	To test fan failure conditions, after steady state conditions are attained, heat transfer medium flow of the indoor heat exchanger is restricted or shut off, whichever is the most unfavourable without the appliance being non-operative.		N/A
	Temperatures shall not exceed the values shown in 19.13.		N/A
19.104.6	Blocked outlet		----
	To test blocked outlet conditions, when steady conditions are attained, the appliance outlet air opening is totally closed off and operation continued until maximum temperatures are determined.		N/A
	This test with the outlet air opening closed not be conducted on any unit with free air discharge openings located more than 1,2 m above the floor level when the unit is installed as intended.		N/A
	Temperatures not exceed the values in 19.13.		N/A
19.104.7	All appliances provided with supplementary air heaters and with free air discharge openings are subjected to the following test in each mode of operation.		N/A
19.104.8	Back up protection test		----
	If a self-resetting thermal cut-out operates during the tests of 19.104, then the self-resetting thermal cut-out by-passed and the tests of 19.104.4 through 19.104.7 repeated.		N/A
19.105	For dehumidifiers in which the compressor is enclosed by a non-metallic material which isolates it from the forced air stream providing air to the heat exchanger, the following test apply.		N/A

20	**STABILITY AND MECHANICAL HAZARDS**		----
20.1	Appliances having adequate stability	Fixed appliance	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		N/A
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°		N/A
	Possible heating test in overturned position; temperature rise does not exceed values shown in table 9		N/A
20.2	Moving parts adequately arranged or enclosed as to provide protection against personal injury		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/A
	Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard by unexpected closure		P
	Not possible to touch dangerous moving parts with the test probe described		P
	Fixed appliances that are only fixed into position by water piping, refrigerant piping or other piping are also subjected to this test.		N/A
22	**CONSTRUCTION**		----
22.1	Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60529 are fulfilled		N/A
22.2	Stationary appliance: means to ensure all-pole disconnection from the supply being provided:		----
	- a supply cord fitted with a plug, or		N/A
	- a switch complying with 24.3, or		N/A
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided, or		P
	- an appliance inlet		N/A
	Singe-pole switches and single-pole protective devices for the disconnection of heating elements in single-phase, permanently connected class 01 and class I appliances, connected to the phase conductor		N/A
22.3	Appliance provided with pins: no undue strain on socket-outlets		N/A

	Applied torque not exceeding 0,25 Nm		N/A
	Pull force of 50 N to each pin after the appliance has being placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1 mm		N/A
	Each pin subjected to a torque of 0,4 Nm; the pins are not rotating, unless		N/A
	rotating does not impair compliance with this standard		N/A
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets		P
22.5	No risk of electric shock when touching pins, for appliances having a capacitor with rated capacitance equal to or greater than 0,1 μF, the appliance being disconnected from the supply at the instant of voltage peak		N/A
	Voltage not exceeding 34 V (V)..... :		N/A
	If compliance relies on the operation of an electronic circuit, the electromagnetic phenomena tests of 19.11.4.3 and 19.11.4.4 are applied		N/A
	The discharge test is then repeated three times, voltage not exceeding 34 V (V)..... :		N/A
22.6	Electrical insulation not affected by condensing water or leaking liquid		P
	Electrical insulation of class II appliances not affected if a hose ruptures or seal leaks		N/A
	In case of doubt, test as described		N/A
	The electrical insulation shall not be affected by snow which might enter the appliance enclosure.		P
22.7	Adequate safeguards against the risk of excessive pressure in appliances containing liquid or gases or having steam-producing devices		P
22.8	Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and that are likely to be cleaned in normal use		P
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances, unless		P
	the substance has adequate insulating properties		N/A
22.10	Not possible to reset voltage-maintained non-self-resetting thermal cut-outs by the operation of an automatic switching device incorporated within the appliance, if:		N/A
	- a non-self-resetting thermal cut-out is required by the standard, and		N/A
	- a voltage maintained non-self-resetting thermal cut-out is used to meet it		N/A

	Non-self-resetting thermal motor protectors have a trip-free action, unless		N/A
	they are voltage maintained		N/A
	Reset buttons of non-self-resetting controls so located or protected that accidental resetting is unlikely		N/A
22.11	Reliable fixing of non-detachable parts that provide the necessary degree of protection against electric shock, moisture or contact with moving parts		P
	Obvious locked position of snap-in devices used for fixing such parts		N/A
	No deterioration of the fixing properties of snap-in devices used in parts that are likely to be removed during installation or servicing		N/A
	Tests as described		P
22.12	Handles, knobs etc. fixed in a reliable manner, if loosening result in a hazard		P
	Removing or fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible, if resulting in a hazard		P
	A choking hazard does not apply to appliances for commercial use		N/A
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		P
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		P
	If the part is removed and can be contained within the small parts cylinder, it is considered to be a choking hazard		N/A
22.13	Unlikely that handles, when gripped as in normal use, make the operator's hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only		N/A
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance		P
	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
	This requirement does not apply to the metallic fins of heat exchangers.		P
22.15	Storage hooks and the like for flexible cords smooth and well rounded		N/A
22.16	Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands and no undue wear of contacts		N/A
	Cord reel tested with 6000 operations, as specified		N/A
	Electric strength test of 16.3, voltage of 1000 V applied		N/A

22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner		N/A
22.18	Current-carrying parts and other metal parts resistant to corrosion		P
22.19	Driving belts not relied upon to provide the required level of insulation, unless		N/A
	constructed to prevent inappropriate replacement		N/A
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless		P
	material used is non-corrosive, non-hygroscopic and non-combustible		N/A
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless		P
	impregnated		N/A
	This requirement does not apply to magnesium oxide and mineral ceramic fibres used for the electrical insulation of heating elements		N/A
22.22	Appliances not containing asbestos		P
22.23	Oils containing polychlorinated biphenyl (PCB) not used		P
22.24	Bare heating elements supported so that, in case of rupture or sagging, the heating conductor cannot come into contact with accessible metal parts nor give rise to a hazard.		N/A
	Bare heating elements not be used with wood or wood composite enclosures.		N/A
22.25	Sagging heating conductors, except in class III appliances or class III constructions that do not contain live parts, cannot come into contact with accessible metal parts		N/A
22.26	For class III constructions the insulation between parts operating at safety extra-low voltage and other live parts complies with the requirements for double or reinforced insulation		N/A
22.27	Parts connected by protective impedance separated by double or reinforced insulation		N/A
22.28	Metal parts of class II appliances conductively connected to gas pipes or in contact with water, separated from live parts by double or reinforced insulation		N/A
22.29	Class II appliances permanently connected to fixed wiring so constructed that the required degree of access to live parts is maintained after installation		N/A
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		P
	so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete		P

22.31	Neither clearances nor creepage distances over supplementary and reinforced insulation reduced below values specified in clause 29 as a result of wear		P
	Neither clearances nor creepage distances between live parts and accessible parts reduced below values for supplementary insulation if wires, screws etc. become loose		P
22.32	Supplementary and reinforced insulation constructed or protected against pollution so that clearances or creepage distances are not reduced below the values in clause 29		P
	Supplementary insulation of natural or synthetic rubber resistant to ageing, or arranged and dimensioned so that creepage distances are not reduced below values specified in 29.2		N/A
	Ceramic material not tightly sintered, similar materials or beads alone not used as supplementary or reinforced insulation		N/A
	Ceramic and similar porous material in which heating conductors are embedded is considered to be basic insulation, not reinforced insulation		N/A
	Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature		N/A
22.33	Conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed accessible metal parts are not in direct contact with live parts, or		P
	unearthed metal parts separated from live parts by basic insulation only		N/A
	Electrodes not used for heating liquids		N/A
	For class II constructions, conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed accessible metal parts, not in direct contact with basic or reinforced insulation, unless		P
	the reinforced insulation consists of at least 3 layers		N/A
	For class II constructions, conductive liquids which are in contact with live parts, not in direct contact with reinforced insulation, unless		N/A
	the reinforced insulation consists of at least 3 layers		N/A
	An air layer not used as basic or supplementary insulation in a double insulation system if likely to be bridged by leaking liquid		N/A
22.34	Shafts of operating knobs, handles, levers etc. not live, unless		N/A
	the shaft is not accessible when the part is removed		N/A

22.35	For other than class III constructions, handles, levers and knobs, held or actuated in normal use, not becoming live in the event of a failure of basic insulation		N/A
	Such parts being of metal, and their shafts or fixings are likely to become live in the event of a failure of basic insulation, are either adequately covered by insulation material or their accessible parts are separated from their shafts or fixings by supplementary insulation		N/A
	This requirement does not apply to handles, levers and knobs on stationary appliances and cordless appliances, other than those of electrical components, provided they are reliably connected to an earthing terminal or earthing contact, or separated from live parts by earthed metal		P
	Insulating material covering metal handles, levers and knobs withstand the electric strength test of 16.3 for supplementary insulation		N/A
22.36	For appliances other than class III, handles continuously held in the hand in normal use so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts, unless		N/A
	they are separated from live parts by double or reinforced insulation		N/A
22.37	Capacitors in class II appliances not connected to accessible metal parts and their casings, if of metal, separated from accessible metal parts by supplementary insulation, unless		N/A
	the capacitors comply with 22.42		N/A
22.38	Capacitors not connected between the contacts of a thermal cut-out		P
22.39	Lamp holders used only for the connection of lamps		N/A
22.40	Motor-operated appliances and combined appliances intended to be moved while in operation, or having accessible moving parts, fitted with a switch to control the motor. The actuating member of the switch being easily visible and accessible		N/A
	If the appliance cannot operate continuously, automatically or remotely without giving rise to a hazard, appliances for remote operation being fitted with a switch for stopping the operation. The actuating member of the switch being easily visible and accessible		N/A
22.41	No components, other than lamps, containing mercury		P
22.42	Protective impedance consisting of at least two separate components		N/A
	Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited		N/A

	Resistors checked by the test of 14.1 a) in IEC 60065		N/A
	Capacitors checked by the tests for class Y capacitors in IEC 60384- 14		N/A
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		N/A
22.44	Appliances not having an enclosure that is shaped or decorated like a toy		P
22.45	When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.3 due to deformation as a result of an external force applied to the enclosure		P
22.46	For programmable protective electronic circuits used to ensure compliance with the standard, the software contains measures to control the fault/error conditions in table R.1		N/A
	If the protective electronic circuit software is a part of the normal operation control, inspection of software shall be limited to relevant source code of safety controls or related software controls.		N/A
	Software that contains measures to control the fault/error conditions specified in table R.2 is to be specified in parts 2 for particular constructions or to address specific hazards		N/A
	These requirements are not applicable to software used for functional purpose or compliance with clause 11		N/A
22.47	Appliances connected to the water mains withstand the water pressure expected in normal use		N/A
	No leakage from any part, including any inlet water hose		N/A
22.48	Appliances connected to the water mains constructed to prevent backsiphonage of non- potable water		N/A
22.49	For remote operation, the duration of operation is to be set before the appliance can be started, unless		N/A
	the appliance switches off automatically or can operate continuously without hazard		N/A
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation		N/A
22.51	There is a control on the appliance manually adjusted to the setting for remote operation before the appliance can be operated in this mode		N/A
	There is a visual indication showing that the appliance is adjusted for remote operation		N/A
	These requirements not necessary on appliances that can operate as follows, without giving rise to a hazard:		----
	- continuously, or		N/A
	- automatically, or		N/A

	- remotely		N/A
22.52	Socket- outlets on appliances accessible to the user in accordance with the socket- outlet system used in the country in which the appliance is sold		N/A
22.53	Class II appliances and class III appliances that incorporate functionally earthed parts have at least double insulation or reinforced insulation between live parts and the functionally earthed parts		N/A
22.54	Button cells and batteries designated R1 not accessible without the aid of a tool, unless		N/A
	the cover of their compartment can only be opened after at least two independent movements have been applied simultaneously		N/A
22.55	Devices operated to stop the intended function of the appliance, if any, are be distinguished from other manual devices by means of shape, size, surface texture or position .....:	Surface texture and position	P
	The requirement concerning position does not preclude use of a push on push off switch		N/A
	An indication when the device has been operated is given by:		----
	- tactile feedback from the actuator or from the appliance, or		P
	- reduction in heat output; or		N/A
	- audible and visible feedback		P
22.56	Detachable power supply part provided with the part of class III construction		N/A
22.57	The properties of non- metallic materials do not degrade from exposure to UV-C radiation, as specified in annex T		N/A
	This requirement does not apply to glass, ceramics or similar materials		N/A
22.101	Appliances intended to be fixed so designed that they can be securely fixed and maintained in position.		P
22.102.1	Appliances provided with supplementary air heaters provided with at least two thermal cut-outs. The thermal cut-out intended to operate first either a self-resetting thermal cut-out or a non-self-resetting thermal cut-out; the other thermal cut-out shall be a non-self-resetting thermal cut-out.		N/A
22.102.2	Appliances provided with supplementary water heaters incorporate a non-self-resetting thermal cut-out, providing all-pole disconnection that operates separately from water thermostats. However, for appliances intended to be connected to fixed wiring, the neutral conductor need not be disconnected.		N/A
22.102.3	Thermal cut-outs of the capillary type shall be so designed that the contacts open in the event of leakage from the capillary tube.		N/A

22.103	The sensing and switching elements of electromechanical non-self-resetting cut-outs functionally independent of other control devices.		N/A
	If the switching element of a non-self-resetting cut-out is operating a relay or contactor, the relay or contactor also be operated by other control devices. Protective electronic circuits are covered by Clause 19.		N/A
22.104	Containers of sanitary hot water heat pumps withstand the water pressure occurring in normal use.		N/A
	0,15 MPa in open containers		N/A
	twice the permissible excessive operating maximum allowable pressure for closed containers;		N/A
22.105	In the case of closed containers of sanitary hot water heat pumps, the formation of an air or vapour cushion of more than 2 % of the capacity, but not more than 10 %, as a maximum, provided.		N/A
22.106	Pressure-relief devices, whether incorporated in the container of sanitary hot water heat pumps or supplied separately, shall prevent the pressure in the container from exceeding the maximum allowable pressure by more than 0,1 MPa.		N/A
22.107	The outlet system of open containers of sanitary hot water heat pumps shall be free from obstructions that could limit the water flow to such an extent that the pressure in the container would exceed the maximum allowable pressure.		N/A
	Vented containers of sanitary hot water heat pumps constructed that the container is always open to the atmosphere through an aperture of at least 5 mm in diameter or 20 mm^2 in area, with a width of at least 3 mm.		N/A
22.108	Storage tanks of sanitary hot water heat pumps shall be resistant to vacuum pressure impulses which can occur in normal use.		N/A
22.109	Wiring connected to a non-self-resetting thermal cut-out designed to be replaced after its operation secured that replacement of the thermal cut-out itself or to a heating element assembly on which the thermal cut-out is mounted will not damage other connections or internal wiring.		N/A
22.110	Non-self-resetting thermal cut-outs designed to be replaced after their operation open the circuit in the intended manner without short-circuiting live parts of different potential and without causing live parts to come into contact with the enclosure.		N/A
22.112	The construction of the refrigerating system shall comply with the requirements of ISO 5149-2:2014, Subclauses 4.2, 4.3, 5.2.1, 5.2.2, 5.2.4, 5.2.5, 5.2.15, 5.2.6.1, 5.2.6.3, 5.2.7, 5.2.8, 5.2.9.1, 5.2.9.3, and 5.2.9.4.and ISO 5149-2:2014/AMD1:2020, Subclauses 4.1, 5.2.3, 5.2.9.2		P

22.113	When a flammable refrigerant is used, refrigerant tubing piping protected or enclosed to avoid mechanical damage.		P
	The refrigerant piping protected to the extent that it will not be handled or used for carrying during moving of the appliance.		P
	Refrigerant piping located within the appliance enclosure is considered to be protected from mechanical damage.		P
22.114	When a flammable refrigerant is used, low temperature solder alloys, such as lead/tin alloys, not be used for pipe connections or any other refrigerant pressure containing purposes.		P
22.115	The refrigerant charge (mc) in each refrigerating system employing flammable refrigerant shall not exceed m3 as defined in Annex GG.		P
	The construction of the refrigerating system using flammable refrigerants comply with the requirements in Annex GG.		P
22.116	Arcs and sparks from electric components		—
22.116.1	Appliances using flammable refrigerants shall be constructed so that any leaked refrigerant will not flow or stagnate so as to cause a fire or explosion hazard in areas within the appliance or connected ducts where electrical components, which could be a source of ignition and which could function during normal operation or as a result of a leak, are located.		P
	Separate components, such as thermostats, which are charged with less than 0,5 g of a flammable gas are not considered to cause a fire or explosion hazard in the event of leakage of the gas within the component itself.		P
	Electrical components, which are potential ignition sources that could function under normal operation or as a result of a leak, are not considered a source of ignition if they comply with at least one of the following requirements:		----
	a) not be located in an area where a potentially flammable gas mixture will accumulate as demonstrated by the test of Annex FF;		N/A
	b) have equipment protection level according to 22.116.2;		P
	c) are sealed components in compliance with the tests of 22.116.3, and protected from impact by the appliance enclosure;		P
	d) are located in an enclosure which complies with IEC 60079-15:2017, Clauses 7 through 10, for restricted breathing enclosures suitable for use with group IIA gases or the refrigerant used;		N/A
	e) are located in an enclosure which complies with Annex NN. Applicable to appliances with A2L refrigerants only;		N/A

	f) are in compliance with Annex JJ. Applicable to appliance with A2L refrigerants only		N/A
	g) are in compliance with 22.116.4. Applicable to appliance with A2L refrigerants only;		N/A
	h) electrostatic air cleaners or similar devices tested and found to comply with 22.116.5. Applicable to appliance with A2L refrigerants only;		N/A
	i) refrigerant sensors tested and found to comply with Clause LL.11.		N/A
22.116.2	Components are not considered to be ignition sources if they comply with the requirements for equipment protection level Ga, Gb, or Gc as defined in IEC 60079-14 for the refrigerant used in the appliance or the relevant gas group (IIA, IIB, or IIC) to which the refrigerant belongs. However, the following requirements do not apply:		P
	– marking requirements of the applicable standard in IEC 60079 (all parts)		N/A
	– the impact tests of IEC 60079-0		N/A
	– the IP test of IEC 60079-0;		N/A
	– the drop test of IEC 60079-0;		N/A
	– the creepage and clearance requirements in IEC 60079-7.		N/A
22.116.3	Three samples of the component conditioned in a climate chamber for 168 h at the maximum operating temperature during the test of Clause 11 plus 12 K, but not less than 75 °C. This conditioning is followed by 24 h at the minimum operating temperature during the test of Clause 11 reduced by at least 5 K.	For water level sensor	P
	The test temperature in the climate chamber maintained within 2 K for the duration of the test.		P
	The components shall be stabilized at a temperature of 25 °C. The entire components then be rapidly immersed in water at a temperature of (50 ± 2) °C to a depth of at least 25 mm below the surface for at least 60 s.		P
	No bubbles emerge from the inside of the samples during this test		P
22.116.4	For A2L refrigerants, devices capable of 100 000 cycles per Clause 24, switching devices AC loads in compliance with all one of the following are not considered a potential ignition source:		----
	– for resistive loads where the impedance has a power factor higher than 0,99: Breaking current per contact is not more than 48A during normal operation;		N/A
	– for inductive loads where the power factor is not more than 0,99, the apparent power (S) of the switched inductive electrical load (Le) per phase in kVA is less than or equal to:		----
	• Le = 5 × (6,7/Su)4 when breaking all phases of a 3 phase load;		N/A
	• Le = 2,5 × (6,7/Su)4 all others.		N/A

22.116.5	For appliances with A2L refrigerants, electrostatic air cleaners and similar devices which can produce electrical arcing during normal operation that could ignite the refrigerant used, and which are installed in the unit airstream or connecting ducts, are not considered as a potential ignition source if the airflow is monitored and the energy source of the electric arcing is switched off when the airflow is below the minimum airflow according to Annex GG Clause GG.9.		N/A
22.116.6	For the purpose of determining the maximum quenching diameter (dq) in Annex JJ and the maximum allowable switched inductive electrical load Le (see 22.116.4), the effect of humidity on burning velocity (Su) taken into consideration.		N/A
	The burning velocity (Su) shall be the highest value of		----
	– as specified in ISO 817; or		N/A
	– as measured in humid air at 27 °C ± 0,5 °C dew point at 101,3 kPa containing 21,0 % ± 0,1 % O2 excluding water vapour determined at the nominal composition as specified in ISO 817.		N/A
	The burning velocity (Su) at 27 °C dew point may be determined by extrapolation of the measurement at 23 °C and 50 % relative humidity and the burning velocity (Su) as provided by ISO 817.		N/A
	The extrapolation based on the measured value increased by the measurement uncertainty to the burning velocity (Su) at 23 °C and 50 % relative humidity.		N/A
	If the burning velocity (Su) is not measurable at dry condition, the burning velocity shall be measured at 27 °C dew point.		N/A
22.117	Hot surfaces		----
22.117.1	Temperatures on surfaces that can be exposed to leakage of flammable refrigerants in excess of 25 % of LFL as determined in Annex FF not exceed the maximum allowable surface temperature given in Annex BB.		P
	For A2 and A3 refrigerants not listed in Annex BB, the maximum allowable surface temperature is the AIT.	Measured surface temperature: _____ (°C)	N/A
	For A2L refrigerants not listed in Annex BB, the maximum allowable surface temperature is determined by the higher of AIT or, if tested per Annex KK, the hot surface ignition temperature reduced by 100 K	Measured surface temperature: _____ (°C)	N/A
	Surfaces in compliance with 22.117 not be considered a potential ignition source.		P
	Refrigerant sensors tested and found to comply with Clause LL.11 are considered to comply with 22.117.		N/A

22.117.2	Temperatures on surfaces that can be exposed to leakage of A2L refrigerants may exceed the maximum allowable surface temperature in case of loss of airflow when all the following applies:		----
	- the temperatures are not exceeding the maximum allowable surface temperature with the minimum airflow;		N/A
	- the airflow is supervised and the heat source of the hot surface is switched off, when the airflow is below the minimum airflow.		N/A
22.117.3	Open source of ignition, including open flames, pilot flames, direct spark ignition or hot surface ignition or other similar sources of ignition in the combustion air-stream, if the combustion air is drawn from an unventilated space in which leaked refrigerant can enter through the combustion air intake, are allowed, when these appliances are provided with a flame arrest or equivalent to ensure that in the event of an ignition, the flame will not propagate.		N/A
22.118	Joints made in installation between parts of refrigerating system, with at least one part charged, made in accordance with following:		----
	- A brazed, welded, or mechanical connection be made before opening the valves to permit refrigerant to flow between the refrigerating system parts. A vacuum valve provided to evacuate the interconnecting pipe and/or any uncharged refrigerating system part		P
	- Mechanical connectors used indoors comply with ISO 14903. When mechanical connectors are reused indoors, sealing parts renewed. When flared joints are reused indoors, the flare part re-fabricated.		P
	- Refrigerant tubing protected or enclosed to avoid damage		P
	Flexible refrigerant connectors (such as connecting lines between the indoor and outdoor unit) that can be displaced during normal operations protected against mechanical damage.		P
22.119	Condensing units and evaporating units are equipped with a pressure limiting device or equivalent to assure that the equipment does not exceed the maximum allowable pressure.		N/A
	For partial units, the interconnection circuits for signal communication between each unit be of the same type.		N/A
	SELV level connection is recommended.		N/A
22.120	Partial units provided with a means of connection to the supply mains and not be powered by an electrical circuit from another appliance.		N/A
22.121	Leak detection system sensor location		----
22.121.1	For the installation condition of appliances using an A2L refrigerant and where a leak detection system is applied to fulfil the requirements of Annex GGor for the purpose of limiting releasable charge, the refrigerant sensor:		----

	- within the unit for appliances connected via an air duct system to one or more rooms,		N/A
	- within the ventilated enclosure if in compliance with Clause GG.4,		N/A
	– within the unit where release height h0 as determined in Clause GG.2 is not more than 1,5 m,		N/A
	– where the release height h0 as determined in Clause GG.2 is more than 1,5 m, the refrigerant sensor may be located within		N/A
	• the unit, or		N/A
	• 100 mm or less directly below the unit, or		N/A
	• remote located within 300 mm above the floor. If a remote located refrigerant sensor is specified by the manufacturer, the instructions shall state that the refrigerant sensor located within		N/A
	1)..... 10 m horizontal distance in line sight of the unit and on a wall within the room in which the unit is installed, or		N/A
	2)..... 7 m, if not in line sight of the unit, and on a wall within the room in which the unit is installed. The distance from the unit to the sensor shall be measured as the shortest horizontal unobstructed path between the unit and the nearest refrigerant sensor.		N/A
	For installations with field applied mechanical joints which are exposed in the occupied space, the instructions state that a refrigerant sensor be located:		----
	- remote located within 2 m horizontal distance in line of sight of the unit and on a wall within the room in which the unit is installed; and		N/A
	- 100 mm above the floor where h0 is not more than 300 mm from the floor; or		N/A
	- 300 mm above the floor where h0 is greater than 300 mm from the floor.		N/A
	The following mechanical joints not require that sensor:		----
	- mechanical joints in compliance with ISO 14903;		N/A
	- joints in enclosures which vent to the unit or to the outside		N/A
	– joints in enclosures which vent to a room with a minimum room area as specified in GG.2.1		N/A
22.121.2	For the installation condition of appliances using an A2 or A3 refrigerant and where a leak detection system is applied to fulfil the requirements of Annex GG or for the purpose of limiting releasable charge, the refrigerant sensor within or part of the unit.		N/A
	For appliances with ventilated enclosure in compliance with Clause GG.4, the refrigerant sensor within the ventilated enclosure.		N/A

	For installations with field applied joints which are exposed in the occupied space, these joints fulfil at least one of the following:		----
	– mechanical joints in compliance with ISO 14903;		N/A
	– welded or brazed joints;		N/A
	– joints in enclosures which vent to the unit or to the outside.		N/A
22.122	For refrigerant detection systems that are required by this standard for flammable refrigerants, the following applies:		----
	– the output signal of the refrigerant detection system activate the actions required to comply with Annex GG in the event of a leak;		N/A
	– where a refrigerant detection system refrigerant sensor is used to activate safety measures in multiple units in the same room, all of the detection system activated safety measures applied to those units in the room which rely on that refrigerant detection system;		N/A
	– If a refrigerant detection system provides notification to the user that replacement of the refrigerant sensor is required, then resetting this notification only be possible when the refrigerant sensor has been replaced.		N/A
	Refrigerant detection system comply with Annex LL.		N/A
22.123	For appliances using a flammable refrigerant according to Clause GG.9, which include a separate section with refrigerant containing components except pipes (e.g. compressors, condensers), and is located in a room smaller than Amin per Clause GG.2, that section:		----
	– not be isolated from the indoor air stream, where a leak will be detected, or		N/A
	– be ventilated to the outdoors in compliance with Clause GG.4, or		N/A
	– be naturally ventilated to outdoors.		N/A
22.124	Void		----
22.125	Refrigerating systems that fulfil all of the following conditions be considered enhanced tightness refrigerating systems: (IEC 60335-2-40:2018)		N/A
	a) compressors, pressure relief devices and pressure vessels of the refrigerating system located in locations other than the occupied space,		N/A
	b) refrigerant distribution assemblies meet all applicable requirements of this standard,		N/A
	c) refrigerating systems shall use only permanent joints indoors except for site-made joints directly connecting the indoor unit to the refrigerant piping, or factory-made mechanical joints in compliance with ISO 14903,		N/A
	d) refrigerant containing parts in indoor units protected from damage in the event of catastrophic failure of moving parts, e.g. fans, belts,		N/A

	e) systems where the equipment refrigerant containing pipes in the occupied space in question are installed in such a way that they are protected against accidental damage,		N/A
	f) the refrigerating system of each indoor unit tightness tested at the factory with detection equipment with a capability of 3 grams per year of refrigerant or better less under a pressure of at least 0,25 times the maximum allowable pressure. No leak detected,		N/A
	g) vibrations exceeding 0,30 G RMS, when measured with a low pass filter at 200 Hz, are not allowed in the refrigerant containing parts in the occupied space under normal operation.		N/A
	h) indoor heat exchangers protected from damage in the event of freezing.		N/A
	i) the maximum speed of the indoor fan, in normal operation, less than 90 % of the maximum allowable fan speed as specified by the manufacturer of the fan wheel. If the manufacturer does not specify a maximum allowable fan speed, then the fan wheel tested as follows:		N/A
	The maximum allowable fan speed established by running continuously at 120 % of maximum speed for 10 days. There shall be no structural failure of the fan.		N/A
	If non-metallic fan wheels have a minimum thermal index rating of 65 °C per ISO 2578, preconditioning is not required.		N/A
	If no thermal index rating for the material is available, specimens shall be aged at 90 °C for 168 h. The samples shall not have more than a 50-percent reduction of the unconditioned property values for items 1) to 4) below		----
	1) tensile strength in accordance with ISO 527-3,		N/A
	2) flexural strength in accordance with ISO 178,		N/A
	3) Izod impact in accordance with ISO 180		N/A
	4) tensile impact in accordance with ISO 8256		N/A
22.126	Germicidal lamps are limited to low pressure mercury lamps with a quartz envelope having a continuous spectral irradiance at 254 nm.		N/A
22.127	Appliance enclosure, UV-C lamps and UV-C barriers be located in such a manner that the UV-C spectral irradiance is not emitted outside the unit into an occupied space at a level exceeding the irradiance limit specified in 32.101.1.		N/A
	Appliance indoor airflow inlet and outlet be considered as possible radiation paths. The unit filters are not considered UV-C barriers.		N/A

22.128	For appliances that employ UV-C germicidal lamp systems and which have doors and/or panels that provide direct access to an area within the appliance where the measured UV-C spectral irradiance is greater than 1,7 μW/cm^2, the doors and/or panels be equipped with an interlock device that terminates the power to the lamps when opened.		N/A
	If a switch is used to de-energize the UV-C lamps so as to meet the requirement, it is not possible to operate the switch with test probe B of IEC 61032.		N/A
22.129	For user maintenance access areas, the UV-C spectral irradiance not exceed the limit specified in 32.101.2 with the access panels opened or removed as needed to perform the required user maintenance.		N/A
	Panels that are opened or removed to perform user maintenance are required to be closed or put back in place for proper operation of the appliance.		N/A
22.130	If the replacement of the UV-C lamp is allowed by the user, the appliance shall be constructed so that		----
	- the replacement of the UV-C lamp is easily possible		N/A
	- if screws or components are omitted or incorrectly positioned or fastened, the appliance is rendered inoperable or manifestly incomplete.		N/A
22.131	Appliances that employ refrigerants in a transcritical refrigerating system are equipped with a pressure-limiting device that operates no greater than the maximum allowable pressure taking into account the tolerance of the pressure-limiting device.		N/A
22.132	Safety shut-off valves for flammable refrigerants for the purposes of limiting the releasable charge		----
	Safety shut-off valves shall default to fully closed position when the appliance is de-energised for any reason other than failure of the supply mains		N/A
	Safety shut-off valves that are activated by a leak detection system shall have either		----
	– manual operation for resetting which requires the aid of a tool, or		N/A
	– automatically reset after the leak detection system has not detected refrigerant for at least 2 hours.		N/A
	For refrigerating systems using A2 or A3 refrigerants, safety shut-off valves shall be factory fitted in the appliance.		N/A
	The total seat leak rate for the refrigerant used for all the safety shut-off valves that reduce the leak into the same space no more than msv.		N/A
	The safety shut-off valves marked with information for the identification of the valve in case of replacement:		----

	– means for identification of the safety shut-off valves for facilitating correct replacement, and		N/A
	– arrow indicating the direction of flow, when applicable.		N/A
	The closing of safety shut-off valves in liquid refrigerant lines not result in pressures exceeding the maximum allowable pressure.		N/A
22.133	Particle foam material not be used outdoors without protective cover of metal or rigid plastic material if the appliance is accessible to the general public.		N/A
22.134	Appliances constructed so that particle foam material expanded polypropylene is separated from metallic parts containing cobalt, manganese or copper if operating at a temperature higher than 80 °C.		N/A
	However, this requirement is not applicable for particle foam material parts when a deterioration of 3 mm at the contact point will not cause the appliance to fail to comply with this standard. If the separation is provided by an air gap, it at least 3 mm.		N/A

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		P
	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/A
	Beads inside flexible metal conduits contained within an insulating sleeve		N/A
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress		P
	Flexible metallic tubes not causing damage to insulation of conductors		N/A
	Open-coil springs not used		N/A
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N/A
	No damage after 10 000 flexings for conductors flexed during normal use, or		N/A
	100 flexings for conductors flexed during user maintenance		P
	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 15 W		N/A
23.4	Bare internal wiring sufficiently rigid and fixed		N/A
23.5	The insulation of internal wiring subjected to the supply mains voltage withstanding the electrical stress likely to occur in normal use		P
	Basic insulation electrically equivalent to the basic insulation of cords complying with IEC 60227 or IEC 60245, or		N/A
	no breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation		P
	For class II construction, the requirements for supplementary insulation and reinforced insulation apply,		P
	except that the sheath of a cord complying with IEC 60227 or IEC 60245 may provide supplementary insulation.		N/A
	A single layer of internal wiring insulation does not provide reinforced insulation		P
	Sleeving used as supplementary insulation on internal wiring retained in position by clamping at both ends, or		P
	be such that it can only be removed by breaking or cutting		N/A
23.7	The colour combination green/yellow only used for earthing conductors		P
23.8	Aluminium wires not used for internal wiring		P
23.9	Stranded conductors not consolidated by soldering where they are subjected to contact pressure, unless		P
	the contact pressure is provided by spring terminals		N/A
23.10	The insulation and sheath of internal wiring, incorporated in external hoses for the connection of an appliance to the water mains, at least equivalent to that of light polyvinyl chloride sheathed flexible cord (60227 IEC 52)		N/A
23.101	Wires protected if they can be damaged by contact with refrigerant piping.	Sheath on wires	P
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/A
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance, or		N/A
	- pins for insertion into socket- outlets		N/A

	Supply cord fitted with plug provided, if:		----
	- supply cord with a plug is for indoor use only		N/A
	- marked with rating of 25 A or less and		N/A
	- complies with code requirements of country where it will be used		N/A
	Appliance inlet not allowed		N/A
25.2	Appliance not provided with more than one means of connection to the supply mains		P
	Stationary appliance for multiple supply may be provided with more than one means of connection, provided electric strength test of 1250 V for 1 min between each means of connection causes no breakdown		N/A
25.3	Appliance intended to be permanently connected to fixed wiring provided with one of the following means for connection to the supply mains:		----
	- a set of terminals allowing the connection of a flexible cord		N/A
	- a fitted supply cord		N/A
	- a set of supply leads accommodated in a suitable compartment		N/A
	- a set of terminals for the connection of cables of fixed wiring, cross-sectional areas specified in 26.6, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support		P
	- a set of terminals and cable entries, conduit entries, knock-outs or glands, allowing connection of appropriate types of cable or conduit, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support		N/A
	For a fixed appliance constructed so that parts can be removed to facilitate easy installation, this requirement is met if it is possible to connect the fixed wiring without difficulty after a part of the appliance has been fixed to its support		P
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimension according to table 10 (mm).....:		N/A
	Introduction of conduit or cable does not reduce clearances or creepage distances below values specified in clause 29		N/A
25.5	Method for assembling the supply cord to the appliance:		----
	- type X attachment		N/A
	- type Y attachment		P
	- type Z attachment, if allowed in relevant part 2		N/A
	Type X attachment, other than those with a specially prepared cord, not used for flat twin tinsel cords		N/A

	For multi-phase appliances supplied with a supply cord and that are intended to be permanently connected to fixed wiring, the supply cord is assembled to the appliance by type Y attachment		N/A
25.6	Plugs fitted with only one flexible cord		N/A
25.7	Supply cords, other than for class III appliances, being one of the following types:		----
	- rubber sheathed (at least 60245 IEC 53)		N/A
	- polychloroprene sheathed (at least 60245 IEC 57)		N/A
	- polyvinyl chloride sheathed. Not used if they are likely to touch metal parts having a temperature rise exceeding 75 K during the test of clause 11		----
	- light polyvinyl chloride sheathed cord (60227 IEC 52), for appliances not exceeding 3 kg		N/A
	- ordinary polyvinyl chloride sheathed cord (60227 IEC 53), for other appliances		N/A
	- heat resistant polyvinyl chloride sheathed. Not used for type X attachment other than specially prepared cords		----
	- heat-resistant light polyvinyl chloride sheathed cord (60227 IEC 56), for appliances not exceeding 3 kg		N/A
	- heat-resistant polyvinyl chloride sheathed cord (60227 IEC 57), for other appliances		N/A
	- halogen-free, low smoke, thermoplastic insulated and sheathed		----
	- light duty halogen-free low smoke flexible cable (62821 IEC 101) for circular cable and (62821 IEC 101f) for flat cable		N/A
	- Ordinary duty halogen-free low smoke flexible cable (62821 IEC 102) for circular cable and (62821 IEC 102f(for flat cable		N/A
	Supply cords for class III appliances adequately insulated		N/A
	Test with 500 V for 2 min for supply cords of class III appliances that contain live parts		N/A
	Supply cords for outdoor use not lighter than polychloroprene sheathed flexible cord (60245 IEC 57)		P
25.8	Nominal cross-sectional area of supply cords not less than table 11; rated current (A); cross-sectional area (mm²).....:	Rated current: 19,0A; cross-sectional area: min. 2,5mm^2	P
25.9	Supply cords not in contact with sharp points or edges		P
25.10	Supply cord of class I appliances have a green/yellow core for earthing		P
	In multi-phase appliances, the colour of the neutral conductor of the supply cord is blue		N/A
	Where additional neutral conductors are provided in the supply cord:		----
	- other colours may be used for these additional neutral conductors;		N/A

	- all of the neutral conductors and line conductors are identified by marking using the alpha numeric notation specified in IEC 60445		N/A
	- the supply cord is fitted to the appliance		N/A
25.11	Conductors of supply cords not consolidated by soldering where they are subject to contact pressure, unless		P
	the contact pressure is provided by spring terminals		N/A
25.12	Insulation of the supply cord not damaged when moulding the cord to part of the enclosure		N/A
25.13	Inlet openings so constructed as to prevent damage to the supply cord		P
	If it is not evident that the supply cord can be introduced without risk of damage, a non- detachable lining or bushing complying with 29.3 for supplementary insulation provided		N/A
	If unsheathed supply cord, a similar additional bushing or lining is required, unless the appliance is		N/A
	class 0, or		N/A
	a class III appliance not containing live parts		N/A
25.14	Supply cords moved while in operation adequately protected against excessive flexing		N/A
	Flexing test, as described:		----
	- applied force (N).....:		N/A
	- number of flexings.....:		N/A
	The test does not result in:		----
	- short- circuit between the conductors, such that the current exceeds a value of twice the rated current		N/A
	- breakage of more than 10% of the strands of any conductor		N/A
	- separation of the conductor from its terminal		N/A
	- loosening of any cord guard		N/A
	- damage to the cord or the cord guard		N/A
	- broken strands piercing the insulation and becoming accessible		N/A
25.15	For appliances with supply cord and appliances to be permanently connected to fixed wiring by a flexible cord, conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorage		P
	The cord cannot be pushed into the appliance to such an extent that the cord or internal parts of the appliance can be damaged		P
	Pull and torque test of supply cord:		----
	- fixed appliances: pull 100 N; torque (not on automatic cord reel) (Nm).....:	100N, 0,35Nm	P

	- other appliances: values shown in table 12: mass (kg); pull (N); torque (not on automatic cord reel) (Nm).....:		N/A
	Cord not damaged and max. 2 mm displacement of the cord		P
25.16	Cord anchorages for type X attachments constructed and located so that:		----
	- replacement of the cord is easily possible		N/A
	- it is clear how the relief from strain and the prevention of twisting are obtained		N/A
	- they are suitable for different types of supply cord		N/A
	- cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless		N/A
	they are separated from accessible metal parts by supplementary insulation		N/A
	- the cord is not clamped by a metal screw which bears directly on the cord		N/A
	- at least one part of the cord anchorage securely fixed to the appliance, unless		N/A
	it is part of a specially prepared cord		N/A
	- screws which have to be operated when replacing the cord do not fix any other component, unless		N/A
	the appliance becomes inoperative or incomplete or the parts cannot be removed without a tool		N/A
	- if labyrinths can be bypassed the test of 25.15 is nevertheless withstood		N/A
	- for class 0, 0I and I appliances they are of insulating material or are provided with an insulating lining, unless		N/A
	failure of the insulation of the cord does not make accessible metal parts live		N/A
	- for class II appliances they are of insulating material, or		N/A
	if of metal, they are insulated from accessible metal parts by supplementary insulation		N/A
	After the test of 25.15, under the conditions specified, the conductors have not moved by more than 1 mm in the terminals		N/A
25.17	Adequate cord anchorages for type Y and Z attachment, test with the cord supplied with the appliance		P
25.18	Cord anchorages only accessible with the aid of a tool, or		P
	Constructed so that the cord can only be fitted with the aid of a tool		N/A
25.19	Type X attachment, glands not used as cord anchorage in portable appliances		N/A
	Tying the cord into a knot or tying the cord with string not used		N/A

25.20	The conductors of the supply cord for type Y and Z attachment insulated from accessible metal parts		P
25.21	Space for supply cord for type X attachment or for connection of fixed wiring constructed:		----
	- to permit checking of conductors with respect to correct positioning and connection before fitting any cover		P
	- so there is no risk of damage to the conductors or their insulation when fitting the cover		P
	- 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		P
	2 N test to the conductor for portable appliances; no contact with accessible metal parts		P
25.22	Appliance inlets:		----
	- live parts not accessible during insertion or removal		N/A
	Requirement not applicable to appliance inlets complying with IEC 60320-1		N/A
	- connector can be inserted without difficulty		N/A
	- the appliance is not supported by the connector		N/A
	- not for cold conditions if temp. rise of external metal parts exceeds 75 K during clause 11, unless		N/A
	the supply cord is unlikely to touch such metal parts		N/A
25.23	Interconnection cords comply with the requirements for the supply cord, except that:		----
	- the cross-sectional area of the conductors is determined on the basis of the maximum current during clause 11		P
	- the thickness of the insulation may be reduced		P
	- for class I or class II appliance with class III construction, the cross sectional areas of the conductors need not comply with 25.8 if specified conditions are met		N/A
	If necessary, electric strength test of 16.3		N/A
25.24	Interconnection cords not detachable without the aid of a tool if compliance with this standard is impaired when they are disconnected		P
25.25	Dimensions of pins that are inserted into socket-outlets compatible with the dimensions of the relevant socket-outlet.		N/A
	Dimensions of pins and engagement face in accordance with the dimensions of the relevant plug in IEC/TR 60083		N/A
27	**PROVISION FOR EARTHING**		----
27.1	Accessible metal parts of class 0I and I appliances permanently and reliably connected to an earthing terminal or earthing contact of the appliance inlet		P

	Earthing terminals and earthing contacts not connected to the neutral terminal		P
	Class 0, II and III appliances have no provision for protective earthing		N/A
	Class II appliances and class III appliances can incorporate an earth for functional purposes		N/A
	Safety extra-low voltage circuits not earthed, unless		N/A
	protective extra-low voltage circuits		N/A
27.2	Clamping means of earthing terminals adequately secured against accidental loosening		P
	Terminals for the connection of external equipotential bonding conductors allow connection of conductors of 2,5 to 6 mm², and		N/A
	- do not provide earthing continuity between different parts of the appliance, and		N/A
	- conductors cannot be loosened without the aid of a tool		N/A
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
27.3	For a detachable part having an earth connection and being plugged into another part of the appliance, the earth connection is made before and separated after current-carrying connections when removing the part		N/A
	For appliances with supply cords, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		P
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
27.4	No risk of corrosion resulting from contact between parts of the earthing terminal and the copper of the earthing conductor or other metal		P
	Parts providing earthing continuity, other than parts of a metal frame or enclosure, have adequate resistance to corrosion		P
	If of steel, these parts provided with an electroplated coating with a thickness at least 5 µm		P
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		P
	In the body of the earthing terminal is a part of a frame or enclosure of aluminium or aluminium alloys, precautions taken to avoid risk of corrosion		P
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
27.5	Low resistance of connection between earthing terminal and earthed metal parts		P

	This requirement does not apply to connections providing earthing continuity in the protective extra-low voltage circuit, provided the clearances of basic insulation are based on the rated voltage of the appliance		N/A
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A
	Resistance not exceeding 0,1 Ω at the specified low-resistance test (Ω).....:	Max. 0.008Ω	P
	If the ground continuity between system components meets the minimum values specified in 27.5, it is considered to meet the requirements without dedicated grounding conductors. (IEC 60335-2-40:2018)		N/A
27.6	The printed conductors of printed circuit boards not used to provide earthing continuity in hand-held appliances.		N/A
	They may be used to provide earthing continuity in other appliances if at least two tracks are used with independent soldering points and the appliance complies with 27.5 for each circuit		N/A
	Requirements not applicable to class II appliances and class III appliances that incorporate an earth for functional purposes		N/A

10.1	**TABLE: Power input deviation**				P
Input deviation of/at:	P rated (W)	P measured (W)	Δ P	Required Δ P	Remark
230V~ 60Hz	3000	2899.5	-3.4	+15%	—
—	-	—	—	—	—
Supplementary information: tested with all alternative fan motor and recorded the maximum value.					

10.2	**TABLE: Current deviation**				P
Current deviation of/at:	**I rated (A)**	**I measured (A)**	**Δ I**	**Required Δ I**	**Remark**
-	-	-	-	-	—
Supplementary information: —					

11.8	**TABLE:**		P
	Test voltage (V)..... .....:	240x1,06=254.4	—
	Ambient (°C).....:	Cooling mode: Indoor(DB/WB) 32/23°C; outdoor(DB/WB) 43/26°C	—

Thermocouple locations	Max. temperature measured, T (°C)		Max. temperature limit, T (°C)
	Cooling	Heating	
Fan wire	31.61	—	105

Motor	32.54	—	150
Terminal board	31.07	—	85
PCB	32.55	—	145
Inductor	46.78	—	120
High-frequency transformer	35.22	—	110
Electrolytic capacitor	37.26	—	105
Power wire	32.2	—	75
Y capacitor	32.9	—	100
External X capacitor terminal board	42.99	—	100
terminal board	34.46	—	85
External electrolytic capacitor	38.02	—	105
External X capacitor	36.83	—	100
External varistor	35.68	—	85
External fan wire	34.69	—	105
External PCB	35.67	—	145
External appliance box	34.32	—	/
Appliance box	32.63	—	/
Compressor	86.52	—	150
Compressor wire	47.37	—	105
External motor	55.69	—	150
External inductor	46.07	—	120
Supplementary information: --			

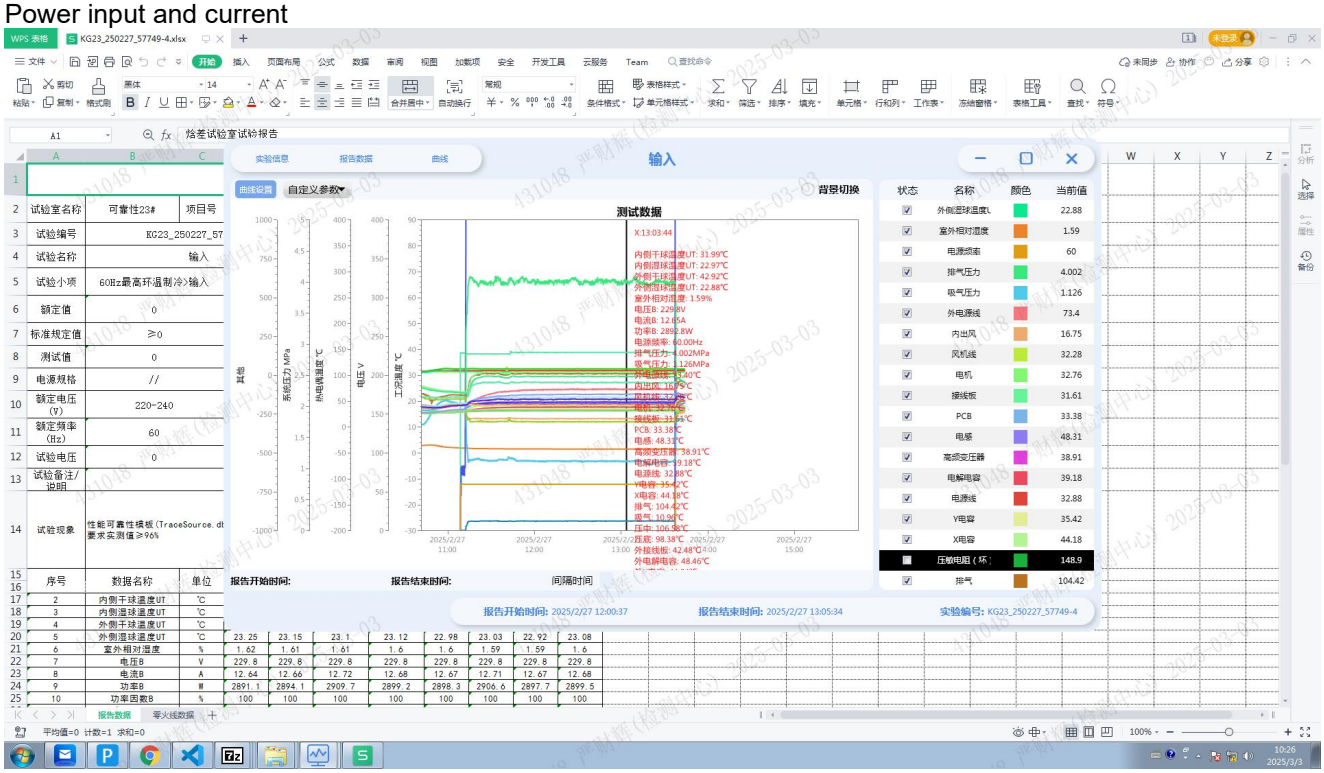
13.2	**TABLE: Leakage current**		P
	Heating appliances: 1,15 x rated input (W).....:	N/A	—
	Motor-operated and combined appliances: 1,06 x rated voltage (V).....:	254,4V; 60Hz	—

Leakage current between	I (mA)	Max. allowed I (mA)
Live parts and accessible earthed metal part	0.9232	2
Live parts and plastic enclosure	Max. 0,0007peak	0.25 peak
Supplementary information: tested for all models and recorded maximum value.		

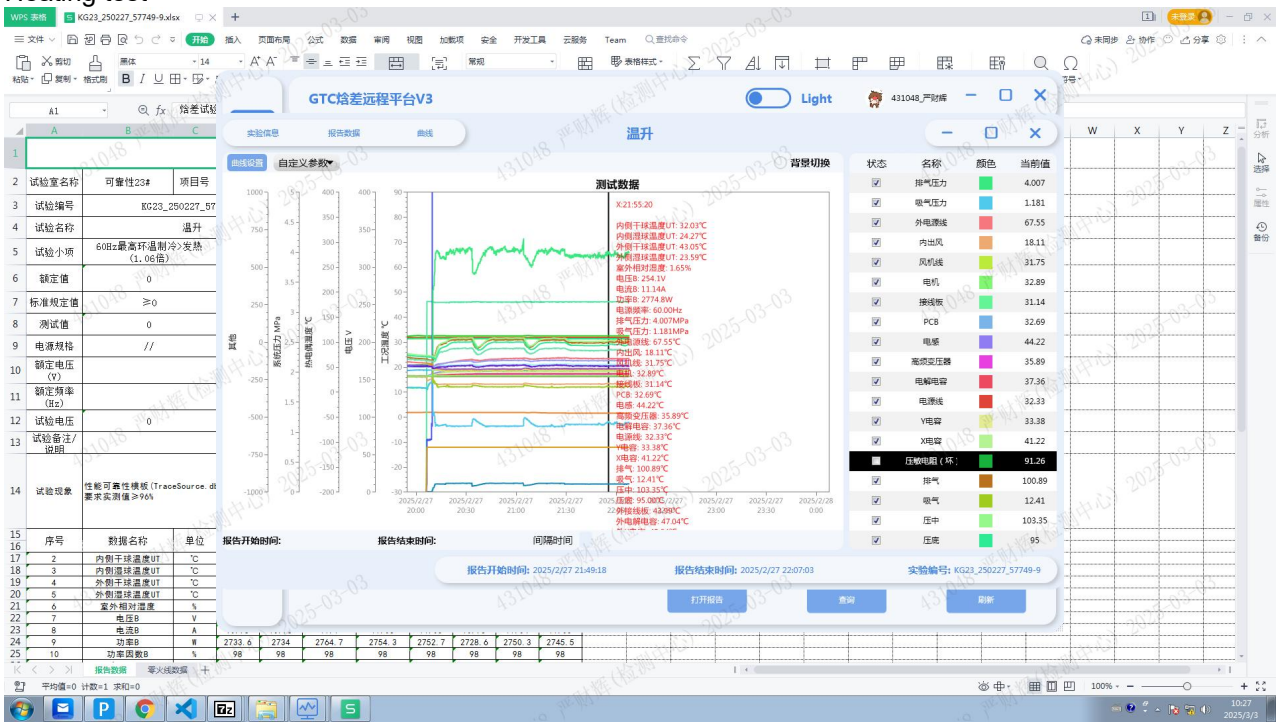
13.3	**TABLE: Dielectric strength**	P
Test voltage applied between:	Test potential applied (V)	Breakdown / flashover (Yes/No)
Live parts and accessible earthed metal part	1000	No
Live parts and plastic enclosure	3000	No
Supplementary information:		

Photo documents:

Power input and current



Heating test

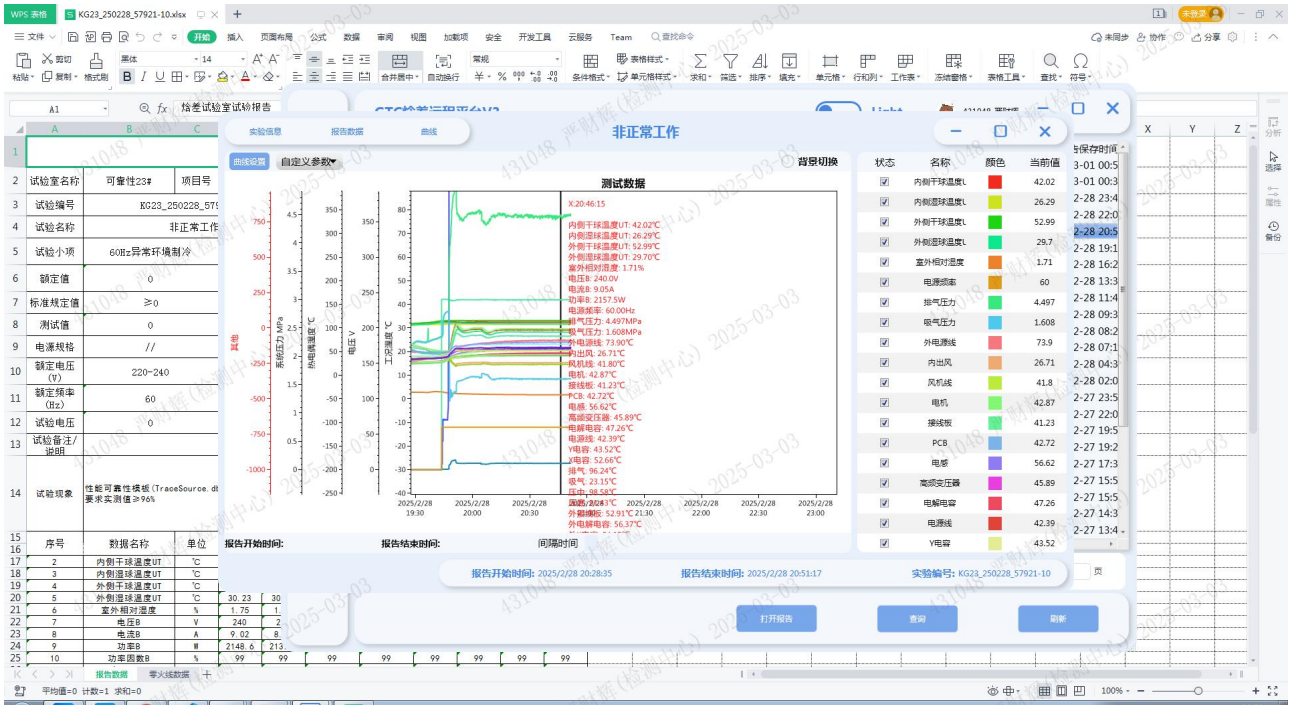


Leakage current and electric strength


ESA-140 ELECTRICAL SAFETY COMPLIANCE ANA
eec
RESET
TEST
POWER
执行测试
0001 接触电流设定
10000uA
999.0s 0.0uA
0002 绝缘阻抗设置
500V 0.00MΩ
60.0s 0.05MΩ
0003 接地阻抗设置
25.00A 100mΩ
10.0s 0mΩ
0004 交流耐压设置
371V 100.00mA
5.0s 0.000mA
0005 交流耐压设置
1250V 100.00mA
60.0s 0.000mA
0006 接地阻抗设置
25.00A 100mΩ
10.0s 0mΩ
文件名 : 0001 01
接触电流
测试时间
测试电压
254.5 V
泄漏电流有效值
923.2uA
零线
极性反向
接地
探针设置 G-L
人体网络Vrms
459.7mV
最大电流值
926.8uA
时间
91.9 s
My Menu


ESA-140 ELECTRICAL SAFETY COMPLIANCE AN
TEST
POWER
执行测试
0001 接触电流设定
10000uA
999.0s 0.0uA
0002 绝缘阻抗设置
500V 0.00MΩ
60.0s 0.05MΩ
0003 接地阻抗设置
25.00A 100mΩ
10.0s 0mΩ
0004 交流耐压设置
371V 100.00mA
5.0s 0.000mA
0005 交流耐压设置
1250V 100.00mA
60.0s 0.000mA
0006 接地阻抗设置
25.00A 100mΩ
10.0s 0mΩ
文件名 : 0001 01
接触电流
测试时间
测试电压
254.6 V
泄漏电流有效值
0.7uA
零线
极性反向
接地
探针设置 Ph-L
人体网络Vrms
0.4mV
最大电流值
0.8uA
时间
18.2 s
My Menu

Abnormal operation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报告结束时间: 2025/2/28 20:51:17
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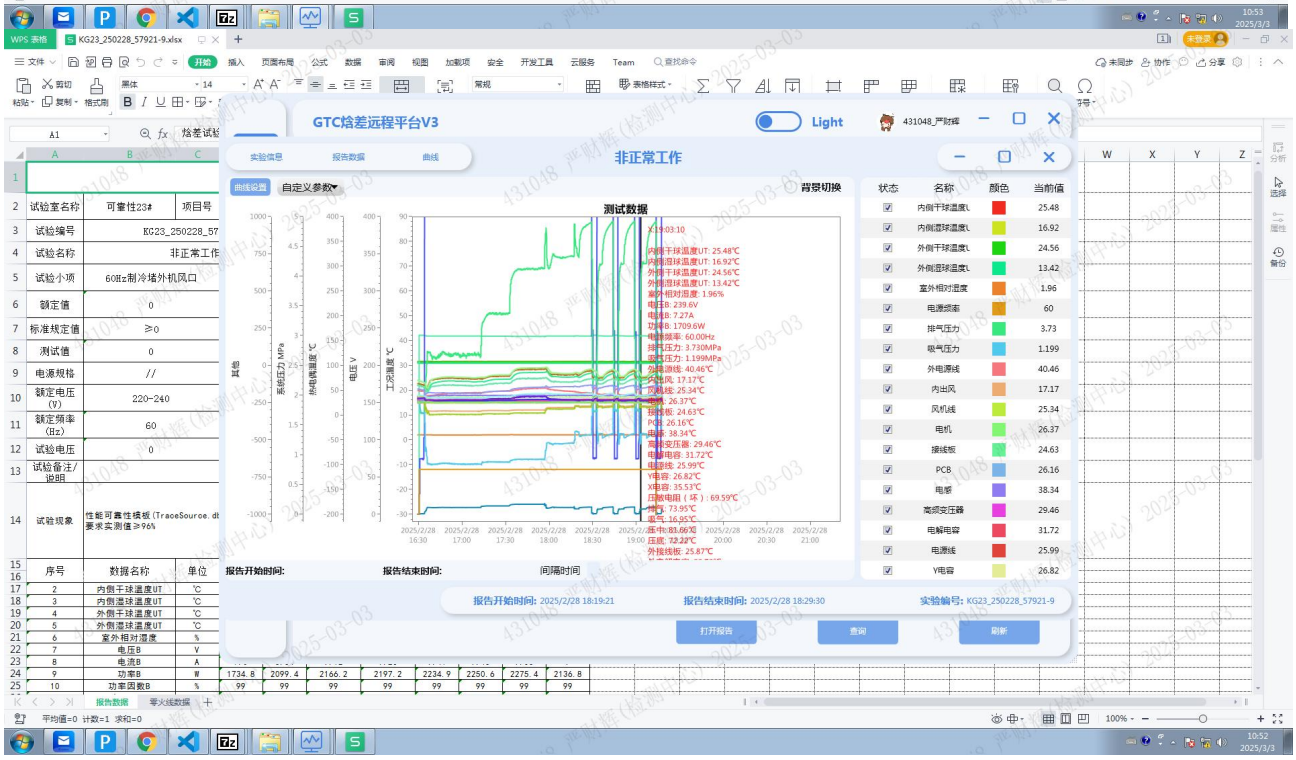
打开报告
查询
刷新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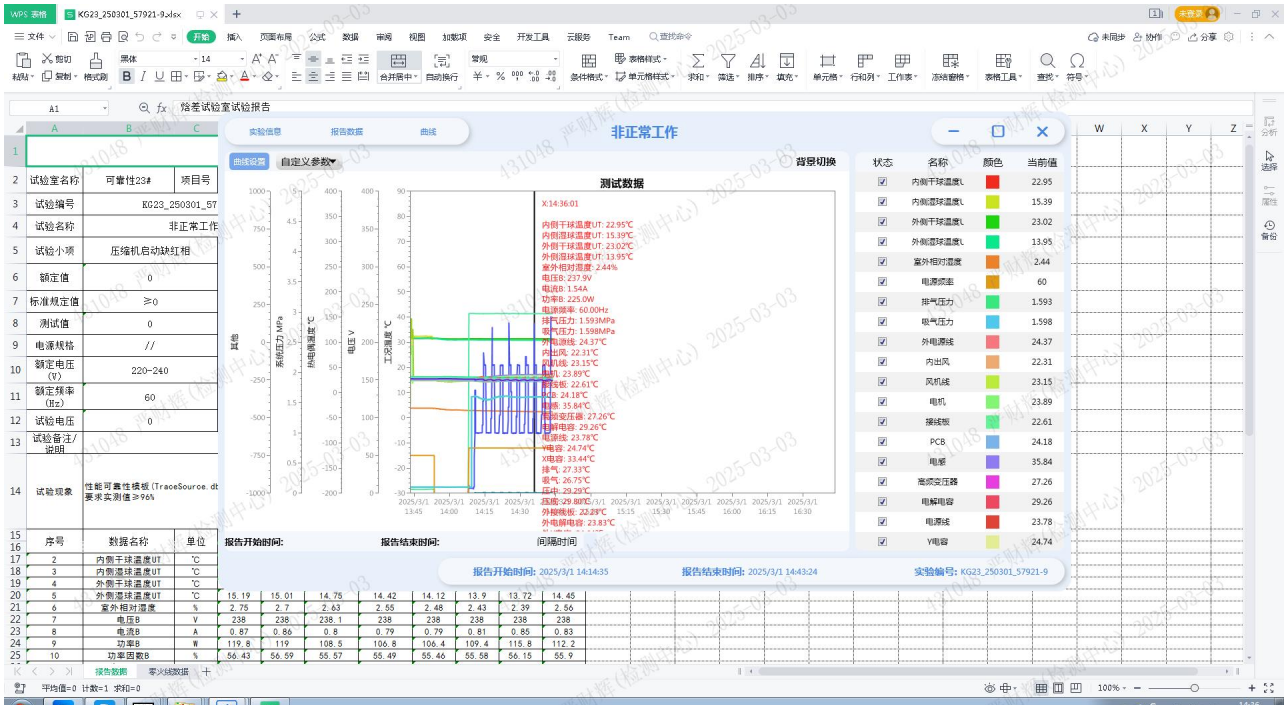
非正常工作
测试数据
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试验编号 KG23_250301_57
试验名称 非正常工作
试验小项 压缩机启动缺红相
额定值 0
标准规定值 ≥0
测试值 0
电源规格 //
额定电压(V) 220-240
额定频率(Hz) 60
试验电压 0
试验备注/说明
试验现象 性能可靠性模板(TraceSource.dt 要求实测值≥96%
序号 数据名称 单位
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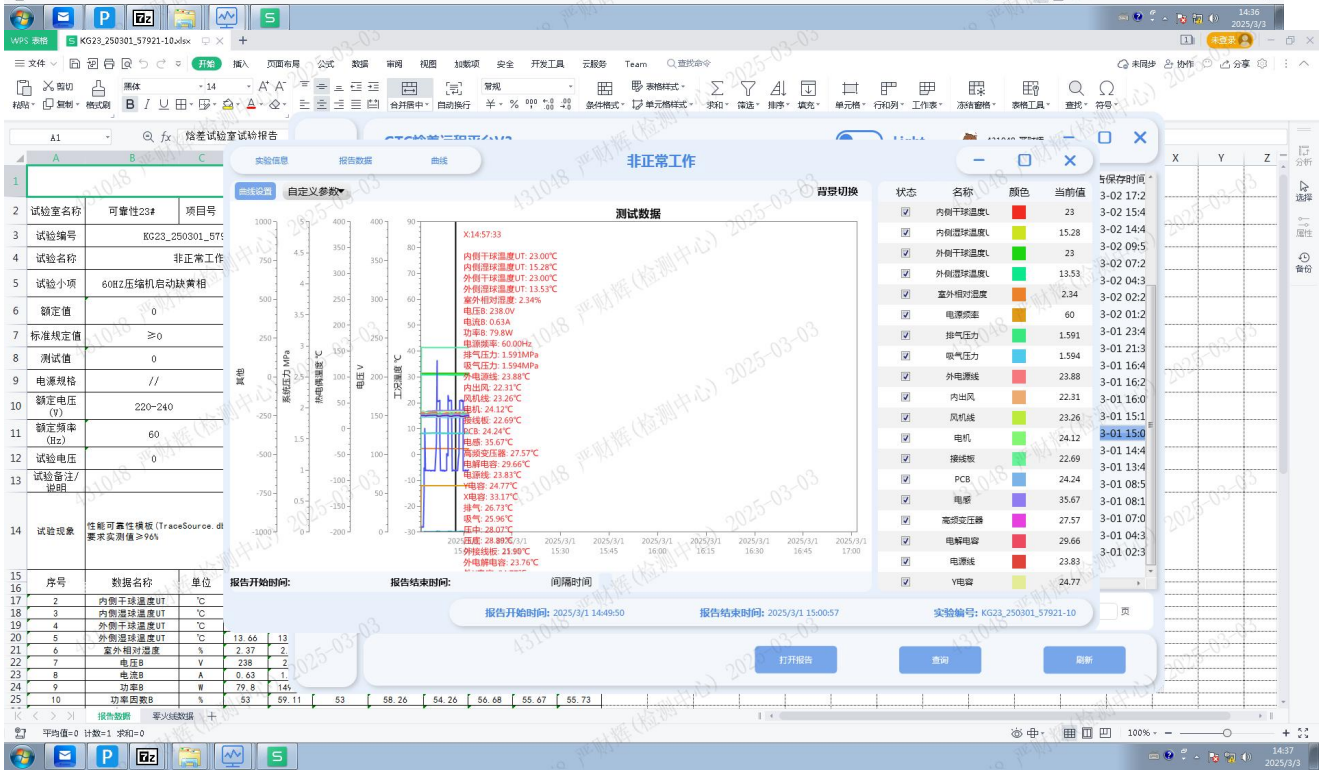
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试验编号 KG23_250301_57
试验名称 非正常工作
试验小项 60HZ压缩机启动缺黄相
额定值 0
标准规定值 ≥0
测试值 0
电源规格 //
额定电压(V) 220-240
额定频率(Hz) 60
试验电压 0
试验备注/说明
试验现象 性能可靠性模板(TraceSource.dt 要求实测值≥96%
序号 数据名称 单位
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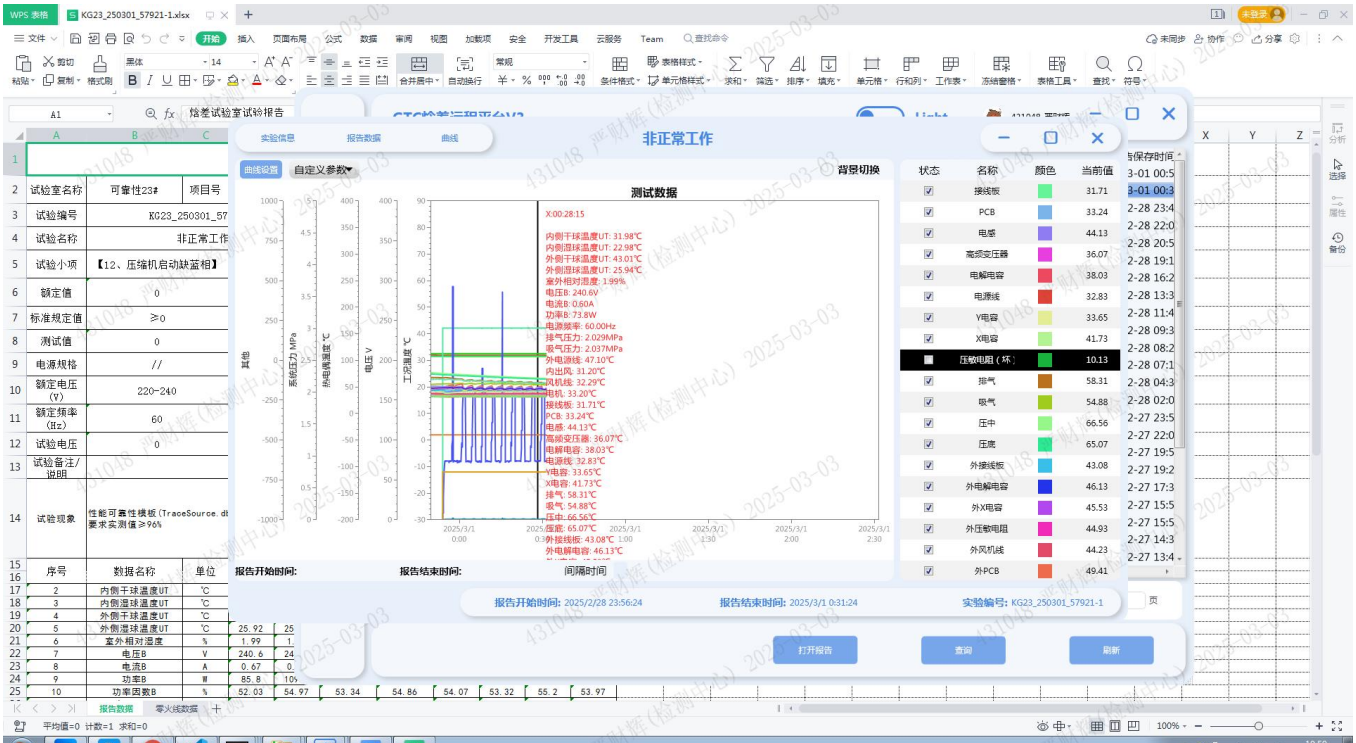
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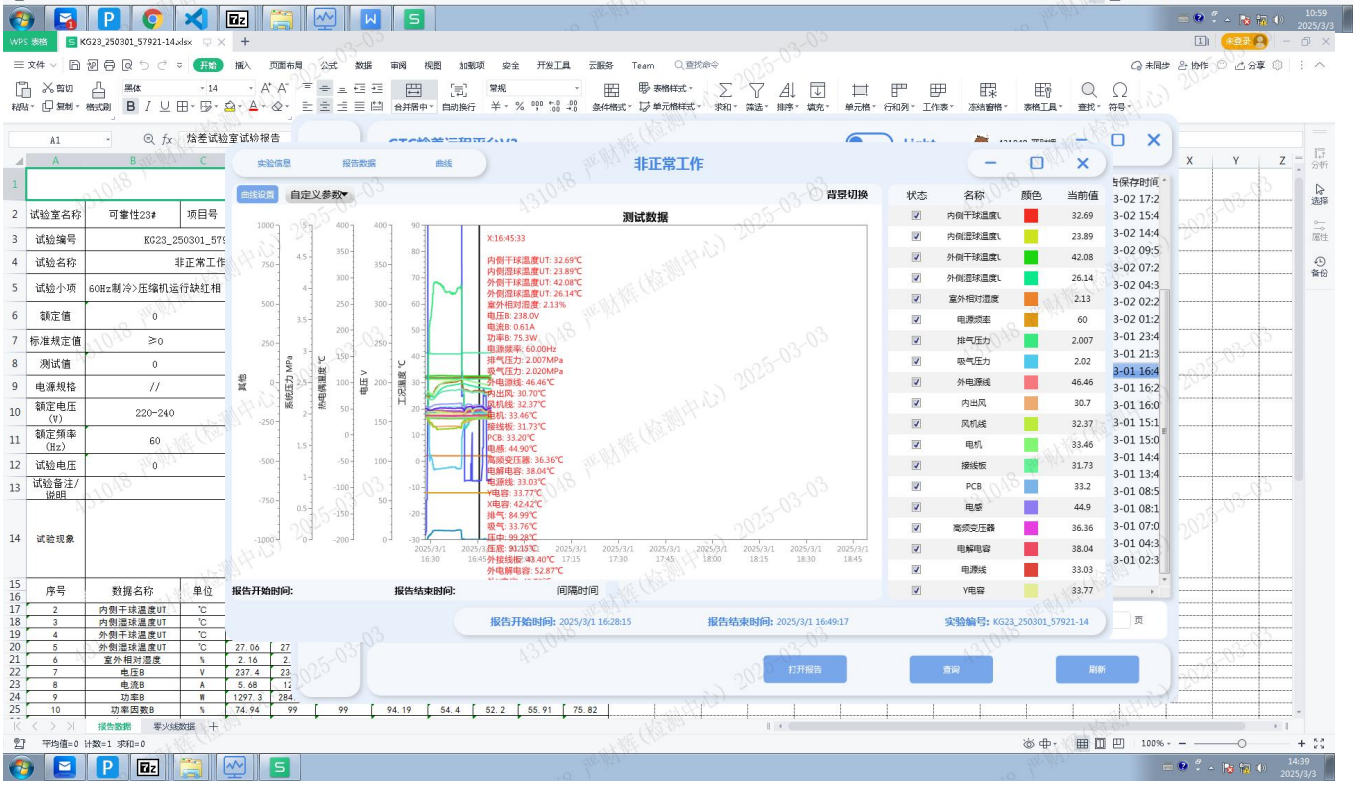
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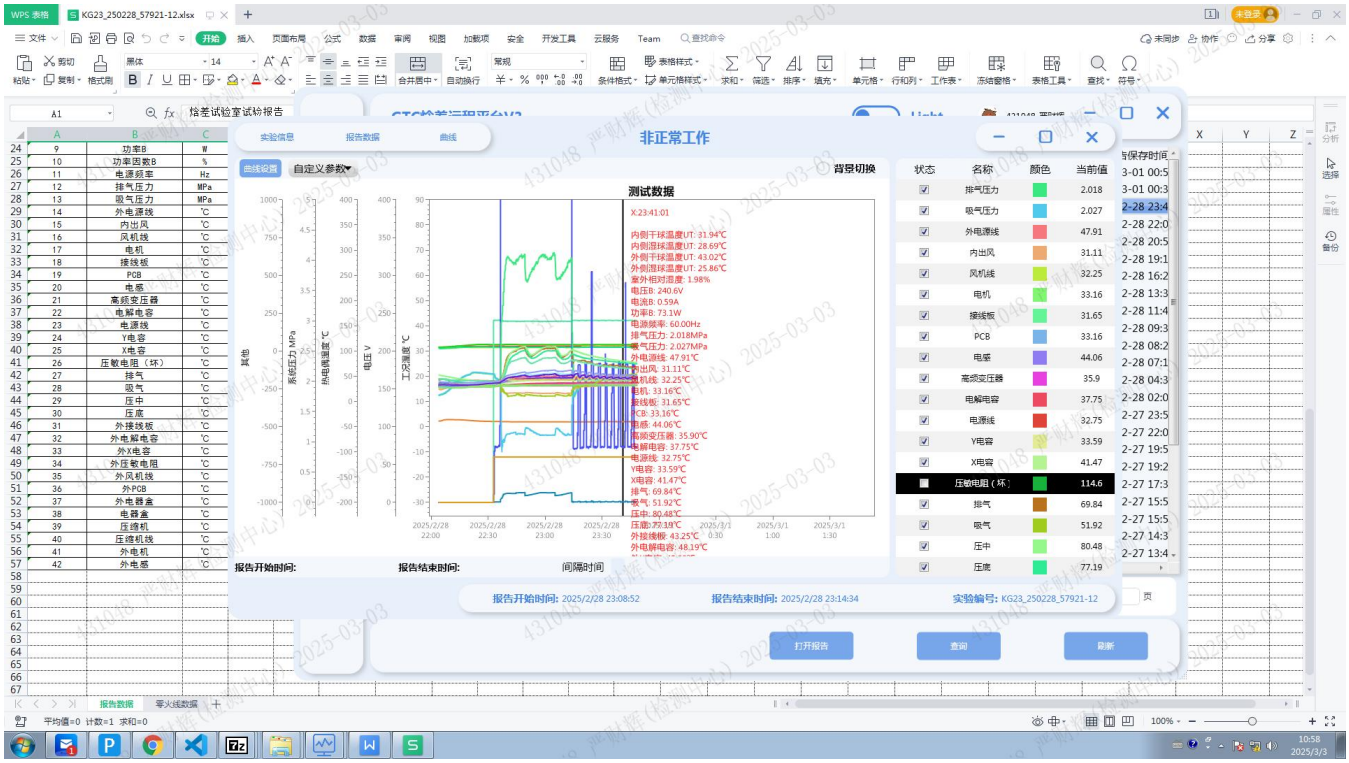
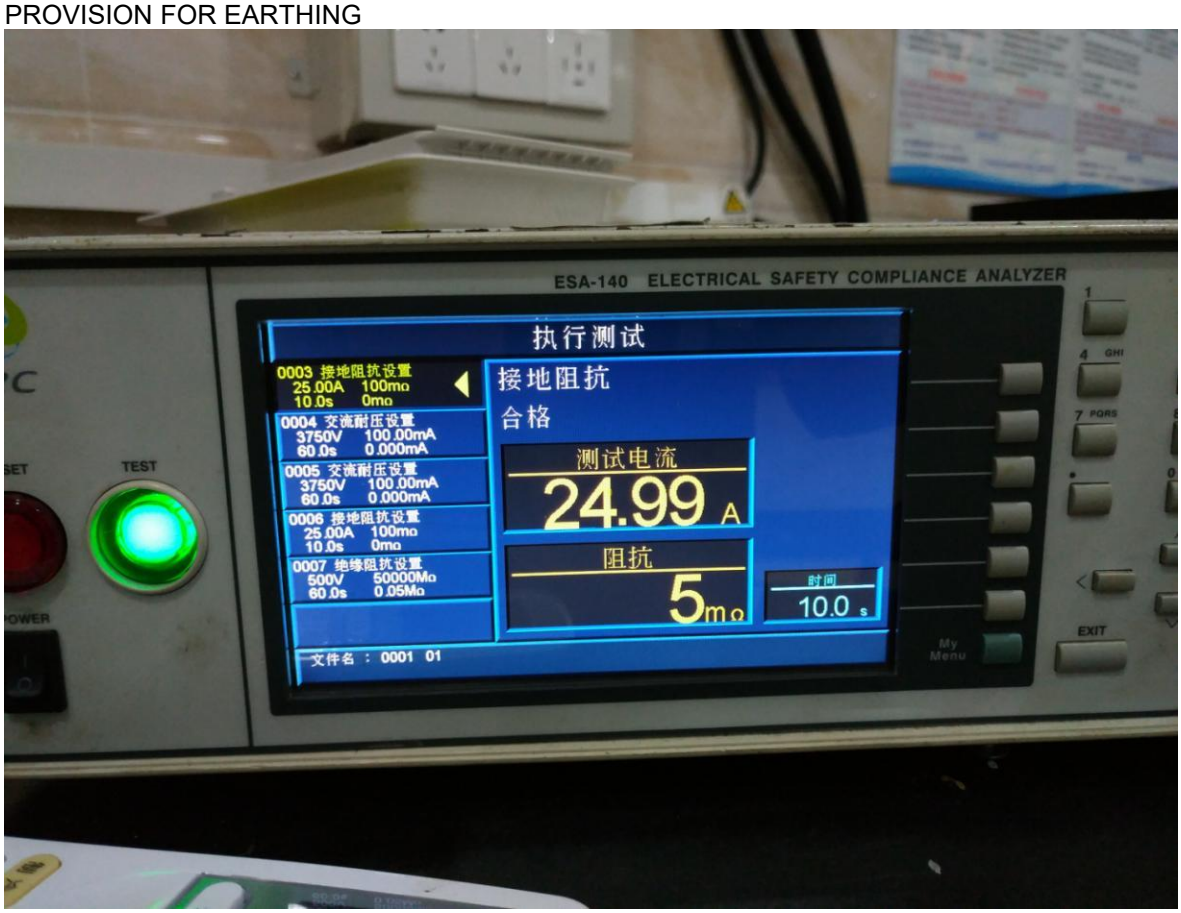


PROVISION FOR EARTHING



----End of Report----