Test Report issued under the responsibility of:

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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. .....:	180423126GZU-001
Date of issue .....:	September 28, 2018; Modification 12: November 10, 2020
Total number of pages.....:	177
Applicant's name.....:	Gree Electric Appliances, Inc. of Zhuhai
Address .....:	West Jinji Road, Qianshan, Zhuhai, Guangdong 519070, P.R. China
Test specification:	
Standard .....:	IEC 60335-2-40:2002 (Fourth Edition) + A1:2005 (incl. Corr.1:2006) + A2:2005 in conjunction with IEC 60335-1:2010 (Fifth Edition)
Test procedure .....:	
Non-standard test method……..:	N/A
Test Report Form No.....:	IEC60335_2_40J
Test Report Form(s) Originator ....:	VDE
Master TRF.....:	Dated 2014-06

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

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

General disclaimer:

The test results presented in this report relate only to the object tested.
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Tel: (86-20) 8213 9688 Fax: (86-20) 32057538

Test item description .....:	Air conditioner, portable (Local air conditioner)
Trade Mark .....:	GREE
Manufacturer.....:	Gree Electric Appliances, Inc. of Zhuhai
Model/Type reference .....:	GPC12AL-K5NNA3A, GPH12AL-K5NNA3A, GPH12AL-K5NNA2A, GPC12AL-K5NNA3B, GPH12AL-K5NNA2B, GPC12AL-K5NNA2A, GPC12AL-K5NNA3C, GPH12AL-K5NNA3C, GPH12AL-K5NNA1C, GPH12AL-K5NNA1A, GPC12AL-K5NNA1C, GPC12AL-K5NNA2C; GPH12AL-K5NNA2C, GPC12AL-K5NNA3D
Ratings .....:	220-240V~, 50Hz, Class I, R290, 1500W for GPC12AL-K5NNA3C, GPC12AL-K5NNA1C, GPC12AL-K5NNA2C, GPC12AL-K5NNA3D 1550W for other models

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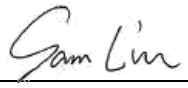
Testing procedure and testing location:			
☒	**CB Testing Laboratory:**	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch	
Testing location/ address ..... :		Room 02, & 101/E201/E301/E401/E501/E601/E701/E801 of Room 01 1-8/F., No. 7-2. Caipin Road, Science City, GETDD, Guangzhou, Guangdong, China	
☐	**Associated CB Testing Laboratory:**	N/A	
Testing location/ address ..... :		N/A	
Tested by (name + signature)..... :		Sam Liu	
Approved by (name + signature) ..... :		Forest Wan	
☐	**Testing procedure: TMP/CTF Stage 1:**	N/A	
Testing location/ address ..... :		N/A	
Tested by (name + signature)..... :		N/A	
Approved by (name + signature) ..... :		N/A	
☐	**Testing procedure: WMT/CTF Stage 2:**	N/A	
Testing location/ address ..... :		N/A	
Tested by (name + signature)..... :		N/A	
Witnessed by (name + signature) ..... :		N/A	
Approved by (name + signature) ..... :		N/A	
☐	**Testing procedure: SMT/CTF Stage 3 or 4:**	N/A	
Testing location/ address ..... :		N/A	
Tested by (name + signature)..... :		N/A	
Witnessed by (name + signature) ..... :		N/A	
Approved by (name + signature) ..... :		N/A	
Supervised by (name + signature)..... :		N/A	

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

None

Summary of testing:
The products comply with the requirement of the standard:
EN 60335-1:2012+A11:2014+A13:2017+A1:2019+A14:2019+A2:2019
EN 60335-2-40:2003+A11:2004+A12:2005+A1:2006+A2:2009+A13:2012+AC:2013
EN 62233:2008

Tests performed (name of test and test clause):

Original:

Full tests were conducted on model GPH12AL-K5NNA3A.

Modification 1:

After review, no test was considered.

Modification 2:

After review, tests of clauses 10, 11, 13, 19 and 29 were conducted on model GPH12AL-K5NNA2B.

Modification 3:

After review, no test was considered.

Modification 4 (LVD only):

After review, tests of clauses 10, 11, 13, 19, 24.5 and annex EE were conducted on model GPH12AL-K5NNA3A with compressor with alternative compressor capacitor (40uF).

Modification 5:

After review, test of clause 10 was conducted on model GPC12AL-K5NNA3C.

Modification 6:

After review, tests of clauses 10, 11, 13, 19.5, 19.7 and annex EE was conducted on model GPH12AL-K5NNA3C.

Modification 7:

After review, no test was considered.

Modification 8:

After review, no test was considered.

Modification 9:

After review, test of clause 30 was conducted on alternative components.

Modification 10 (LVD only):

After review, no test was considered.

Modification 11:

After review, tests of clause 29 were conducted on alternative main boards.

Testing location:

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Tests of clause 30 were conducted on alternative transformer (ECO20-07PA). **Modification 12:** After review, tests of clause 10, 11, 13, 19.2, 19.5, 19.7, 19.14, 24.5, 30 and annex EE were conducted on GPC12AL-K5NNA3D.	

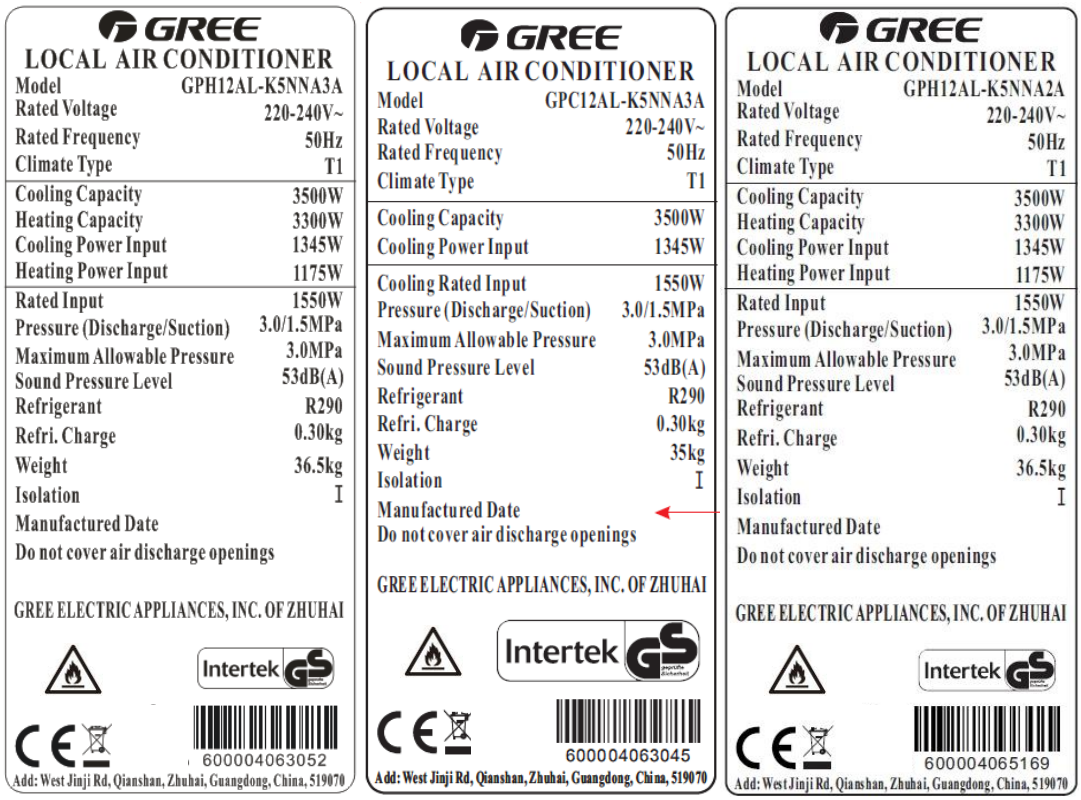
Summary of compliance with National Differences:

The national differences of European Group have been considered.

☒ **The product fulfils the requirements of EN 60335-1:2012+A11:2014+A13:2017+A1:2019+A14:2019+A2:2019; EN 60335-2-40:2003+A11:2004+A12:2005+A1:2006+A2:2009+A13:2012+AC:2013; EN 62233:2008**

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.

English:



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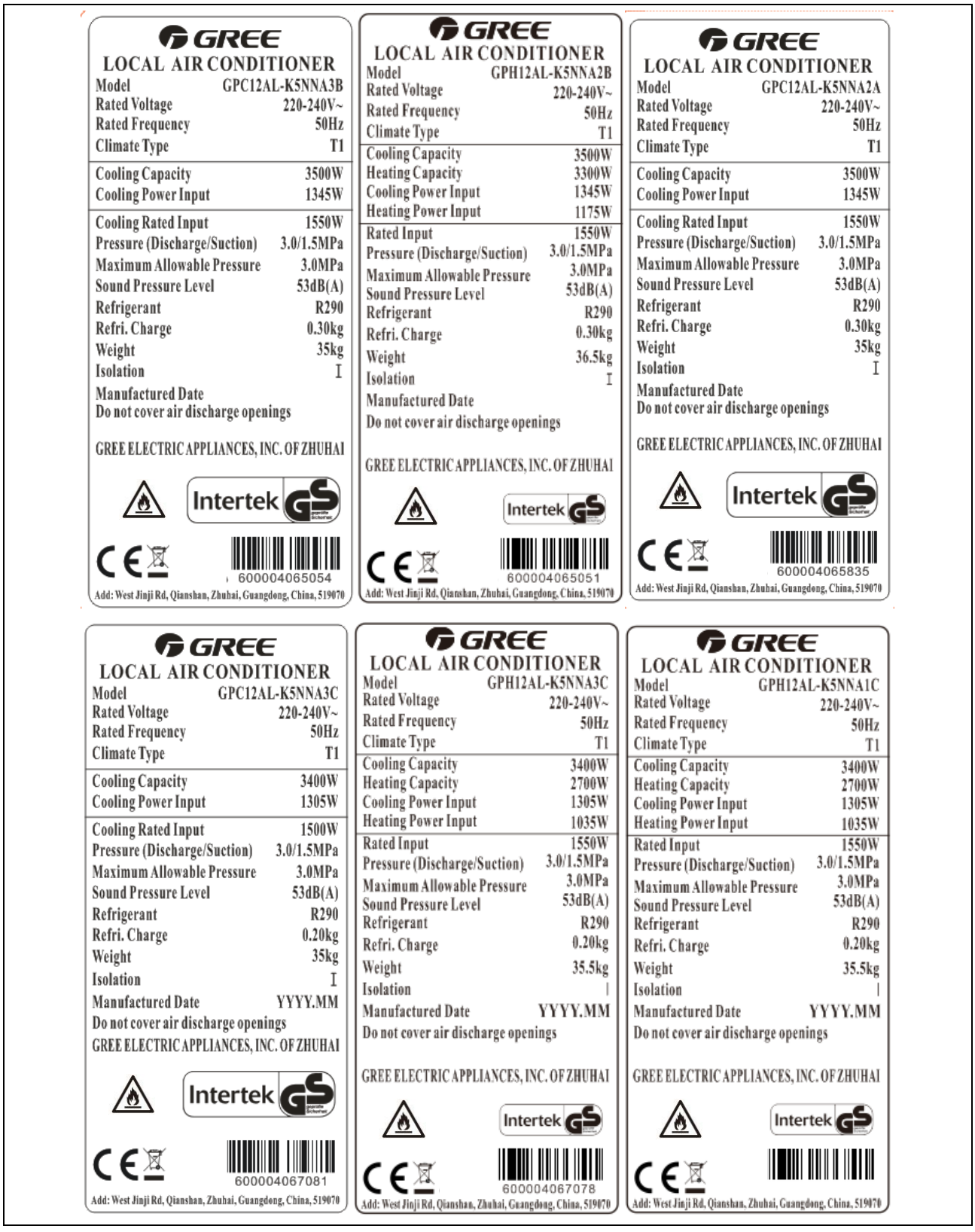

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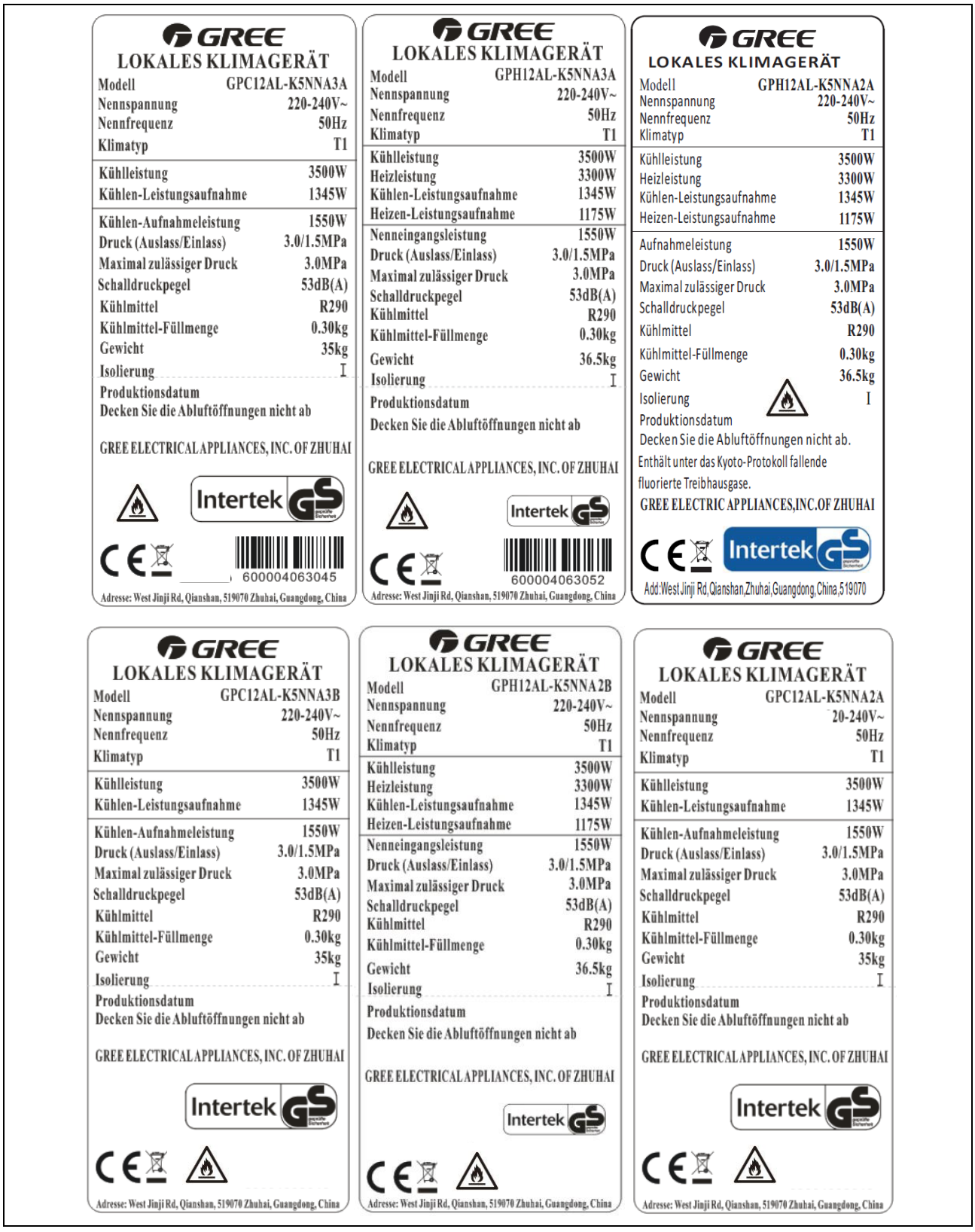
GREE
LOCAL AIR CONDITIONER
Model GPH12AL-K5NNA1A
Rated Voltage 220-240V~
Rated Frequency 50Hz
Climate Type T1
Cooling Capacity 3500W
Heating Capacity 3300W
Cooling Power Input 1345W
Heating Power Input 1175W
Rated Input 1550W
Pressure (Discharge/Suction) 3.0/1.5MPa
Maximum Allowable Pressure 3.0MPa
Sound Pressure Level 53dB(A)
Refrigerant R290
Refri. Charge 0.30kg
Weight 36.5kg
Isolation I
Manufactured Date YYYY.MM
Do not cover air discharge openings
GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI
600004068043
Add: West Jinji Rd, Qianshan, Zhuhai, Guangdong, China, 519070
GREE
LOCAL AIR CONDITIONER
Model GPC12AL-K5NNA1C
Rated Voltage 220-240V~
Rated Frequency 50Hz
Climate Type T1
Cooling Capacity 3400W
Cooling Power Input 1305W
Cooling Rated Input 1500W
Pressure (Discharge/Suction) 3.0/1.5MPa
Maximum Allowable Pressure 3.0MPa
Sound Pressure Level 53dB(A)
Refrigerant R290
Refri. Charge 0.20kg
Weight 35kg
Isolation I
Manufactured Date YYYY.MM
Do not cover air discharge openings
GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI
600004068961
Add: West Jinji Rd, Qianshan, Zhuhai, Guangdong, China, 519070
GREE
LOCAL AIR CONDITIONER
Model GPC12AL-K5NNA2C
Rated Voltage 220-240V~
Rated Frequency 50Hz
Climate Type T1
Cooling Capacity 3.40kW
Cooling Power Input 1305W
EER 2.60
Rated Input 1500W
Pressure (Discharge/Suction) 3.0/1.5MPa
Maximum Allowable Pressure 3.0MPa
Sound Pressure Level 53dB(A)
Refrigerant R290
Refri. Charge 0.20kg
Weight 35kg
Isolation I
Manufactured Date YYYY.MM
Serial No.
Do not cover air discharge openings
GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI
600004069653
Add: West Jinji Rd, Qianshan, Zhuhai, Guangdong, China, 519070
GREE
LOCAL AIR CONDITIONER
Model GPH12AL-K5NNA2C
Rated Voltage 220-240V~
Rated Frequency 50Hz
Climate Type T1
Cooling Capacity 3.40kW
Heating Capacity 2.70kW
Cooling Power Input 1305W
Heating Power Input 1035W
EER/COP 2.60/2.60
Rated Input 1550W
Pressure (Discharge/Suction) 3.0/1.5MPa
Maximum Allowable Pressure 3.0MPa
Sound Pressure Level 53dB(A)
Refrigerant R290
Refri. Charge 0.20kg
Weight 35.5kg
Isolation I
Manufactured Date YYYY.MM
Serial No.
Do not cover air discharge openings
GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI
Add: West Jinji Rd, Qianshan, Zhuhai, Guangdong, China, 519070
GREE
LOCAL AIR CONDITIONER
Model GPC12AL-K5NNA3D
Rated Voltage 220-240V~
Rated Frequency 50Hz
Climate Type T1
Cooling Capacity 3.50kW
Cooling Power Input 1345W
EER 2.60
Rated Input 1500W
Pressure (Discharge/Suction) 3.0/1.5MPa
Maximum Allowable Pressure 3.0MPa
Sound Pressure Level 53dB(A)
Refrigerant R290
Refri. Charge 0.23kg
Weight 34.5kg
Isolation I
Manufactured Date YYYY.MM
Serial No.
Do not cover air discharge openings
GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI
600004072648
Add: West Jinji Rd, Qianshan, Zhuhai, Guangdong, China, 519070

German:



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GREE LOKALES KLIMAGERÄT	
Modell	GPC12AL-K5NNA2C
Nennspannung	220-240V~
Nennfrequenz	50Hz
Klimatyp	T1
Kühlleistung	3.40kW
Kühlen-Leistungsaufnahme	1305W
EER	2.60
Aufnahmeleistung	1500W
Druck (Auslass/Einlass)	3.0/1.5MPa
Maximal zulässiger Druck	3.0MPa
Schalldruckpegel	53dB(A)
Kühlmittel	R290
Kühlmittel-Füllmenge	0.20kg
Gewicht	35kg
Isolierung	I
Produktionsdatum	
Decken Sie die Abluftöffnungen nicht ab.	
Enthält unter das Kyoto-Protokoll fallende fluorierte Treibhausgase.	
GREE ELECTRIC APPLIANCES,INC.OF ZHUHAI	
Add:West Jinji Rd,Qianshan,Zhuhai,Guangdong,China,519070	

GREE LOKALES KLIMAGERÄT	
Modell	GPC12AL-K5NNA3D
Nennspannung	220-240V~
Nennfrequenz	50Hz
Klimatyp	T1
Kühlleistung	3.50kW
Kühlen-Leistungsaufnahme	1345W
EER	2.60
Aufnahmeleistung	1500W
Druck (Auslass/Einlass)	3.0/1.5MPa
Maximal zulässiger Druck	3.0MPa
Schalldruckpegel	53dB(A)
Kühlmittel	R290
Kühlmittel-Füllmenge	0.23kg
Gewicht	34.5kg
Isolierung	I
Produktionsdatum	
Decken Sie die Abluftöffnungen nicht ab.	
Enthält unter das Kyoto-Protokoll fallende fluorierte Treibhausgase.	
GREE ELECTRIC APPLIANCES,INC.OF ZHUHAI	
Add:West Jinji Rd,Qianshan,Zhuhai,Guangdong,China,519070	

Warning mark:

Note:
1. the value for “X”, refer to user manual.
2. The symbol “Caution: risk of fire” including colour and format shall be permanently placed on the appliance and the perpendicular height of the triangle shall be at least 30mm.
3. The symbol “Caution: risk of fire” shall be placed on the nameplate of the appliance, and perpendicular height of the symbol shall be at least 10mm without the need of be in colour.
4. The symbols of “read operator’s manual”, “operator’s manual, and “service indicator shall be placed on the appliance, and their perpendicular heights shall be at least 10mm.

Note:
1. When placing these electrical equipments on the market, the importer and manufacturer should indicate on the electrical equipments his name, registered trade name or registered trade mark and the postal address at which he can be contacted.
2. When placing these electric equipments on the market, Type, batch, or series number that allows their identifications will be pasted on the appliance.

Test item particulars ..... :	
Classification of installation and use ..... :	Stationary appliance

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Supply Connection ..... :	Type Y; Non detachable 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)
Testing .....:	
Date of receipt of test item.....:	2020-10-22
Date (s) of performance of tests .....:	2020-10-22 to 2020-11-09

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☒ comma / ☐ point is used as the decimal separator.

Determination of the test conclusion is based on IEC Guide 115 in consideration of measurement uncertainty.
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The test report only allows to be revised only within the report defined retention period unless standard or regulation was withdrawn or invalid.

This TRF includes an appendix EMF containing the IEC/EN 62233 requirements (see below).

IEC 62233:2005 (1. Edition)
EN 62233:2008 (incl. Corr.1:2008)

This test report is part of the product evaluation against the requirements of ProdSG in order to obtain the GS-Mark.

PAH test according to AfPS GS 2019:01 PAK is considered and passed, please refer to PAH test report 180423126GZU-001-PAH for details.

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

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided..... :

☒ Yes

☐ Not applicable

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

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Name and address of factory (ies) .....:	Factory 1: Gree Electric Appliances, Inc. of Zhuhai West Jinji Road, Qianshan, Zhuhai, Guangdong 519070, P.R. China Factory 2: GREE ELECTRIC APPLIANCES (WUHU) CO., LTD. North of Lianhe Road, West of Wuhua Road, East of Yapeng Road, Economic Development District of Sanshan, Wuhu City, 241000, AN'HUI, P. R. China

General product information:

Original:
The products are a local air conditioner intended for household and indoor use.
Models GPC12AL-K5NNA3A and GPH12AL-K5NNA3A are all the same except main board and model GPC12AL-K5NNA3A has cooling mode only while GPH12AL-K5NNA3A has cooling and heating modes incorporated with a 4-way valve.

Modification 1:
This test report replaces the original test report 180423126GZU-001 dated on September 28, 2018. It is issued because of following additions and/or changes:

1. Adding one new model GPH12AL-K5NNA2A which is identical with original model GPH12AL-K5NNA3A except front panel. See photo document for details.
2. Adding one alternative front panel for models GPH12AL-K5NNA3A, GPC12AL-K5NNA3A. See photo document for details.
3. Adding alternative plug for all models. See table 24.1 for details.

Modification 2:
This test report replaces the original test report 180423126GZU-001 with modification 1, dated on January 07, 2019. It is issued because of following additions and/or changes:

1. Adding two new models GPC12AL-K5NNA3B and GPH12AL-K5NNA2B which are separately identical with original models GPC12AL-K5NNA3A and GPH12AL-K5NNA3A except main board and new models have WIFI function. See photos document for details.
2. Adding one new model GPC12AL-K5NNA2A which is identical with original model GPC12AL-K5NNA3A except front panel. See photo document for details.
3. Adding alternative x capacitor and rectifier for all models. See table 24.1 for details.

Modification 3:
This test report bases on the test report 180423126GZU-001 with modification 2, dated on March 06, 2019. It is issued because of following additions and/or changes:

1. Adding main board (M701F1PJ) which is identical with main board (M701F1NJ) except main board (M701F1PJ) has deleted WIFI function for model GPC12AL-K5NNA3B, GPC12AL-K5NNA3A, GPC12AL-K5NNA2A. See table 24.1 for details.
2. Adding main board which (M701F2SJ) is identical with main board (M701F2TJ) except main board (M701F2SJ) has deleted WIFI function for model GPH12AL-K5NNA2B, GPH12AL-K5NNA3A, GPH12AL-K5NNA2A. See table 24.1 for details.

Modification 4 (LVD only):
This test report bases on the test report 180423126GZU-001 with modification 2, dated on March 06, 2019 and modification 3, dated on April 08, 2019. It is issued because of adding alternative liquid level switch (mechanical), compressor capacitor and overheat protector of fan motor. See table 24.1 for details.

Modification 5:
This test report replaces the test report 180423126GZU-001 with modification 2, dated on March 06, 2019, modification 3, dated on April 08, 2019, modification 4, dated on July 01, 2019. It is issued because of adding one new model GPC12AL-K5NNA3C which is identical with model GPC12AL-K5NNA3B except model name, rated power and refrigerant charge. See marking plate for details.

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Modification 6:
This test report replaces the test report 180423126GZU-001 with modification 5, dated on August 21, 2019. It is issued because of following addition:

1. Adding one new model GPH12AL-K5NNA3C which is identical with model GPH12AL-K5NNA2B except model name, weight, refrigerant charge, condenser and evaporator. See marking plate and photos document for details.
2. Adding one new model GPH12AL-K5NNA1C which is identical with model GPH12AL-K5NNA3C except front panel. See photos document for details.

Modification 7:
This test report replaces the test report 180423126GZU-001 with modification 6, dated on September 20, 2019. It is issued because of following addition:

1. Adding one new model GPH12AL-K5NNA1A which is identical with model GPH12AL-K5NNA3A except front panel. See photos document for details.
2. Adding alternative front panel for model GPH12AL-K5NNA1C. See photos document for details.
3. Adding alternative 4-way valve for all models which have heating mode. See table 24.1 for details.

Modification 8:
This test report replaces the test report 180423126GZU-001 with modification 7, dated on November 22, 2019. It is issued because of following addition:

1. Adding one new model GPC12AL-K5NNA1C which is identical with model GPC12AL-K5NNA3C except front panel. See photos document for details.
2. Adding one new factory as below:
   Name: GREE ELECTRIC APPLIANCES (WUHU) CO., LTD.
   Address: North of Lianhe Road, West of Wuhua Road, East of Yapeng Road, Economic Development District of Sanshan, Wuhu City, 241000, AN'HUI, P. R. China
3. Adding alternative X2 capacitor. See table 24.1 for details.

Modification 9:
This test report replaces the test report 180423126GZU-001 with modification 8, dated on January 02, 2020. It is issued because of following addition:

1. Adding a new model GPC12AL-K5NNA2C which is the same as GPC12AL-K5NNA3C except the front panel.
2. Adding a new model GPH12AL-K5NNA2C which is the same as GPH12AL-K5NNA3C except the front panel.
3. Adding some alternative Y capacitor and high frequency transformer for all model, details refer to table 24,1.

Modification 10 (LVD only):
This test report bases on the test report 180423126GZU-001 with modification 9 dated on April 3, 2020. It is issued because of updating the standards from "EN 60335-1:2012+A11:2014+A13:2017" to "EN 60335-1:2012+A11:2014+A13:2017+A1::2019+A14:2019+A2:2019".

Modification 11:
This test report replaces the test report 180423126GZU-001 modification 9 dated on April 3, 2020 and test report 180423126GZU-001 modification 10 dated on June 17, 2020. It is issued because of the following additions and changes:

1. Updating the standards from "EN 60335-1:2012+A11:2014+A13:2017" to "EN 60335-1:2012+A11:2014 +A13:2017+A1::2019+A14:2019+A2:2019".
2. Adding alternative main board (M701F2ASJ), main board (M701F2BKJ), main board (M701F1BLJ) and main board (M701F1BKJ) which have the same circuit diagram as main board (M701F2TJ), main board (M701F2SJ), main board (M701F1NJ) and main board (M701F1PJ) respectively except for PCB layout. See photos of documents for details.
3. Adding alternative control board, see photos documents for details.
4. Adding alternative high frequency transformer for all models. See table 24.1 for details.

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Modification 12:
This test report replaces the test report 180423126GZU-001 modification 11 dated on July 20, 2020. It is issued because of the following additions and changes:
1. Adding a new model GPC12AL-K5NNA3D which is the same as GPC12AL-K5NNA3C except for no WIFI module in GPC12AL-K5NNA3D and the mass of refrigerant charge.
2. Adding alternative relay (HF160F/12-H5), fan motor (YD28X-L Tongde) and high frequency transformer (ECO20-07PA XIN YUAN) for all model. See table 24.1 for details.

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
5	GENERAL CONDITIONS FOR THE TESTS		----
	Tests performed according to clause 5, e.g. nature of supply, sequence of testing, etc.		P
5.2	Tests of clause 21 carried out on separate samples. Tests of clauses 11, 19 and 21 require pressure measurements made at various points in refrigerating system (IEC 60335-2-40/A1)		P
	At least one additional specially prepared sample required for tests of annex FF (Leak simulation tests) (IEC 60335-2-40/A1)		N/A
	Temperatures on refrigerant piping measured during test of clause 11 (IEC 60335-2-40/A1)		P
5.6	Appropriate controls rendered inoperative during test (IEC 60335-2-40)		P
5.7	Tests of clauses 10 and 11 carried out under most severe operating conditions within operating temperature range specified by manufacturer. Annex AA provide examples of such temperature conditions (IEC 60335-2-40)		P
5.10	For split-package units, refrigerant lines installed in accordance with installation instructions (IEC 60335-2-40)		N/A
	Refrigerant line length is maximum length stated in installation instructions or (IEC 60335-2-40)		N/A
	7,5 m, whichever is shorter (IEC 60335-2-40)		N/A
	Thermal insulation of refrigerant lines applied in accordance with installation instructions (IEC 60335-2-40)		N/A
5.101	Motor-compressor subjected to relevant test of clause 19 of IEC 60335-2-34, unless (IEC 60335-2-40)		P
	motor-compressor comply with that standard (IEC 60335-2-40)		N/A
5.102	Motor-compressors tested and comply with IEC 60335-2-34 need not additionally tested for clause 21 (IEC 60335-2-40/A1)		N/A
6	CLASSIFICATION		----
6.1	Protection against electric shock: Class I, II, III (IEC 60335-2-40) ..... :	Class I	P
6.2	Protection against harmful ingress of water, IP degree in accordance with IEC 60529 (IEC 60335-2-40)		----
	- appliances or parts intended for outdoor use be at least IPX4 (IEC 60335-2-40);		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	- appliances intended only for indoor use (excluding laundry rooms) be IPX0 (IEC 60335-2-40);		P
	- appliances intended to be used in laundry rooms be at least IPX1 (IEC 60335-2-40).		N/A
6.101	Degree of accessibility (accessible/not accessible to the general public) (IEC 60335-2-40)	Accessible to the general public	P
7	MARKING AND INSTRUCTIONS		----
7.1	Rated voltage or voltage range (V)..... :	220-240	P
	Symbol for nature of supply including number of phases, unless for single phase operation (IEC 60335-2-40) ..... :		N/A
	Rated frequency (Hz)..... :	50	P
	Rated power input (W), or..... :	(See marking plate)	P
	Rated current (A) ..... :		N/A
	Manufacturer's or responsible vendor's name, trademark or identification mark ..... :	GREE	P
	Model or type reference..... :	(See marking plate)	P
	Symbol IEC 60417-5172, for class II appliances		N/A
	IP number, other than IPX0 ..... :		N/A
	Symbol IEC 60417-5180, for class III appliances, unless		N/A
	the appliance is operated by batteries only		N/A
	Symbol IEC 60417-5036, 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
	Mass of refrigerant or of each refrigerant in blend (except for azeotropic type) (IEC 60335-2-40) ..... :	(See marking plate)	P
	Refrigerant identification (IEC 60335-2-40) ..... :	R290	P
	Permissible excessive operating pressure for sanitary hot water heat pumps (IEC 60335-2-40). :		N/A
	Maximum operating pressure for heat exchanger for hydronic fan coil/air handling units (IEC 60335-2-40/A2)..... :		N/A
	Permissible excessive operating pressure of refrigerant circuit for suction and discharge, if they differ (IEC 60335-2-40) ..... :	(See marking plate)	P
	Symbol for degree of protection against ingress of water, other than IPX0 (IEC 60335-2-40) ..... :		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	Separate marking of appliances with all rated characteristics of supplementary heaters (IEC 60335-2-40) ..... :		N/A
	Marking of direction of fluid flow (IEC 60335-2-40)		N/A
	Flame symbol and instruction manual symbol of 7.6 visible when flammable refrigerant employed and following conditions exist (IEC 60335-2-40/A1):		----
	- accessing parts expected to be subjected to maintenance or repair (IEC 60335-2-40/A1);		P
	- observing appliance under sale or installed conditions (IEC 60335-2-40/A1);		P
	- observing appliance packaging, if appliance charged with refrigerant (IEC 60335-2-40/A1).		P
	If flammable refrigerant used, symbols for “read operator’s manual”, “operator’s manual; operating instructions” and “service indicator; read technical manual” (symbols 0790, 1641 and 1659 of ISO 7000) placed on appliance in location visible to persons required to know information. Perpendicular height be at least 10 mm (IEC 60335-2-40/A1 corr.1)		P
	Additional warning symbol (flame symbol: B.3.2 of ISO 3864) placed on nameplate of unit near declaration of refrigerant type and charge information. Perpendicular height be at least 10 mm, and symbol need not be in colour (IEC 60335-2-40/A1)		P
	Following warning also applied to appliance when flammable refrigerant employed. WARNING Appliance shall be installed, operated and stored in a room with a floor area larger than ‘X’ m² (only applies to appliances that are not fixed appliances) (IEC 60335-2-40/A1)		P
	Not fixed appliances, minimum room size X specified on appliance. X in marking determined in m² by procedure described in paragraph 2 of annex GG for unventilated areas and X in marking be 4 if refrigerant charge of appliance is less than m_1 (see annex GG, paragraph 1.1) (IEC 60335-2-40/A1)	>15m²	P
	Maximum allowable pressure for low-pressure side and high-pressure side marked on product (IEC 60335-2-40/A1)		P

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	If not already visible when accessing service port and if service port provided, service port marked to identify type of refrigerant. If refrigerant is flammable, symbol B.3.2 of ISO 3864, be included, without specifying the colour (IEC 60335-2-40/A1)		P
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	220-240V	P
	Different rated values marked with the values separated by an oblique stroke		N/A
7.4	Appliances adjustable for different rated voltages, the voltage setting is clearly discernible		N/A
	Requirement met if frequent changes are not required and the rated voltage 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		P
	the power input is related to the arithmetic mean value of the rated voltage range		P
	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
	Flammable refrigerant, warning symbol B.3.2 of ISO 3864, including colour and format, permanently placed on appliance. Perpendicular height of triangle containing "Caution, risk of fire" symbol be at least 30 mm (IEC 60335-2-40/A1)		P
	Flammable refrigerant, symbol requiring reference to manual [0790 of ISO 7000], including colour and format, permanently placed on appliance (IEC 60335-2-40/A1 corr.1)		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

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
7.7	Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply, unless		N/A
	correct mode of connection is obvious		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)		N/A
	- marking of protective earthing terminals (symbol IEC 60417-5019)		P
	- 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 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		P
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 (IEC 60335-2-40)		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 (IEC 60335-2-40/A1)		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	Replaced by EN 60335-1:2012	----
	- children being supervised not to play with the appliance	Replaced by EN 60335-1:2012	----

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	For a part of class III construction supplied from a detachable power supply unit, the instructions state that the appliance is only to be used with the unit provided		N/A
	Instructions for class III appliances state that it must only be supplied at SELV, unless		N/A
	it is a battery-operated appliance, the battery being charged outside the appliance		N/A
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
	Sufficient details for installation or maintenance supplied (IEC 60335-2-40):		----
	- that the appliance shall be installed in accordance with national wiring regulations (IEC 60335-2-40);		P
	- the dimensions of the space necessary for correct installation of the appliance including the minimum permissible distance to adjacent structures (IEC 60335-2-40);		P
	- for appliances with supplementary heaters, the minimum clearance from the appliance to combustible surfaces (IEC 60335-2-40);		N/A
	- a wiring diagram with a clear indication of the connections and wiring to external control devices and supply cord (IEC 60335-2-40);		N/A
	- the range of external static pressures at which the appliance was tested (add-on heat pumps and appliances with supplementary heaters only) (IEC 60335-2-40);		N/A
	- the method of connection to the appliance to the electrical supply and interconnection of separate components (IEC 60335-2-40);		P
	- indication of which parts of the appliance are suitable for outdoor use, if applicable (IEC 60335-2-40);		N/A
	- details of type and rating of fuses (IEC 60335-2-40);		N/A
	- 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 (IEC 60335-2-40);		N/A
	- maximum and minimum water or brine operating temperatures (IEC 60335-2-40);		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	- maximum and minimum water or brine operating pressures (IEC 60335-2-40).		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 (IEC 60335-2-40)		N/A
7.12.2	Stationary appliances not fitted with means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under overvoltage category III, the instructions state that means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules		N/A
7.12.3	Insulation of the fixed wiring in contact with parts exceeding 50 K during clause 11; instructions state that the fixed wiring must be protected		N/A
7.12.4	Instructions for built-in appliances:		----
	- dimensions of space		N/A
	- dimensions and position of supporting and fixing		N/A
	- minimum distances between parts and surrounding structure		N/A
	- minimum dimensions of ventilating openings and arrangement		N/A
	- connection to supply mains and interconnection of separate components		N/A
	- allow disconnection of the appliance after installation, by accessible plug or a switch in the fixed wiring, unless		N/A
	a switch complying with 24.3		N/A
7.12.5	Replacement cord instructions, type X attachment with a specially prepared cord		N/A
	Replacement cord instructions, type Y attachment		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		N/A
7.12.8	Instructions for appliances connected to the water mains:		----
	- max. inlet water pressure (Pa)..... :		N/A
	- min. inlet water pressure, if necessary (Pa) ..... :		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	Instructions concerning new and old hose-sets for appliances connected to the water mains by detachable hose-sets		N/A
7.13	Instructions and other texts in an official language	English and German	P
7.14	Marking clearly legible and durable, rubbing test as specified		P
7.15	Markings on a main part		P
	Marking clearly discernible from the outside, if necessary after removal of a cover		P
	For portable appliances, cover can be removed or opened without a tool		N/A
	For stationary appliances, name, trademark or identification mark and model or type reference visible after installation		P
	For fixed appliances, name, trademark or identification mark and model or type reference visible after installation according to the instructions		N/A
	Indications for switches and controls placed on or near the components. Marking not on parts which can be positioned or repositioned in such a way that the marking is misleading		P
	Marking on panel allowed, provided panel in place for intended operation of appliance (IEC 60335-2-40)		N/A
7.16	Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link		N/A
7.101	Marking of fuses and overload protective devices, if replaceable (IEC 60335-2-40):		----
	- fuse rated current in amperes, type and rated voltage or (IEC 60335-2-40)		N/A
	- manufacturer and model of overload protective device (IEC 60335-2-40)		N/A
7.102	Marking for connection with aluminium wire, if necessary (IEC 60335-2-40)		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

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	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		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 15kV, the energy in the discharge not exceeding 350 mJ		N/A
8.1.5	Live parts protected at least by basic insulation before installation or assembly:		----
	- built-in appliances		N/A
	- fixed appliances		N/A
	- appliances delivered in separate units		N/A
8.2	Class II appliances and constructions constructed so that there is adequate protection against accidental contact with basic insulation and metal parts separated from live parts by basic insulation only		P
	Only possible to touch parts separated from live parts by double or reinforced insulation		P
9	STARTING OF MOTOR-OPERATED APPLIANCES		----

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	Requirements and tests are specified in part 2 when necessary		N/A
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
	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		P
10.2	Current at normal operating temperature, rated voltage and normal operation not deviating from rated current by more than shown in table 2 ..... :		N/A
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		N/A
	the rated current is related to the arithmetic mean value of the range		N/A
11	HEATING		----
11.1	No excessive temperatures in normal use (IEC 60335-2-40)		P
	Compliance is checked by the tests of annex C, if (IEC 60335-2-40):		----
	- temperature of motor winding exceeds values shown in table 3 (IEC 60335-2-40)		N/A
	- there is doubt about classification of insulation system of the motor (IEC 60335-2-40)		N/A
11.2	Placing and mounting of appliance (IEC/EN 60335-2-40):		----
	- clearances to adjacent surfaces (IEC 60335-2-40);		P
	- flow rates for liquid source or sink equipment be minimum, except for fan coils where flow rates and liquid temperatures be maximum (IEC 60335-2-40/A2);		N/A
	- static pressures (IEC 60335-2-40);		N/A
	- means of adjusting the flow, flow for tests be minimum obtainable (IEC 60335-2-40);		N/A
	- adjustable limit controls set at maximum cut-out setting and minimum differential (IEC 60335-2-40).		P
	Appliances with supplementary heaters, use test casing of clause 11.9 (IEC 60335-2-40)		N/A
11.2.1	Appliances with supplementary heaters, inlet duct connected to inlet air opening (IEC 60335-2-40)		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
11.2.2	Appliance without supplementary heaters, air outlet used (IEC 60335-2-40)		N/A
11.3	Temperature rise determine by thermocouples or resistance method (IEC 60335-2-40)		P
11.4	Test performed at supply voltage between 0,94 and 1,06 times the rated voltage (IEC 60335-2-40)	1,06 x 240=254,4V	P
	Heating elements energized at voltage which gives an electrical input of 1,15 times maximum rated power input (IEC 60335-2-40)		N/A
11.5	Test conducted in heating mode and cooling mode, if both exist (IEC 60335-2-40)		P
	All supplementary heating elements operative simultaneously (IEC 60335-2-40)		N/A
11.6	Defrost test in most unfavourable conditions, if needed (IEC/EN 60335-2-40)		N/A
11.7	Appliances operated continuously until steady conditions except for defrost tests (IEC 60335-2-40)		P
11.8	Temperatures not exceeding values of table 3 (IEC 60335-2-40/A2)	(See appended tables)	P
	Protective devices do not operate (IEC 60335-2-40)		P
	Sealing compound not flowing out (IEC 60335-2-40)		P
	Temperature of air in outlet duct not exceed 90 °C (IEC 60335-2-40)		N/A
11.9	Test casing and installation of appliances in accordance with manufacturer's instructions (IEC 60335-2-40)		N/A
	Glass fibre insulation for appliances without indication of minimum clearances according to manufacturer; thermocouple in contact with enclosure (IEC 60335-2-40)		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) ..... :	1,06 x 240=254,4V	P
	Protective impedance and radio interference filters disconnected before carrying out the tests		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
13.2	For class 0, class II and class III appliances, leakage current measured by means of the circuit described in figure 4 of IEC 60990		P
	For other appliances, a low impedance ammeter may be used		N/A
	Leakage current measurements.....: (IEC 60335-2-40)	(see appended table)	P
13.3	The appliance is disconnected from the supply		P
	Electric strength tests according to table 4.....:	(see appended table)	P
	No breakdown during the tests		P
14	TRANSIENT OVERVOLTAGES		----
	Appliances withstand the transient over-voltages to which they may be subjected		N/A
	Clearances having a value less than specified in table 16 subjected to an impulse voltage test, the test voltage specified in table 6.....:		N/A
	No flashover during the test, unless		N/A
	of functional insulation if the appliance complies with clause 19 with the clearance short-circuited		N/A
15	MOISTURE RESISTANCE		----
15.1	Enclosure provides degree of moisture protection against ingress of water (rain, overflow from drain pan or defrosting), tests of clause 15.2, 15.3, 11.6 and 16) (IEC 60335-2-40)		N/A
	Motor-compressor not operated and detachable parts removed during tests of clause 15.2 and 15.3 (IEC 60335-2-40/A2)		P
15.2	Tests in accordance with IEC 60529 in appliances other than IPX0, as specified (IEC 60335-2-40)...:		N/A
15.3	Drain pan filled to brim and subjected to continuous overflow and fan(s) switched on (IEC 60335-2-40)		P
15.101	Spillage test as specified (IEC 60335-2-40/A2)		P
	After spillage completed, appliance withstand test of clause 16 (IEC 60335-2-40/A2)		P
16	LEAKAGE CURRENT AND ELECTRIC STRENGTH		----
16.1	Leakage current not excessive and electric strength adequate		P
	Protective impedance disconnected from live parts before carrying out the tests		N/A
	Tests carried out at room temperature and not connected to the supply		P

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
16.2	Single-phase appliances: test voltage 1,06 times rated voltage (V) ..... :	1,06 x 240=254,4V	P
	Three-phase appliances: test voltage 1,06 times rated voltage divided by √3 (V) ..... :		N/A
	Leakage current measurements ..... : (IEC 60335-2-40)	(see appended table)	P
	Limit values doubled if:		----
	- all controls have an off position in all poles, or		N/A
	- the appliance has no control other than a thermal cut-out, or		N/A
	- all thermostats, temperature limiters and energy regulators do not have an off position, or		N/A
	- the appliance has radio interference filters		N/A
	With the radio interference filters disconnected, the leakage current do not exceed limits specified..... :		N/A
16.3	Electric strength tests according to table 7..... :	(see appended table)	P
	Test voltage applied between the supply cord and inlet bushing and cord guard and cord anchorage as specified ..... :	(see appended table)	P
	No breakdown during the tests		P
17	OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS		----
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use ..... :		N/A
	Appliance supplied with 1,06 or 0,94 times rated voltage under the most unfavourable short-circuit or overload likely to occur in normal use (V)..... :		N/A
	Basic insulation is not short-circuited		N/A
	Temperature rise of insulation of the conductors of safety extra-low voltage circuits not exceeding the relevant value specified in table 3 by more than 15 K		N/A
	Temperature of the winding not exceeding the value specified in table 8		N/A
	However, limits do not apply to fail-safe transformers complying with sub-clause 15.5 of IEC 61558-1		N/A
18	ENDURANCE		----
	Requirements and tests are specified in part 2 when necessary		N/A
19	ABNORMAL OPERATION		----

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
19.1	The risk of fire or mechanical damage under abnormal or careless operation obviated (tests 19.2-19.14) (IEC 60335-2-40)		P
	Failure of transfer medium flow or of any control device not result in a hazard (IEC 60335-2-40)		P
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe (electric shock, fire or mechanical hazard, dangerous malfunction) (test 19.11 and 19.12) (IEC 60335-2-40)		P
19.2	Test of appliance with motor rotors, other than motor-compressors, operated for 15 days (360 h) or until protection device opens circuit (IEC 60335-2-40)		P
	Insulation of motor windings (IEC 60335-2-40) .... :	(See appended table)	P
	Temperature of enclosure does not exceed (°C) (IEC 60335-2-40) ..... :	(See appended table)	P
	Temperature of the windings does not exceed the values shown in the table ; temperature (°C) (IEC 60335-2-40) ..... :	(See appended table)	P
	Electric strength test as specified in 16.3, 72 h after the beginning of the test (IEC 60335-2-40)		P
	30 mA residual current device does not open (IEC 60335-2-40)		P
	At the end, leakage current between windings and enclosure does not exceed 2 mA (IEC 60335-2-40)	(See appended table)	P
19.3	Motor-compressor complies with IEC 60335-2-34 (IEC 60335-2-40)		N/A
	Test of motor-compressor with rotor locked as specified in clause 19.101 of IEC 60335-2-34 and comply with 19.104 of that standard (IEC 60335-2-40)		P
19.4	Test of three-phase motors operated under conditions of clause 11 with one phase disconnected until steady conditions or protective device operates (IEC 60335-2-40)		N/A
19.5	Test of appliance with heat transfer medium flow of the outdoor heat exchanger restricted or shut off when reaching steady conditions (IEC 60335-2-40)		P
	Test of appliance with heat transfer flow of the indoor heat exchanger restricted or shut off when reaching steady conditions (IEC 60335-2-40)		P
	Disconnection of motor common to both the outdoor and the indoor heat exchangers when reaching steady conditions (IEC 60335-2-40)		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
19.6	Test of appliances using water as heat transfer medium (IEC 60335-2-40)		N/A
19.7	Test of air to air appliances at rated voltage or at the upper limit of the rated voltage range. Dry-bulb temperature is 5 K below values specified by manufacturer (IEC 60335-2-40)		P
	Test with the dry-bulb temperature 10 K over the values specified by manufacturer (IEC 60335-2-40)		P
19.8	Test of appliances with supplementary heaters (IEC 60335-2-40)		N/A
19.9	Test at temperature permitting continuous operation of the motor-compressor and electric heating elements at same time (IEC 60335-2-40)		N/A
19.10	Test of appliance with any defect which expected during normal use (IEC 60335-2-40)		P
19.10.101	Test of clause 19.10 repeated on class 0I appliances and class I appliances incorporating tubular sheathed or embedded heating elements (IEC 60335-2-40/A2)		N/A
	However, controls not short-circuited but one end of element connected to sheath of heating element (IEC 60335-2-40/A2)		N/A
	Test repeated with polarity of supply to appliance reversed and with other end of element connected to sheath (IEC 60335-2-40/A2)		N/A
	Test not carried out on appliances intended to permanently connected to fixed wiring and on appliances where an all-pole disconnection occurs during test of clause 19.10 (IEC 60335-2-40/A2)		N/A
19.11	Electronic circuits, compliance checked by evaluation of the fault conditions specified in clause 19.11.2 for all circuits or parts of circuits (IEC 60335-2-40), unless		P
	they comply with conditions specified in clause 19.11.1 (IEC 60335-2-40)		P
	Windings temperature not exceeding values shown in table 8 (IEC 60335-2-40)		P
	Appliance comply with conditions of clause 19.14 (IEC 60335-2-40)		P
	Appliance withstands test: a conductor becomes open circuited and three conditions are met (IEC 60335-2-40)		N/A
19.11.1	Before applying the fault conditions a) to f) in 19.11.2, it is checked if circuits or parts of circuit meet both of following conditions (IEC 60335-2-40):		----

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	- electronic circuit is low-power circuit, that is, maximum power at low-power points not exceed 15 W according to tests specified (IEC 60335-2-40)		P
	- protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction in other parts of appliance does not rely on correct functioning of electronic circuit (IEC 60335-2-40)		P
19.11.2	Fault conditions applied one at a time, appliance operated under conditions specified in clause 11, but supplied at rated voltage, duration of tests as specified (IEC 60335-2-40):		----
	a) short circuit of creepage distances and clearances between live parts of different potential, if these distances less than values specified in clause 29.1, unless relevant part is adequately encapsulated (IEC 60335-2-40)		P
	b) open circuit at terminals of any component (IEC 60335-2-40)		P
	c) short circuit if capacitors, unless they comply with IEC 60384-14 (IEC 60335-2-40)		P
	d) short circuit of any two terminals of an electronic component, other than integrated circuits. This fault condition not applied between circuits of an optocoupler (IEC 60335-2-40)		P
	e) failure of triacs in diode mode (IEC 60335-2-40)		P
	f) failure of an integrated circuit. Possible hazardous situations of appliance assessed to ensure that safety not rely on correct functioning of such component (IEC 60335-2-40)		P
	Short-circuit of low-power circuits (IEC 60335-2-40)		P
	Duration of tests (IEC 60335-2-40):		----
	- as specified in clause 11.7 but only for one operating cycle, if fault cannot recognised by user (IEC 60335-2-40);		N/A
	- as specified in clause 19.2, if fault can recognised by user (IEC 60335-2-40);		P
	- until steady conditions established (IEC 60335-2-40).		P
	Test ended if interruption of supply occurs within the appliance (IEC 60335-2-40)		P
	If electronic circuit operates to ensure compliance with clause 19, relevant test repeated with single fault a) to f) simulated (IEC 60335-2-40)		N/A
	Fault condition f) applied to encapsulated or similar components (IEC 60335-2-40)		P

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	PTC's, NTC's and VDR's resistors not short-circuited if used as specified by manufacturer (IEC 60335-2-40)		P
19.12	If safety of appliance for any of fault conditions specified in clause 19.11.2 depends on operation of miniature fuse-link complying with IEC 60127, test repeated with fuse-link replaced by an ammeter (IEC 60335-2-40)		P
	Current ≤ 2,1 times rated current of fuse-link, circuit not adequately protected (fuse-link short-circuited) (IEC 60335-2-40)		N/A
	Current ≥ 2,75 times rated current of fuse-link, circuit adequately protected (IEC 60335-2-40)		P
	Current ≥ 2,1 and ≤ 2,75 times rated current, fuse-link short-circuited and test carried out during specified time (IEC 60335-2-40)		N/A
19.13	Appliances with PTC heating elements test as specified (IEC 60335-2-40)		N/A
19.14	During tests of clause 19.2 to 19.10.101 and 19.11, 19.12 and 19.13 if appropriate, appliances not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts (IEC 60335-2-40/A2)		P
	Enclosures not deform (IEC 60335-2-40)		P
	Temperature rise not exceed values shown in table 9 (IEC 60335-2-40)	(See appended table)	P
	Electric strength test, test voltage as specified in table 4 (IEC 60335-2-40)		P
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	All appliances provided with supplementary heaters and free air discharge subjected to specified test in each mode of operation (IEC 60335-2-40/A2)		N/A
	During test temperature not exceed 150 °C but an overshoot of 25 °C is permitted during first hour (IEC 60335-2-40/A2)		N/A
20	STABILITY AND MECHANICAL HAZARDS		----
20.1	Appliances having adequate stability		P
	Tilting test through an angle of 10°, appliance placed on an inclined plane/horizontal support, not connected to the supply mains; appliance does not overturn		P
	Tilting test repeated on appliances with heating elements, angle of inclination increased to 15°		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	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
21	MECHANICAL STRENGTH		----
21.1	Appliance has adequate mechanical strength and is constructed as to withstand rough handling		P
	Checked by applying 3 blows to every point of the enclosure like to be weak, in accordance with test Ehb of IEC 60068-2-75, spring hammer test, with an impact energy of 0,5 J	(see appended table)	P
	The appliance shows no damage impairing compliance with this standard, and		P
	compliance with 8.1, 15.1 and clause 29 not impaired		P
	If doubt, supplementary or reinforced insulation subjected to the electric strength test of 16.3		N/A
	If necessary, repetition of groups of three blows on a new sample		N/A
	Safety requirements specified in annex EE applied. Pressure test in annex EE applies to parts other than pressure vessels (IEC 60335-2-40/A1)		P
	Safety requirements of ISO 5149 applied (IEC 60335-2-40/A2)		P
21.2	Accessible parts of solid insulation having strength to prevent penetration by sharp implements		P
	Test not applicable if the thickness of supplementary insulation is at least 1 mm and reinforced insulation at least 2 mm		P
	The insulation is tested as specified, and does withstand the electric strength test of 16.3		N/A
22	CONSTRUCTION		----

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
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		P
	- a switch complying with 24.3, or		N/A
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided, or		N/A
	- an appliance inlet		N/A
	Singe-pole switches and single-pole protective devices for the disconnection of heating elements in single-phase, permanently connected class 01 and class I appliances, connected to the phase conductor		N/A
22.3	Appliance provided with pins: no undue strain on socket-outlets		N/A
	Applied torque not exceeding 0,25 Nm		N/A
	Pull force of 50 N to each pin after the appliance has being placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1 mm		N/A
	Each pin subjected to a torque of 0,4 Nm; the pins are not rotating, unless		N/A
	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 the pins of the plug, for appliances having a capacitor with rated capacitance exceeding 0,1 μF, the appliance being disconnected from the supply at the instant of voltage peak		P
	Voltage not exceeding 34 V (V) ..... :	Max. 0,67V	P
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		P
	In case of doubt, test as described		N/A
	Electrical insulation not affected by snow penetration to appliance enclosure (IEC 60335-2-40)		P

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
22.7	Adequate safeguards against the risk of excessive pressure in appliances containing liquid or gases or having steam-producing devices		N/A
22.8	Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and that are likely to be cleaned in normal use		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		N/A
	Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible		N/A
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		N/A
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
22.13	Unlikely that handles, when gripped as in normal use, make the operator's hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only		N/A
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance		P
	No exposed pointed ends of self-tapping screws or other fasteners, likely to be touched by the user in normal use or during user maintenance		P
22.15	Storage hooks and the like for flexible cords smooth and well rounded		N/A
22.16	Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands and no undue wear of contacts		N/A
	Cord reel tested with 6000 operations, as specified		N/A
	Electric strength test of 16.3, voltage of 1000 V applied		N/A
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner		N/A
22.18	Current-carrying parts and other metal parts resistant to corrosion		P
22.19	Driving belts not relied upon to provide the required level of insulation, unless		N/A
	constructed to prevent inappropriate replacement		N/A
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless		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 adequately supported to prevent contact with accessible metal parts in case of rupture or sagging (IEC 60335-2-40)		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	Bare heating elements only used with metal enclosures (wood or composite enclosures not allowed) (IEC 60335-2-40)		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		N/A
	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

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	Insulating 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		P
	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		P
	the shaft is not accessible when the part is removed		N/A
22.35	For other than class III constructions, handles, levers and knobs, held or actuated in normal use, not becoming live in the event of a failure of basic insulation		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, other than those of electrical components, provided they are reliably connected to an earthing terminal or earthing contact, or separated from live parts by earthed metal		N/A
	Insulating material covering metal handles, levers and knobs withstand the electric strength test of 16.3 for supplementary insulation		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
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

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
22.45	When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.3 due to deformation as a result of an external force applied to the enclosure		P
22.46	For programmable protective electronic circuits used to ensure compliance with the standard, the software contains measures to control the fault/error conditions in table R.1		N/A
	Software that contains measures to control the fault/error conditions specified in table R.2 is to be specified in parts 2 for particular constructions or to address specific hazards		N/A
	These requirements are not applicable to software used for functional purpose or compliance with clause 11		N/A
22.47	Appliances connected to the water mains withstand the water pressure expected in normal use		N/A
	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		P
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation		P
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		P
	- automatically, or		P
	- remotely		P
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
22.101	Appliances intended to be fixed, securely fixed (IEC 60335-2-40)		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
22.102.1	At least two thermal cut-outs in appliances with supplementary heating elements for air (first one be self-resetting and other non-self-resetting thermal cut-out) (IEC 60335-2-40/A2)		N/A
22.102.2	Appliances provided with supplementary heaters for water incorporate non-self-resetting thermal cut-out, providing all-pole disconnection that operates separately from water thermostats (IEC 60335-2-40/A2)		N/A
	However, for appliances intended to be connected to fixed wiring, the neutral conductor need not be disconnected (IEC 60335-2-40/A2)		N/A
22.102.3	Thermal cut-outs of capillary type open in event of leakage from capillary tube (IEC 60335-2-40/A2)		N/A
22.103	Non-self-resetting cut-outs independent of other control devices (IEC 60335-2-40)		N/A
22.104	Containers of sanitary hot water heat pumps withstand twice permissible operating pressure in closed containers (IEC 60335-2-40) or		N/A
	0,15 MPa in open containers (IEC 60335-2-40)		N/A
	without leakage or rupture (IEC 60335-2-40)		N/A
22.105	Air or vapour cushion in closed containers not exceeding 10 % (IEC 60335-2-40)		N/A
22.106	Pressure relief devices operating at 0,1 MPa over permissible operating pressure (IEC 60335-2-40)		N/A
22.107	Water outlet systems of open containers free from obstruction causing over-pressure (IEC 60335-2-40)		N/A
	Vented containers of sanitary hot water heat pumps always open to the atmosphere through appropriate aperture (IEC 60335-2-40)		N/A
22.108	Not vented open containers subjected to test in accordance with clause 22.104 to vacuum of 33 kPa for 15 min (IEC 60335-2-40)		N/A
	Container show no deformation which result in a hazard (IEC 60335-2-40)		N/A
22.109	Replacement of non-self-resetting thermal cut-outs does not damage other connections (IEC 60335-2-40)		N/A
22.110	Non-self-resetting thermal cut-outs operate without short-circuiting live parts of different potential and without causing contact between live parts and enclosure (IEC 60335-2-40)		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	Test repeated five times without blowing 3 A fuse which connects appliance to earth (IEC 60335-2-40)		N/A
	Electric strength test as specified in clause 16.3 for supplementary heating elements (IEC 60335-2-40)		N/A
22.111	Manual resetting of thermostats not necessary after power supply interruption (IEC 60335-2-40)		N/A
22.112	Construction of refrigerating system comply with requirements of Section 3 of ISO 5149 (IEC 60335-2-40/A1)		P
22.113	Flammable refrigerant used, refrigerant tubing protected or enclosed to avoid mechanical damage (IEC 60335-2-40/A1)		P
	Tubing protected to extent that it will not be handled or used for carrying during moving of product (IEC 60335-2-40/A1)		P
	Tubing located within confines of cabinet considered to be protected from mechanical damage (IEC 60335-2-40/A1)		P
22.114	Flammable refrigerant used, low temperature solder alloys, such as lead/tin alloys, not acceptable for pipe connections (IEC 60335-2-40/A1)		P
22.115	Total refrigerant mass (M) of all refrigerating systems within appliance employing flammable refrigerants, not exceed m_3 defined in annex GG (IEC 60335-2-40/A1)		P
22.116	Appliances using flammable refrigerants constructed that any leaked refrigerant not flow or stagnate so as to cause fire or explosion hazard in areas within appliance where electrical components, which could be a source of ignition and which could function under normal conditions or in event of leak, fitted (IEC 60335-2-40/A1)		N/A
	Separate components, such as thermostats, which charged with less than 0,5 g of flammable gas not considered to cause fire or explosion hazard in event of leakage of gas within component itself (IEC 60335-2-40/A1)		N/A
	All electrical components that could be a source of ignition and which could function under normal conditions or in the event of a leak, comply with one of the following (IEC 60335-2-40/A1):		----
	- IEC 60079-15:2001, Cl. 9 to 26, for group IIA gases or the refrigerant used or an applicable standard that makes electrical components suitable for use in Zone 2, 1 or 0 as defined in IEC 60079-14 (IEC 60335-2-40/A1)		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	- Not be located in an area where a potentially flammable gas mixture will accumulate as demonstrated by the test of annex FF (IEC 60335-2-40/A1)		N/A
	- Be located in an enclosure. The enclosure containing the electrical components comply with IEC 60079-15:2001 for enclosures suitable for use with group IIA gases or the refrigerant used (IEC 60335-2-40/A1)		P
22.117	Temperatures on surfaces that exposed to leakage of flammable refrigerants not exceed auto-ignition temperature of refrigerant reduced by 100 K; some typical values given in annex BB (IEC 60335-2-40/A1)		P
22.118	Flammable refrigerant used, all appliances charged with refrigerant at manufacturing location or charged on site as recommended by manufacturer (IEC 60335-2-40/A1)		P
	Part of appliance that charged on site, which requires brazing or welding in installation not shipped with flammable refrigerant charge. Joints made in installation between parts of refrigerating system, with at least one part charged, made in accordance with following (IEC 60335-2-40/A1):		----
	- A brazed, welded, or mechanical connection shall be made before opening the valves to permit refrigerant to flow between the refrigerating system parts. A vacuum valve shall be provided to evacuate the interconnecting pipe and/or any uncharged refrigerating system part (IEC 60335-2-40/A1)		N/A
	- Reusable mechanical connectors and flared joints are not allowed indoors (IEC 60335-2-40/A1)		N/A
	- Refrigerant tubing shall be protected or enclosed to avoid damage (IEC 60335-2-40/A1)		N/A
	Flexible refrigerant connectors (such as connecting lines between the indoor and outdoor unit) that may be displaced during normal operations shall be protected against mechanical damage (IEC 60335-2-40/A1)		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

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
23.2	Beads etc. on live wires cannot change their position, and are not resting on sharp edges		N/A
	Beads inside flexible metal conduits contained within an insulating sleeve		N/A
23.3	Electrical connections and internal conductors movable relatively to each other not exposed to undue stress		N/A
	Flexible metallic tubes not causing damage to insulation of conductors		N/A
	Open-coil springs not used		N/A
	Adequate insulating lining provided inside a coiled spring, the turns of which touch one another		N/A
	No damage after 10 000 flexings for conductors flexed during normal use, or		N/A
	100 flexings for conductors flexed during user maintenance		N/A
	Electric strength test of 16.3, 1000 V between live parts and accessible metal parts		N/A
	Not more than 10 % of the strands of any conductor broken, and		N/A
	not more than 30 % for wiring supplying circuits that consume no more than 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
23.6	Sleeving used as supplementary insulation on internal wiring retained in position by clamping at both ends, or		N/A
	be such that it can only be removed by breaking or cutting		P
23.7	The colour combination green/yellow only used for earthing conductors		P
23.8	Aluminium wires not used for internal wiring		P
23.9	Stranded conductors not consolidated by soldering where they are subjected to contact pressure, unless		P

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	the contact pressure is provided by spring terminals		N/A
23.10	The insulation and sheath of internal wiring, incorporated in external hoses for the connection of an appliance to the water mains, at least equivalent to that of light polyvinyl chloride sheathed flexible cord (60227 IEC 52)		N/A
24	COMPONENTS		----
24.1	Components comply with safety requirements in relevant IEC standards		P
	List of components..... :	(see appended table)	P
	If components have not been tested and found to comply with relevant IEC standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9		N/A
	For components mentioned in 24.1.1 to 24.1.9 no additional tests specified in the relevant component standard are necessary other than those specified in 24.1.1 to 24.1.9		P
	Components not tested and found to comply with relevant IEC standard and components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance		P
	Lampholders and starterholders that have not being tested and found to comply with the relevant IEC standard, tested as a part of the appliance and additionally according to the gauging and interchangeability requirements of the relevant IEC standard		N/A
	No additional tests specified for nationally standardized plugs such as those detailed in IEC/TR 60083 or connectors complying with the standard sheets of IEC 60320-1 and IEC 60309		P
	Motor-compressors not tested according to IEC 60335-2-34 (not necessary to meet all requirements of IEC 60335-2-34) (IEC 60335-2-40)		P
24.1.1	Capacitors likely to be permanently subjected to the supply voltage and used for radio interference suppression or for voltage dividing, complying with IEC 60384-14		P
	If the capacitors have to be tested, they are tested according to annex F		N/A
24.1.2	Safety isolating transformers complying with IEC 61558-2-6		N/A
	If they have to be tested, they are tested according to annex G		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
24.1.3	Switches complying with IEC 61058-1, the number of cycles of operation being at least 10 000		P
	If they have to be tested, they are tested according to annex H		N/A
	If the switch operates a relay or contactor, the complete switching system is subjected to the test		N/A
	If the switch only operates a motor staring relay complying with IEC 60730-2-10 with the number of cycles of a least 10 000 as specified, the complete switching system need not be tested		N/A
24.1.4	Automatic controls complying with IEC 60730-1 with the relevant part 2. The number of cycles of operation being at least:		----
	- thermostats: 10 000		N/A
	- temperature limiters: 1 000		N/A
	- self-resetting thermal cut-outs: 300		N/A
	- voltage maintained non-self-resetting thermal cut-outs: 1 000		N/A
	- other non-self-resetting thermal cut-outs: 30		N/A
	- timers:.....3 000		N/A
	- energy regulators: 10 000		N/A
	- thermostats which control motor-compressor (IEC/EN 60335-2-40): 100 000		N/A
	- motor-compressor starting relays (IEC/EN 60335-2-40): 100 000		N/A
	- automatic thermal motor-protectors for hermetic and semi-hermetic type motor-compressors (not less than number of operations during locked rotor test) (IEC/EN 60335-2-40): ..... min 2000		P
	- manual reset thermal motor-protectors for hermetic and semi-hermetic type motor-compressors (IEC/EN 60335-2-40): 50		N/A
	- other automatic thermal motor-protectors (IEC/EN 60335-2-40): 2000		P
	- other manual reset thermal motor-protectors (IEC/EN 60335-2-40): 30		N/A
	The number of cycles for controls operating during clause 11 need not be declared, if the appliance meets the requirements of this standard when they are short-circuited		N/A
	Thermal motor protectors are tested in combination with their motor under the conditions specified in annex D		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	For water valves containing live parts and that are incorporated in external hoses for connection of an appliance to the water mains, the degree of protection declared for subclause 6.5.2 of IEC 60730-2-8 is IPX7		N/A
24.1.5	Appliance couplers complying with IEC 60320-1		N/A
	However, for appliances classified higher than IPX0, the appliance couplers complying with IEC 60320-2-3		N/A
	Interconnection couplers complying with IEC 60320-2-2		N/A
24.1.6	Small lamp holders similar to E10 lampholders complying with IEC 60238, the requirements for E10 lampholders being applicable		N/A
24.1.7	For remote operation of the appliance via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is IEC 62151		N/A
24.1.8	The relevant standard for thermal links is IEC 60691		N/A
	Thermal links not complying with IEC 60691 are considered to be an intentionally weak part for the purposes of clause 19		N/A
24.1.9	Contactors and relays, other than motor starting relays, tested as part of the appliance		P
	They are also tested in accordance with clause 17 of IEC 60730-1, the number of cycles of operations in 24.1.4 selected according to the contactor or relay function in the appliance ..... :		P
24.2	Appliances not fitted with:		----
	- switches or automatic controls in flexible cords		P
	- devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance		P
	- thermal cut-outs that can be reset by soldering, unless		P
	the solder has a melding point of at least 230 °C		N/A
24.3	Switches intended for all-pole disconnection of stationary appliances are directly connected to the supply terminals and have a contact separation in all poles, providing full disconnection under overvoltage category III conditions		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
24.4	Plugs and socket-outlets for extra-low voltage circuits and heating elements, not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1		N/A
24.5	Capacitors in auxiliary windings of motors marked with their rated voltage and capacitance, and used accordingly		P
	Voltage across capacitors in series with a motor winding does not exceed 1,1 times rated voltage, when the appliance is supplied at 1,1 times rated voltage under minimum load	Max.: 398V	P
24.6	Working voltage of motors connected to the supply mains and having basic insulation that is inadequate for the rated voltage of the appliance, not exceeding 42 V		N/A
	In addition, the motors comply with the requirements of annex I		N/A
24.7	Detachable hose-sets for connection of appliances to the water mains comply with IEC 61770		N/A
	They are supplied with the appliance		N/A
	Appliances intended to be permanently connected to the water mains not connected by a detachable hose-set		N/A
24.8	Motor running capacitors in appliances for which 30.2.3 is applicable and that are permanently connected in series with a motor winding, not causing a hazard in event of a failure		P
	One or more of the following conditions are to be met:		----
	- the capacitors are of class P2 according to IEC 60252-1		P
	- the capacitors are housed within a metallic or ceramic enclosure		N/A
	- the distance of separation of the outer surface to adjacent non-metallic parts exceeds 50 mm		N/A
	- adjacent non-metallic parts within 50 mm withstand the needle-flame test of annex E		N/A
	- adjacent non-metallic parts within 50 mm classified as at least V-1 according to IEC 60695-11-10		N/A
24.101	Replaceable parts of thermal control devices identified by marking (IEC 60335-2-40)		N/A
25	SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS		----

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
25.1	Appliance not intended for permanent connection to fixed wiring, means for connection to the supply:		----
	- supply cord fitted with a plug,		P
	- an appliance inlet having at least the same degree of protection against moisture as required for the appliance, or		N/A
	- pins for insertion into socket-outlets		N/A
	Supply cord fitted with plug provided, if (IEC 60335-2-40):		----
	- appliance only for indoor use (IEC 60335-2-40),		P
	- marked with rating of 25 A or less and (IEC 60335-2-40)		P
	- complies with code requirements of country where it will be used (IEC 60335-2-40).		N/A
	Appliance inlet not allowed (IEC 60335-2-40)		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		N/A
	- a set of terminals and cable entries, conduit entries, knock-outs or glands, allowing connection of appropriate types of cable or conduit, and the appliance allows the connection of the supply conductors after the appliance has been fixed to its support		N/A
	For a fixed appliance constructed so that parts can be removed to facilitate easy installation, this requirement is met if it is possible to connect the fixed wiring without difficulty after a part of the appliance has been fixed to its support		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
25.4	Cable and conduit entries, rated current of appliance not exceeding 16 A, dimension according to table 10 (mm)..... :		N/A
	Introduction of conduit or cable does not reduce clearances or creepage distances below values specified in clause 29		N/A
25.5	Method for assembling the supply cord to the appliance:		----
	- type X attachment		N/A
	- type Y attachment		P
	- type Z attachment, if allowed in relevant part 2		N/A
	Type X attachment, other than those with a specially prepared cord, not used for flat twin tinsel cords		N/A
	For multi-phase appliances supplied with a supply cord and that are intended to be permanently connected to fixed wiring, the supply cord is assembled to the appliance by type Y attachment		N/A
25.6	Plugs fitted with only one flexible cord		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
	- cross-linked polyvinyl chloride sheathed (at least 60245 IEC 88)		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	H05VV-F	P
	- heat resistant polyvinyl chloride sheathed. Not used for type X attachment other than specially prepared cords		----
	- heat-resistant light polyvinyl chloride sheathed cord (60227 IEC 56), for appliances not exceeding 3 kg		N/A
	- heat-resistant polyvinyl chloride sheathed cord (60227 IEC 57), for other appliances		N/A
	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

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	Supply cords for outdoor use not lighter than polychloroprene sheathed flexible cord (60245 IEC 57) (IEC 60335-2-40)		N/A
25.8	Nominal cross-sectional area of supply cords not less than table 11; rated current (A); cross-sectional area (mm^2) ..... :	Measured current: <16A, Cross-sectional area: 1,0mm^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
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 the enclosure at the inlet opening is not of insulating material, 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

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Clause	Requirement + Test	Result - Remark	Verdict
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, values shown in table 12: mass (kg); pull (N); torque (not on automatic cord reel) (Nm) ..... :	100N, 0,35Nm	P
	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

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Clause	Requirement + Test	Result - Remark	Verdict
	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 insulated conductors of the supply cord for type Y and Z attachment additionally 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		N/A
	- so there is no risk of damage to the conductors or their insulation when fitting the cover		N/A
	- for portable appliances, so that the uninsulated end of a conductor, if it becomes free from the terminal, prevented from contact with accessible metal parts		N/A
	2 N test to the conductor for portable appliances; no contact with accessible metal parts		N/A
25.22	Appliance inlets:		----
	- live parts not accessible during insertion or removal		N/A
	Requirement not applicable to appliance inlets complying with IEC 60320-1		N/A
	- connector can be inserted without difficulty		N/A
	- the appliance is not supported by the connector		N/A
	- not for cold conditions if temp. rise of external metal parts exceeds 75 K during clause 11, unless		N/A
	the supply cord is unlikely to touch such metal parts		N/A
25.23	Interconnection cords comply with the requirements for the supply cord, except that:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- the cross-sectional area of the conductors is determined on the basis of the maximum current during clause 11		N/A
	- the thickness of the insulation may be reduced		N/A
	If necessary, electric strength test of 16.3		N/A
25.24	Interconnection cords not detachable without the aid of a tool if compliance with this standard is impaired when they are disconnected		N/A
25.25	Dimensions of pins that are inserted into socket-outlets compatible with the dimensions of the relevant socket-outlet.		N/A
	Dimensions of pins and engagement face in accordance with the dimensions of the relevant plug in IEC/TR 60083		N/A
26	TERMINALS FOR EXTERNAL CONDUCTORS		----
26.1	Appliances provided with terminals or equally effective devices for connection of external conductors		P
	Terminals only accessible after removal of a non-detachable cover, except		P
	for class III appliances that do not contain live parts		N/A
	Earthing terminals may be accessible if a tool is required to make the connections and means are provided to clamp the wire independently from its connection		N/A
26.2	Appliances with type X attachment and appliances for the connection of cables to fixed wiring provided with terminals in which connections are made by means of screws, nuts or similar devices, unless		N/A
	the connections are soldered		N/A
	Screws and nuts not used to fix any other component, except		N/A
	internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors		N/A
	If soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone, unless		N/A
	barriers provided so that neither clearances nor creepage distances between live parts and other metal parts reduced below the values for supplementary insulation if the conductor becomes free at the soldered joint		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
26.3	Terminals for type X attachment and for connection of cables of fixed wiring so constructed that the conductor is clamped between metal surfaces with sufficient contact pressure but without damaging the conductor		N/A
	Terminals fixed so that when the clamping means is tightened or loosened:		----
	- the terminal does not become loose		N/A
	- internal wiring is not subjected to stress		N/A
	- neither clearances nor creepage distances are reduced below the values in clause 29		N/A
	Compliance checked by inspection and by the test of subclause 9.6 of IEC 60999-1, the torque applied being equal to two-thirds of the torque specified (Nm) ..... :		N/A
	No deep or sharp indentations of the conductors		N/A
26.4	Terminals for type X attachment, except those having a specially prepared cord and those for the connection of cables of fixed wiring, no special preparation of conductors such as by soldering, use of cable lugs, eyelets or similar, and		N/A
	so constructed or placed that conductors prevented from slipping out when clamping screws or nuts are tightened		N/A
26.5	Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection to other parts that result in a hazard		N/A
	Stranded conductor test, 8 mm insulation removed		N/A
	No contact between live parts and accessible metal parts and,		N/A
	for class II constructions, between live parts and metal parts separated from accessible metal parts by supplementary insulation only		N/A
26.6	Terminals for type X attachment and for connection of cables of fixed wiring suitable for connection of conductors with cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm^2) ..... :		N/A
	If a specially prepared cord is used, terminals need only be suitable for that cord		N/A
26.7	Terminals for type X attachment, except in class III appliances not containing live parts, accessible after removal of a cover or part of the enclosure		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
26.8	Terminals for the connection of fixed wiring, including the earthing terminal, located close to each other		N/A
26.9	Terminals of the pillar type constructed and located as specified		N/A
26.10	Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless		N/A
	conductors ends fitted with means suitable for screw terminals		N/A
	Pull test of 5 N to the connection		N/A
26.11	For type Y and Z attachment, soldered, welded, crimped or similar connections may be used		P
	For class II appliances, the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone		N/A
	If soldering, welding or crimping alone used, barriers provided so that clearances and creepage distances between live parts and other metal parts are not reduced below the values for supplementary insulation if the conductor becomes free		N/A
27	PROVISION FOR EARTHING		----
27.1	Accessible metal parts of class 0I and I appliances permanently and reliably connected to an earthing terminal or earthing contact of the appliance inlet		P
	Earthing terminals and earthing contacts not connected to the neutral terminal		P
	Class 0, II and III appliances have no provision for earthing		N/A
	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

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Clause	Requirement + Test	Result - Remark	Verdict
27.3	For a detachable part having an earth connection and being plugged into another part of the appliance, the earth connection is made before and separated after current-carrying connections when removing the part		N/A
	For appliances with supply cords, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage		P
27.4	No risk of corrosion resulting from contact between parts of the earthing terminal and the copper of the earthing conductor or other metal		P
	Parts providing earthing continuity, other than parts of a metal frame or enclosure, have adequate resistance to corrosion		P
	If of steel, these parts provided with an electroplated coating with a thickness at least 5 µm		P
	Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure		P
	In the body of the earthing terminal is a part of a frame or enclosure of aluminium or aluminium alloys, precautions taken to avoid risk of corrosion		N/A
27.5	Low resistance of connection between earthing terminal and earthed metal parts		P
	This requirement does not apply to connections providing earthing continuity in the protective extra-low voltage circuit, provided the clearances of basic insulation are based on the rated voltage of the appliance		P
	Resistance not exceeding 0,1 at the specified low-resistance test ( ) ..... :	Max. 0,028Ω	P
27.6	The printed conductors of printed circuit boards not used to provide earthing continuity in hand-held appliances.		N/A
	They may be used to provide earthing continuity in other appliances if at least two tracks are used with independent soldering points and the appliance complies with 27.5 for each circuit		N/A
28	SCREWS AND CONNECTIONS		----
28.1	Fixings, electrical connections and connections providing earthing continuity withstand mechanical stresses		P
	Screws not of soft metal liable to creep, such as zinc or aluminium		P
	Diameter of screws of insulating material min. 3 mm		N/A

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

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Clause	Requirement + Test	Result - Remark	Verdict
	- when replacing a supply cord having a type X attachment, or		N/A
	- during installation		N/A
	At least two screws being used for each connection providing earthing continuity, unless		N/A
	the screw forms a thread having a length of at least half the diameter of the screw		N/A
28.4	Screws and nuts that make mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity		P
	This requirement does not apply to screws in the earthing circuit if at least two screws are used, or		P
	if an alternative earthing circuit is provided		N/A
	Rivets for electrical connections or connections providing earthing continuity secured against loosening if the connections are subjected to torsion		N/A
29	CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION		----
	Clearances, creepage distances and solid insulation withstand electrical stress		P
	For coatings used on printed circuits boards to protect the microenvironment (Type 1) or to provide basic insulation (Type 2), annex J applies.....:		N/A
	The microenvironment is pollution degree 1 under type 1 protection		N/A
	For type 2 protection, the spacing between the conductors before the protection is applied is not less than the values specified in Table 1 of IEC 60664-3		N/A
	These values apply to functional, basic, supplementary and reinforced insulation.....:		N/A
	For motor-compressor not complying with IEC 60335-2-34, additions and modifications as specified (IEC 60335-2-40)		P
29.1	Clearances not less than the values specified in table 16, taking into account the rated impulse voltage for the overvoltage categories of table 15, unless.....:	(see appended table)	P
	for basic insulation and functional insulation they comply with the impulse voltage test of clause 14		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	However, if the distances are affected by wear, distortion, movement of the parts or during assembly, the clearances for rated impulse voltages of 1500 V and above are increased by 0,5 mm and the impulse voltage test is not applicable		P
	Impulse voltage test is not applicable:		----
	- when the microenvironment is pollution degree 3, or		N/A
	- for basic insulation of class 0 and class 01 appliances		N/A
	Appliances are in overvoltage category II		P
	A force of 2 N is applied to bare conductors, other than heating elements		P
	A force of 30 N is applied to accessible surfaces		P
29.1.1	Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage		P
	The values of table 16 or the impulse voltage test of clause 14 are applicable ..... :	(see appended table)	P
	Clearance at the terminals of tubular sheathed heating elements may be reduced to 1,0 mm if the microenvironment is pollution degree 1		N/A
	Lacquered conductors of windings considered to be bare conductors		P
29.1.2	Clearances of supplementary insulation not less than those specified for basic insulation in table 16 ..... :	(see appended table)	P
29.1.3	Clearances of reinforced insulation not less than those specified for basic insulation in table 16, using the next higher step for rated impulse voltage ..... :	(see appended table)	P
	For double insulation, with no intermediate conductive part between basic and supplementary insulation, clearances are measured between live parts and the accessible surface, and the insulation system is treated as reinforced insulation		N/A
29.1.4	Clearances for functional insulation are the largest values determined from:		----
	- table 16 based on the rated impulse voltage..... :	(see appended table)	P
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N/A
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	If values of table 16 are largest, the impulse voltage test of clause 14 may be applied instead, unless		N/A
	the microenvironment is pollution degree 3, or		N/A
	the distances can be affected by wear, distortion, movement of the parts or during assembly		N/A
	However, clearances are not specified if the appliance complies with clause 19 with the functional insulation short-circuited		N/A
	Lacquered conductors of windings considered to be bare conductors		P
	However, clearances at crossover points are not measured		P
	Clearance between surfaces of PTC heating elements may be reduced to 1mm		N/A
29.1.5	Appliances having higher working voltages than rated voltage, clearances for basic insulation are the largest values determined from:		----
	- table 16 based on the rated impulse voltage..... :		P
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N/A
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N/A
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1 or clause 4 of IEC 60664-4, the clearances of supplementary insulation are not less than those specified for basic insulation		N/A
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1, the clearances of reinforced insulation dimensioned as specified in Table F.7a are to withstand 160% of the withstand voltage required for basic insulation		N/A
	If clearances for basic insulation are selected from clause 4 of IEC 60664-4, the clearances of reinforced insulation are twice the value required for basic insulation		N/A
	If the secondary winding of a step-down transformer is earthed, or if there is an earthed screen between the primary and secondary windings, clearances of basic insulation on the secondary side not less than those specified in table 16, but using the next lower step for rated impulse voltage		N/A
	Circuits supplied with a voltage lower than rated voltage, clearances of functional insulation are based on the working voltage used as the rated voltage in table 15		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
29.2	Creepage distances not less than those appropriate for the working voltage, taking into account the material group and the pollution degree ..... :	(see appended table)	P
	Pollution degree 2 applies, unless	Main power box	P
	- precautions taken to protect the insulation; pollution degree 1		N/A
	- insulation subjected to conductive pollution; pollution degree 3	Parts in airflow	P
	A force of 2 N is applied to bare conductors, other than heating elements		P
	A force of 30 N is applied to accessible surfaces		P
	In a double insulation system, the working voltage for both the basic and supplementary insulation is taken as the working voltage across the complete double insulation system		N/A
	Insulation located in airflow, pollution degree 3 unless (IEC 60335-2-40)		P
	insulation enclosed or located so that unlikely to be exposed to pollution due to normal use (IEC 60335-2-40)		N/A
29.2.1	Creepage distances of basic insulation not less than specified in table 17 ..... :	(see appended table)	P
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 17 ..... :		N/A
	Except for pollution degree 1, corresponding creepage distance not less than the minimum specified for the clearance in table 16, if the clearance has been checked according to the test of clause 14..... :		N/A
29.2.2	Creepage distances of supplementary insulation at least those specified for basic insulation in table 17, or ..... :	(see appended table)	P
	Table 2 of IEC 60664-4, as applicable ..... :		N/A
29.2.3	Creepage distances of reinforced insulation at least double those specified for basic insulation in table 17, or ..... :	(see appended table)	P
	Table 2 of IEC 60664-4, as applicable ..... :		N/A
29.2.4	Creepage distances of functional insulation not less than specified in table 18 ..... :	(see appended table)	P

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

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Clause	Requirement + Test	Result - Remark	Verdict
30.1	External parts of non-metallic material,		P
	parts supporting live parts, and		P
	parts of thermoplastic material providing supplementary or reinforced insulation		P
	sufficiently resistant to heat		P
	Ball-pressure test according to IEC 60695-10-2		P
	External parts tested at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 75 °C, whichever is the higher; temperature (°C) ..... :	(see appended table)	P
	Parts supporting live parts tested at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 125 °C, whichever is the higher; temperature (°C) ..... :	(see appended table)	P
	Parts of thermoplastic material providing supplementary or reinforced insulation tested at 25 °C plus the maximum temperature rise determined during clause 19, if higher; temperature (°C)..... :		N/A
30.2	Parts of non-metallic material resistant to ignition and spread of fire		P
	This requirement does not apply to:		----
	parts having a mass not exceeding 0,5 g, provided the cumulative effect is unlikely to propagate flames that originate inside the appliance by propagating flames from one part to another, or		P
	decorative trims, knobs and other parts unlikely to be ignited or to propagate flames that originate inside the appliance		P
	Compliance checked by the test of 30.2.1, and in addition:		P
	- for attended appliances, 30.2.2 applies		N/A
	- for unattended appliances, 30.2.3 applies		P
	For appliances for remote operation, 30.2.3 applies		N/A
	For base material of printed circuit boards, 30.2.4 applies		P
30.2.1	Parts of non-metallic material subjected to the glow-wire test of IEC 60695-2-11 at 550 °C		P
	However, test not carried out if the material is classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 550 °C, or		N/A
	the material is classified at least HB40 according to IEC 60695-11-10		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Parts for which the glow-wire test cannot be carried out need to meet the requirements in ISO 9772 for material classified HBF		N/A
30.2.3	Appliances operated while unattended, tested as specified in 30.2.3.1 and 30.2.3.2		P
	The tests are not applicable to conditions as specified.....:		P
30.2.3.1	Parts of non-metallic material supporting connections carrying a current exceeding 0,2 A during normal operation, and		P
	parts of non-metallic material, other than small parts, within a distance of 3 mm,		P
	subjected to the glow-wire test of IEC 60695-2-11 with a test severity of 850 °C		P
	Glow-wire applied to an interposed shielding material, if relevant		N/A
	The glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 850 °C		N/A
30.2.3.2	Parts of non-metallic material supporting connections, and		P
	parts of non-metallic material within a distance of 3 mm,		P
	subjected to glow-wire test of IEC 60695-2-11		P
	The test severity is:		----
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		P
	- 650 °C, for other connections		P
	Glow-wire applied to an interposed shielding material, if relevant		N/A
	However, the glow-wire test of 750 °C or 650 °C as appropriate, is not carried out on parts of material fulfilling both or either of the following classifications:		----
	- a glow-wire ignition temperature according to IEC 60695-2-13 of at least:		N/A
	- 775 °C, for connections carrying a current exceeding 0,2 A during normal operation		N/A
	- 675 °C, for other connections		N/A
	- a glow-wire flammability index according to IEC 60695-2-12 of at least:		N/A
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	- 650 °C, for other connections		N/A
	The glow-wire test is also not carried out on small parts. These parts are to:		----
	- comprise material having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N/A
	- comprise material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- comply with the needle-flame test of annex E, or		N/A
	- comprise material classified as V-0 or V-1 according to IEC 60695-11-10		N/A
	The consequential needle-flame test of annex E applied to non-metallic parts that encroach within the vertical cylinder placed above the centre of the connection zone and on top of the non-metallic parts supporting current-carrying connections, and parts of non-metallic material within a distance of 3 mm of such connections if these parts are those:		----
	- parts that withstood the glow-wire test of IEC 60695-2-11 of 750 °C or 650 °C as appropriate, but produce a flame that persist longer than 2 s, or		N/A
	- parts that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- small parts, that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- small parts for which the needle-flame test of annex E was applied, or		N/A
	- small parts for which a material classification of V-0 or V-1 was applied		N/A
	However, the consequential needle-flame test is not carried out on non-metallic parts, including small parts, within the cylinder that are:		----
	- parts having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N/A
	- parts comprising material classified as V-0 or V-1 according to IEC 60695-11-10, or		N/A
	- parts shielded by a flame barrier that meets the needle-flame test of annex E or that comprises material classified as V-0 or V-1 according to IEC 60695-11-10		N/A
30.2.4	Base material of printed circuit boards subjected to the needle-flame test of annex E		P
	Test not applicable to conditions as specified ..... :		P
31	RESISTANCE TO RUSTING		----

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	Relevant ferrous parts adequately protected against rusting		P
	Tests specified in part 2 when necessary		P
	Salt mist test of IEC 60068-2-52, severity 2 (IEC 60335-2-40)		P
	Before test, coatings are scratched by means of a harden steel pin as specified (IEC 60335-2-40)		P
	Five scratches made at least 5 mm apart and at least 5 mm from the edges (IEC 60335-2-40)		P
	Appliance not deteriorated to such an extent that compliance with clause 8 and 27 is impaired (IEC 60335-2-40)		P
	Coating not be broken and not loosened from the metal surface (IEC 60335-2-40)		P
A	ANNEX A (INFORMATIVE) ROUTINE TESTS		----
	Description of routine tests to be carried out by the manufacturer		N/A
B	ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES		----
	The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance		N/A
	This annex does not apply to battery chargers		N/A
3.1.9	Appliance operated under the following conditions:		----
	- the appliance, supplied by its fully charged battery, operated as specified in relevant part 2		N/A
	- the battery is charged, the battery being initially discharged to such an extent that the appliance cannot operate		N/A
	- f possible, the appliance is supplied from the supply mains through its battery charger, the battery being initially discharged to such an extent that the appliance cannot operate. The appliance is operated as specified in relevant part 2		N/A
	- if the appliance incorporates inductive coupling between two parts that are detachable from each other, the appliance is supplied from the supply mains with the detachable part removed		N/A
3.6.2	Part to be removed in order to discard the battery is not considered to be detachable		N/A
5.B.101	Appliances supplied from the supply mains tested as specified for motor-operated appliances		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
7.1	Battery compartment for batteries intended to be replaced by the user, marked with battery voltage and polarity of the terminals		N/A
	The positive terminal indicated by symbol IEC 60417-5005 and the negative terminal by symbol IEC 60417-5006		N/A
7.6	Symbols 60417-5005 and IEC 60417-5006		N/A
7.12	The instructions give information regarding charging		N/A
	The instructions for appliances incorporating batteries intended to be replaced by the user includes required information		N/A
	Details about how to remove batteries containing materials hazardous to the environment given		N/A
7.15	Markings placed on the part of the appliance connected to the supply mains		N/A
8.2	Appliances having batteries that according to the instruction may be replaced by the user need only have basic insulation between live parts and the inner surface of the battery compartment		N/A
	If the appliance can be operated without batteries, double or reinforced insulation required		N/A
11.7	The battery is charged for the period stated in the instructions or 24 h ..... :		N/A
19.1	Appliances subjected to tests of 19.B.101, 19.B.102 and 19.B.103		N/A
19.10	Not applicable		N/A
19.B.101	Appliances supplied at rated voltage for 168 h, the battery being continually charged		N/A
19.B.102	For appliances having batteries that can be removed without the aid of a tool, short-circuit of the terminals of the battery, the battery being fully charged,		N/A
19.B.103	Appliances having batteries replaceable by the user supplied at rated voltage under normal operation with the battery removed or in any position allowed by the construction		N/A
21.B.101	Appliances having pins for insertion into socket-outlets have adequate mechanical strength		N/A
	Part of the appliance incorporating the pins subjected to the free fall test, procedure 2, of IEC 60068-2-31, the number of falls being:		----
	- 100, if the mass of the part does not exceed 250 g (g)..... :		N/A
	- 50, if the mass of the part exceeds 250 g..... :		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	After the test, the requirements of 8.1, 15.1.1, 16.3 and clause 29 are met		N/A
22.3	Appliances having pins for insertion into socket-outlets tested as fully assembled as possible		N/A
25.13	An additional lining or bushing not required for interconnection cords in class III appliances or class III constructions operating at safety extra-low voltage not containing live parts		N/A
30.2	For parts of the appliance connected to the supply mains during the charging period, 30.2.3 applies		N/A
	For other parts, 30.2.2 applies		N/A
C	ANNEX C (NORMATIVE) AGEING TEST ON MOTORS		----
	Tests, as described, carried out when doubt with regard to the temperature classification of the insulation of a motor winding		N/A
	Test conditions as specified		N/A
E	ANNEX E (NORMATIVE) NEEDLE-FLAME TEST		----
	Needle-flame test carried out in accordance with IEC 60695-11-5, with the following modifications:		----
7	Severities		----
	The duration of application of the test flame is 30 s ± 1 s		P
9	Test procedure		----
9.1	The specimen so arranged that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1		P
9.2	The first paragraph does not apply		P
	If possible, the flame is applied at least 10 mm from a corner		P
9.3	The test is carried out on one specimen		P
	If the specimen does not withstand the test, the test may be repeated on two additional specimens, both withstanding the test		N/A
11	Evaluation of test results		----
	The duration of burning not exceeding 30 s		N/A
	However, for printed circuit boards, the duration of burning not exceeding 15 s		P
F	ANNEX F (NORMATIVE) CAPACITORS		----

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	Capacitors likely to be permanently subjected to the supply voltage, and used for radio interference suppression or voltage dividing, comply with the following clauses of IEC 60384-14, with the following modifications:		----
1.5	Terms and definitions		----
1.5.3	Class X capacitors tested according to subclass X2		N/A
1.5.4	This subclause is applicable		N/A
1.6	Marking		----
	Items a) and b) are applicable		N/A
3.4	Approval testing		----
3.4.3.2	Table 3 is applicable as described		N/A
4.1	Visual examination and check of dimensions		----
	This subclause is applicable		N/A
4.2	Electrical tests		----
4.2.1	This subclause is applicable		N/A
4.2.5	This subclause is applicable		N/A
4.2.5.2	Only table 11 is applicable		N/A
	Values for test A apply		N/A
	However, for capacitors in heating appliances the values for test B or C apply		N/A
4.12	Damp heat, steady state		----
	This subclause is applicable		N/A
	Only insulation resistance and voltage proof are checked		N/A
4.13	Impulse voltage		----
	This subclause is applicable		N/A
4.14	Endurance		----
	Subclauses 4.14.1, 4.14.3, 4.14.4 and 4.14.7 are applicable		N/A
4.14.7	Only insulation resistance and voltage proof are checked		N/A
	No visible damage		N/A
4.17	Passive flammability test		----
	This subclause is applicable		N/A
4.18	Active flammability test		----
	This subclause is applicable		N/A
G	ANNEX G (NORMATIVE) SAFETY ISOLATING TRANSFORMERS		----

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	The following modifications to this standard are applicable for safety isolating transformers:		----
7	Marking and instructions		----
7.1	Transformers for specific use marked with:		----
	- name, trademark or identification mark of the manufacturer or responsible vendor.....:		N/A
	- model or type reference.....:		N/A
17	Overload protection of transformers and associated circuits		----
	Fail-safe transformers comply with subclause 15.5 of IEC 61558-1		N/A
22	Construction		----
	Subclauses 19.1 and 19.1.2 of IEC 61558-2-6 are applicable		N/A
29	Clearances, creepage distances and solid insulation		----
29.1, 29.2, 29.3	The distances specified in items 2a, 2c and 3 in table 13 of IEC 61558-1 apply		N/A
	For insulated winding wires complying with subclause 19.12.3 of IEC 61558-1 there are no requirements for clearances or creepage distances		N/A
	For windings providing reinforced insulation, the distance specified in item 2c of table 13 of IEC 61558-1 is not assessed		N/A
	For safety isolating transformers subjected to periodic voltages with a frequency exceeding 30 kHz, the clearances, creepage distances and solid insulation values specified in IEC 60664-4 are applicable, if greater than the values specified in items 2a, 2c and 3 in table 13 of IEC 61558-1		N/A
H	ANNEX H (NORMATIVE) SWITCHES		----
	Switches comply with the following clauses of IEC 61058-1, as modified below:		----
	The tests of IEC 61058-1 carried out under the conditions occurring in the appliance		N/A
	Before being tested, switches are operated 20 times without load		N/A
8	Marking and documentation		----
	Switches are not required to be marked		N/A
	However, a switch that can be tested separately from the appliance marked with the manufacturer's name or trade mark and the type reference		N/A
13	Mechanism		----
	The tests may be carried out on a separate sample		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
15	Insulation resistance and dielectric strength		----
15.1	Not applicable		N/A
15.2	Not applicable		N/A
15.3	Applicable for full disconnection and micro-disconnection		N/A
17	Endurance		----
	Compliance is checked on three separate appliances or switches		N/A
	For 17.2.4.4, the number of cycles declared according to 7.1.4 is 10 000, unless		N/A
	otherwise specified in 24.1.3 of the relevant part 2 of IEC 60335 ..... :		N/A
	Switches for operation under no load and which can be operated only by a tool, and		N/A
	switches operated by hand that are interlocked so that they cannot be operated under load,		N/A
	are not subjected to the tests		N/A
	However, switches without this interlock are subjected to the test of 17.2.4.4 for 100 cycles of operation		N/A
	Subclauses 17.2.2 and 17.2.5.2 not applicable		N/A
	The ambient temperature during the test is that occurring in the appliance during the test of clause 11 in IEC 60335-1		N/A
	The temperature rise of the terminals not more than 30 K above the temperature rise measured in clause 11 of IEC 60335-1 (K) ..... :		N/A
20	Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies		----
	This clause is applicable to clearances and creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in table 24		N/A
J	ANNEX J (NORMATIVE) COATED PRINTED CIRCUIT BOARDS		----
	Testing of protective coatings of printed circuit boards carried out in accordance with IEC 60664-3 with the following modifications:		----
5.7	Conditioning of the test specimens		----
	When production samples are used, three samples of the printed circuit board are tested		N/A
5.7.1	Cold		----
	The test is carried out at -25 °C		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.3	Rapid change of temperature		----
	Severity 1 is specified		N/A
5.9	Additional tests		----
	This subclause is not applicable		N/A
K	ANNEX K (NORMATIVE) OVERVOLTAGE CATEGORIES		----
	The information on overvoltage categories is extracted from IEC 60664-1		P
	Overvoltage category is a numeral defining a transient overvoltage condition		P
	Equipment of overvoltage category IV is for use at the origin of the installation		N/A
	Equipment of overvoltage category III is equipment in fixed installations and for cases where the reliability and the availability of the equipment is subject to special requirements		N/A
	Equipment of overvoltage category II is energy consuming equipment to be supplied from the fixed installation		P
	If such equipment is subjected to special requirements with regard to reliability and availability, overvoltage category III applies		N/A
	Equipment of overvoltage category I is equipment for connection to circuits in which measures are taken to limit transient overvoltages to an appropriate low level		N/A
L	ANNEX L (INFORMATIVE) GUIDANCE FOR THE MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES		----
	Information for the determination of clearances and creepage distances		P
M	ANNEX M (NORMATIVE) POLLUTION DEGREE		----
	The information on pollution degrees is extracted from IEC 60664-1		P
	Pollution		----
	The microenvironment determines the effect of pollution on the insulation, taking into account the macroenvironment		P
	Means may be provided to reduce pollution at the insulation by effective enclosures or similar		P
	Minimum clearances specified where pollution may be present in the microenvironment		P

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	Degrees of pollution in the microenvironment		----
	For evaluating creepage distances, the following degrees of pollution in the microenvironment are established:		----
	- pollution degree 1: no pollution or only dry, non-conductive pollution occurs. The pollution has no influence		N/A
	- pollution degree 2: only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be expected	Main power box	P
	- pollution degree 3: conductive pollution occurs or dry non-conductive pollution occurs that becomes conductive due to condensation that is to be expected	Parts in airflow	P
	- pollution degree 4: the pollution generates persistent conductivity caused by conductive dust or by rain or snow		N/A
N	ANNEX N (NORMATIVE) PROOF TRACKING TEST		----
	The proof tracking test is carried out in accordance with IEC 60112 with the following modifications:		----
7	Test apparatus		----
7.3	Test solutions		----
	Test solution A is used		P
10	Determination of proof tracking index (PTI)		----
10.1	Procedure		----
	The proof voltage is 100 V, 175 V, 400 V or 600 V ..... :	175V	P
	The test is carried out on five specimens		P
	In case of doubt, additional test with proof voltage reduced by 25 V, the number of drops increased to 100		N/A
10.2	Report		----
	The report states if the PTI value was based on a test using 100 drops with a test voltage of (PTI-25) V		N/A
O	ANNEX O (INFORMATIVE) SELECTION AND SEQUENCE OF THE TESTS OF clause 30		----
	Description of tests for determination of resistance to heat and fire		P
P	ANNEX P (INFORMATIVE) GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN WARM DAMP EQUABLE CLIMATES		----

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	Modifications applicable for class 0 and 01 appliances having a rated voltage exceeding 150 V, intended to be used in countries having a warm damp equable climate and that are marked WDaE		----
	Modifications may also be applied to class 1 appliances having a rated voltage exceeding 150 V, intended to be used in countries having a warm damp equable climate and that are marked WDaE, if liable to be connected to a supply mains that excludes the protective earthing conductor		----
5.7	The ambient temperature for the tests of clauses 11 and 13 is 40 +3/0 °C		N/A
7.1	The appliance marked with the letters WDaE		N/A
7.12	The instructions state that the appliance is to be supplied through a residual current device (RCD) having a rated residual operating current not exceeding 30 mA		N/A
	The instructions state that the appliance is considered to be suitable for use in countries having a warm damp equable climate, but may also be used in other countries		N/A
11.8	The values of Table 3 are reduced by 15 K		N/A
13.2	The leakage current for class I appliances not exceeding 0,5 mA		N/A
15.3	The value of t is 37 °C		N/A
16.2	The leakage current for class I appliances not exceeding 0,5 mA (mA):		N/A
19.13	The leakage current test of 16.2 is applied in addition to the electric strength test of 16.3		N/A
Q	ANNEX Q (INFORMATIVE) SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS		----
	Description of tests for appliances incorporating electronic circuits		P
R	ANNEX R (NORMATIVE) SOFTWARE EVALUATION		----
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 validated in accordance with the requirements of this annex		N/A
R.1	Programmable electronic circuits using software		----
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 constructed so that the software does not impair compliance with the requirements of this standard		N/A
R.2	Requirements for the architecture		----

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2 use measures to control and avoid software-related faults/errors in safety-related data and safety-related segments of the software		N/A
R.2.1.1	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.2 have one of the following structures:		----
	- single channel with periodic self-test and monitoring		N/A
	- dual channel (homogenous) with comparison		N/A
	- dual channel (diverse) with comparison		N/A
	Programmable electronic circuits requiring software incorporating measures to control the fault/error conditions specified in table R.1 have one of the following structures:		----
	- single channel with functional test		N/A
	- single channel with periodic self-test		N/A
	- dual channel without comparison		N/A
R.2.2	Measures to control faults/errors		----
R.2.2.1	When redundant memory with comparison is provided on two areas of the same component, the data in one area is stored in a different format from that in the other area		N/A
R.2.2.2	Programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.2 and that use dual channel structures with comparison, have additional fault/error detection means for any fault/errors not detected by the comparison		N/A
R.2.2.3	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, means are provided for the recognition and control of errors in transmissions to external safety-related data paths		N/A
R.2.2.4	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the programmable electronic circuits incorporate measures to address the fault/errors in safety-related segments and data indicated in table R.1 and R.2 as appropriate		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
R.2.2.5	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, detection of a fault/error occur before compliance with clause 19 is impaired		N/A
R.2.2.6	The software is referenced to relevant parts of the operating sequence and the associated hardware functions		N/A
R.2.2.7	Labels used for memory locations are unique		N/A
R.2.2.8	The software is protected from user alteration of safety-related segments and data		N/A
R.2.2.9	Software and safety-related hardware under its control is initialized and terminates before compliance with clause 19 is impaired		N/A
R.3	Measures to avoid errors		----
R.3.1	General		----
	For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in table R.1 or R.2, the following measures to avoid systematic fault in the software are applied		----
	Software that incorporates measures used to control the fault/error conditions specified in table R.2 is inherently acceptable for software required to control the fault/error conditions specified in table R.1		N/A
R.3.2	Specification		----
R.3.2.1	Software safety requirements:	Software Id:	N/A
	The specification of the software safety requirements includes the descriptions listed		N/A
R.3.2.2	Software architecture		----
R.3.2.2.1	The specification of the software architecture includes the aspects listed - techniques and measures to control software faults/errors (refer to R.2.2); - interactions between hardware and software; - partitioning into modules and their allocation to the specified safety functions; - hierarchy and call structure of the modules (control flow); - interrupt handling; - data flow and restrictions on data access; - architecture and storage of data; - time-based dependencies of sequences and data	Document ref. No:	N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
R.3.2.2.2	The architecture specification is validated against the specification of the software safety requirements by static analysis		N/A
R.3.2.3	Module design and coding		----
R.3.2.3.1	Based on the architecture design, software is suitably refined into modules		N/A
	Software module design and coding is implemented in a way that is traceable to the software architecture and requirements		N/A
R.3.2.3.2	Software code is structured		N/A
R.3.2.3.3	Coded software is validated against the module specification by static analysis		N/A
	The module specification is validated against the architecture specification by static analysis		N/A
R.3.3.3	Software validation		----
	The software is validated with reference to the requirements of the software safety requirements specification		N/A
	Compliance is checked by simulation of:		----
	- input signals present during normal operation		N/A
	- anticipated occurrences		N/A
	- undesired conditions requiring system action		N/A

TABLE R.1 [e] – GENERAL FAULT/ERROR CONDITIONS						
Component [a]	Fault/error	Acceptable measures [b, c]	Definitions	Document reference for applied measure	Document reference for applied test	Ver-dict
1 CPU 1.1 Registers	Stuck at	Functional test, or periodic self-test using either: - static memory test, or - word protection with single bit redundancy	H.2.16.5 H.2.16.6 H.2.19.6 H.2.19.8.2			N/A
1.2 VOID						N/A

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Clause	Requirement + Test	Result - Remark	Verdict

1.3 Programme counter	Stuck at	Functional test, or Periodic self-test, or Independent time-slot monitoring, or Logical monitoring of the programme sequence	H.2.16.5 H.2.16.6 H.2.18.10.4 H.2.18.10.2			N/A
2 Interrupt handling and execution	No interrupt or too frequent interrupt	Functional test, or time-slot monitoring	H.2.16.5 H.2.18.10.4			N/A
3 Clock	Wrong frequency (for quartz synchronized clock: harmonics/ sub-harmonics only)	Frequency monitoring, or time slot monitoring	H.2.18.10.1 H.2.18.10.4			N/A
4. Memory 4.1 Invariable memory	All single bit faults	Periodic modified checksum, or multiple checksum, or word protection with single bit redundancy	H.2.19.3.1 H.2.19.3.2 H.2.19.8.2			N/A
4.2 Variable memory	DC fault	Periodic static memory test, or word protection with single bit redundancy	H.2.19.6 H.2.19.8.2			N/A
4.3 Addressing (relevant to variable and invariable memory)	Stuck at	Word protection with single bit redundancy including the address	H.2.19.8.2			N/A
5 Internal data path	Stuck at	Word protection with single bit redundancy	H.2.19.8.2			N/A
5.1 VOID						N/A
5.2 Addressing	Wrong address	Word protection with single bit redundancy including the address	H.2.19.8.2			N/A

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Clause	Requirement + Test	Result - Remark	Verdict

6 External communication	Hamming distance 3	Word protection with multi-bit redundancy, or CRC – single work, or Transfer redundancy, or Protocol test	H.2.19.8.1 H.2.19.4.1 H.2.18.2.2 H.2.18.14			N/A
6.1 VOID						N/A
6.2 VOID						N/A
6.3 Timing	Wrong point in time	Time-slot monitoring, or scheduled transmission Time-slot and logical monitoring, or comparison of redundant communication channels by either: - reciprocal comparison - independent hardware comparator	H.2.18.10.4 H.2.18.18 H.2.18.10.3 H.2.18.15 H.2.18.3			N/A
	Wrong sequence	Logical monitoring, or time-slot monitoring, or Scheduled transmission	H.2.18.10.2 H.2.18.10.4 H.2.18.18			
7 Input/output periphery	Fault conditions specified in 19.11.2	Plausibility check	H.2.18.13			N/A
7.1 VOID						N/A
7.2 Analog I/O 7.2.1 A/D and D/A-converter	Fault conditions specified in 19.11.2	Plausibility check	H.2.18.13			N/A
7.2.2 Analog multiplexer	Wrong addressing	Plausibility check	H.2.18.13			N/A
8 VOID						N/A
9 Custom chips [d] e.g. ASIC, GAL, gate array	Any output outside the static and dynamic functional specification	Periodic self-test	H.2.16.6			N/A

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Clause	Requirement + Test	Result - Remark	Verdict

NOTE A Stuck-at fault model denotes a fault model representing an open circuit or a non-varying signal level. A DC fault model denotes a stuck-at fault model incorporating short circuit between signal lines.
a) For fault/error assessment, some components are divided into their sub-functions. b) For each sub-function in the table, the Table R.2 measure will cover the software fault/error. c) Where more than one measure is given for a sub-function, these are alternatives. d) To be divided as necessary by the manufacturer into sub-functions. e) Table R.1 is applied according to the requirements of R.1 to R.2.2.9 inclusive.

AA	**ANNEX AA (INFORMATIVE) (IEC 60335-2-40)** **EXAMPLES FOR OPERATING TEMPERATURES OF THE APPLIANCE**	**----**

BB	**ANNEX BB (NORMATIVE) (IEC 60335-2-40)** **SELECTED INFORMATION ABOUT REFRIGERANTS**	**----**

CC	**ANNEX CC (INFORMATIVE) (IEC/EN 60335-2-40/A1)** **TRANSPORTATION, MARKING AND STORAGE FOR UNITS THAT EMPLOY FLAMMABLE REFRIGERANTS**		----
CC.1	Transport of equipment containing flammable refrigerants (IEC 60335-2-40/A1)		P
CC.2	Marking of equipment using signs (IEC 60335-2-40/A1)		P
CC.3	Disposal of equipment using flammable refrigerants (IEC 60335-2-40/A1)		P
CC.4	Storage of equipment/appliances (IEC 60335-2-40/A1)		P
CC.5	Storage of packed (unsold) equipment (IEC 60335-2-40/A1)		P

DD	**ANNEX DD (NORMATIVE) (IEC/EN 60335-2-40/A1)** **SERVICE OPERATIONS**		----
DD.1	Generals (IEC 60335-2-40/A1)		P
DD.2	Symbols (IEC 60335-2-40/A1)		P
DD.3	Information in manual (IEC 60335-2-40/A1 corr.1)		P
DD.4	Information on servicing (IEC 60335-2-40/A1)		P
DD.5	Repairs to sealed components (IEC 60335-2-40/A1)		N/A
DD.6	Repair to intrinsically safe components (IEC 60335-2-40/A1)		P
DD.7	Cabling (IEC 60335-2-40/A1)		P
DD.8	Detection of flammable refrigerants (IEC 60335-2-40/A1)		P

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
DD.9	Leak detection methods (IEC 60335-2-40/A1)		P
DD.10	Removal and evacuation (IEC 60335-2-40/A1)		P
DD.11	Charging procedures (IEC 60335-2-40/A1)		P
DD.12	Decommissioning (IEC 60335-2-40/A1)		P
DD.13	Labelling (IEC 60335-2-40/A1)		P
DD.14	Recovery (IEC 60335-2-40/A1)		P
EE	**ANNEX EE (NORMATIVE) (IEC/EN 60335-2-40/A1) PRESSURE TESTS**		----
EE.1	General (IEC 60335-2-40/A1)		P
EE.2	Pressure test value determined under testing carried out in clause 11 (IEC 60335-2-40/A1)		P
EE.3	Pressure test value determined under testing carried out in clause 19 (IEC 60335-2-40/A1)		P
EE.4	Pressure test value determined under testing carried out under standstill conditions (IEC 60335-2-40/A1)		P
EE.5	Fatigue test option for Clauses EE.1 and EE.4.1 (IEC 60335-2-40/A1)		N/A
FF	**ANNEX FF (NORMATIVE) (IEC/EN 60335-2-40/A1) LEAK SIMULATION TESTS**		----
FF.1	General (IEC 60335-2-40/A1)		N/A
FF.2	Test methods (IEC 60335-2-40/A1 corr.1)		N/A
GG	**ANNEX GG (NORMATIVE) (IEC/EN 60335-2-40/A1) CHARGE LIMITS, VENTILATION REQUIREMENTS AND REQUIREMENTS FOR SECONDARY CIRCUITS**		----
GG.1	Requirements for charge limits in ventilated areas (IEC 60335-2-40/A1 Corr.1)		P
GG.2	Requirements for charge limits in unventilated areas (IEC 60335-2-40/A1 Corr.1)		P
GG.3	Requirements for charge limits in areas with mechanical ventilation (IEC 60335-2-40/A1)		N/A
GG.4	Requirements for mechanical ventilation within the appliance enclosure (IEC 60335-2-40/A1)		N/A
GG.5	Requirements for mechanical ventilation for rooms complying with ISO 5149 (IEC 60335-2-40/A1)		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
GG.6	Requirements for refrigeration systems employing secondary heat exchangers (IEC 60335-2-40/A1 Corr.1)		N/A
GG.7	The appliance shall then be tested with a maximum water flow under the conditions described in g) (IEC 60335-2-40/A1)		N/A

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10.1	TABLE: Power input deviation				P
Input deviation of/at:	P rated (W)	P measured (W)	Δ P	Required Δ P	Remark
Compressor capacitor is 30uF:					
GPH12AL-K5NNA3A at 230V/50Hz	1550	1311,3	-15,4%	+15%	Cooling mode
	1550	1379,3	-11,0%	+15%	Heating mode
GPC12AL-K5NNA3A at 230V/50Hz	1550	1413,2	-8,8%	+15%	Cooling mode
GPH12AL-K5NNA2B at 230V/50Hz	1550	1421,5	-8,1%	+15%	Cooling mode
	1550	1359,7	-12,3%	+15%	Heating mode
GPC12AL-K5NNA3B at 230V/50Hz	1550	1388,7	-10,4%	+15%	Cooling mode
GPC12AL-K5NNA3C at 230V/50Hz	1500	1311,4	-12,6%	+15%	Cooling mode
GPH12AL-K5NNA3C at 230V/50Hz	1550	1341,4	-13,5%	+15%	Cooling mode
	1550	1196,6	-22,8%	+15%	Heating mode
GPC12AL-K5NNA3D at 230V/50Hz	1500	1356,0	-9,6%	+15%	Cooling mode
Note: tested with all alternative components and recorded the maximum value.					
Compressor capacitor is 40uF:					
GPH12AL-K5NNA3A at 230V/50Hz	1550	1368,5	-11,7%	+15%	Cooling mode
	1550	1392,1	-10,2%	+15%	Heating mode

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

11.8-1	TABLE: Heating test, thermocouples for GPH12AL-K5NNA3A		P
	Test voltage (V).....:	254,4	—
	Ambient, t_1 (°C) .....:	Cooling:35/23;	
	Ambient, t_2 (°C) .....:	Heating:27/-;	—

Thermocouple locations	T (°C)		Max. T (°C)
	Cooling	Heating	
Running capacitor of Fan Motor (top)	36,7	37,6	T70
Running capacitor of compressor	36,3	42,3	T70
X capacitor	42,3	41,7	T110
High Frequency Transformer	46,6	44,4	Class B: 110
Running capacitor of Fan Motor (down)	36,4	39,4	T70

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Electric box	42,2	40,7	For clause 30.1
PCB (high voltage board)	44,2	46,2	145
Varistor	45,1	44,3	T85
Relay 1#	49,9	52,8	T70
Relay 2#	50,2	47,0	T70
Relay 3#	50,9	51,6	T70
Relay 4#	43,8	47,3	T70
4-way valve	59,6	32,8	Class B: 110
PCB (main board)	37,6	40,1	145
Terminal block	32,5	41,3	For clause 30.1
Compressor internal wire	56,7	21,3	For reference
Compressor discharge	75,4	69,9	For reference
Compressor	79,5	71,2	For reference
Fan Motor (top)_YD28X (Kaibang)	30,4	18,5	For reference
Fan Motor (top)_YD28X (Tongde)	31,5	19,3	For reference
Fan Motor (Down)_YD23X (Kaibang)	24,9	71,5	For reference
Fan Motor (Down)_YD23X (Tongde)	25,1	72,3	For reference
Splash motor	56,7	13,4	Class E: 105
Power cord	36,8	30,2	75
Test corner	35,6	28,1	90
Note: tested with all alternative components and recorded the maximum value.			

11.8-1	**TABLE: Heating test, resistance method**		P
	Test voltage (V) .....:	254,4	—
	Ambient. t (°C)	Cooling:35/23; Heating:27/-;	—

Temperature of winding	R_1 (Ω) at 25°C	R_2 (Ω)		T (°C)		Max. T (°C)	Insulation class
		Cooling	Heating	Cooling	Heating		
Main winding of fan motor (YD28X_Kaibang)	124	134,1	128,1	46,1	33,6	120	B
Aux. winding of fan motor (YD28X_Kaibang)	89	96,2	91,7	46,0	32,9	120	B
Main winding of fan motor (YD28X_Tongde)	131	142,1	135,8	47,0	34,5	120	B
Aux. winding of fan motor (YD28X_ Tongde)	90	97,4	93,1	46,3	33,9	120	B
Main winding of fan motor (YD23X_Kaibang)	353	373,7	436,7	40,2	86,5	120	B

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Aux. winding of fan motor (YD23X_Kaibang)	96	101,4	118,5	39,6	85,8	120	B
Main winding of fan motor (YD23X_Tongde)	430	458,7	533,2	42,3	87,3	120	B
Aux. winding of fan motor (YD23X_ Tongde)	82	87,3	101,6	41,8	87,0	120	B
Main winding of compressor	3,11	3,9	3,8	90,9	82,6	140	Synthetic
Aux. winding of compressor	3,12	3,9	3,9	89,9	89,9	140	Synthetic
4-way valve valve (DSF-9-R410A_Dunan)	2000	2386,1	2175,0	75,1	47,7	120	B
4-way valve valve (SHF-7_Gangli)	2180	2610,1	2374,1	76,2	48,1	120	B
4-way valve valve (SHF-7H-34U-PG_Sanhua)	2200	2631,5	2394,1	75,9	47,9	120	B
Splash motor (SN03N-1_Kaibang)	562	663,4	569,8	71,8	28,6	115	E

11.8-2	**TABLE: Heating test, thermocouples for GPH12AL-K5NNA2B**		P
	Test voltage (V) ..... :	254,4	—
	Ambient, t_1 (°C) ..... :	Cooling:35/23;	
	Ambient, t_2 (°C) ..... :	Heating:27/-	—

Thermocouple locations	T (°C)		Max. T (°C)
	Cooling	Heating	
Running capacitor of Fan Motor (top)	38,9	39,7	T70
Running capacitor of compressor	37,8	43,1	T70
X capacitor	43,6	42,8	T110
High Frequency Transformer	46,5	45,2	Class B: 110
Running capacitor of Fan Motor (down)	39,5	40,1	T70
Electric box	36,9	38,4	For clause 30.1
PCB (high voltage board)	40,3	42,6	145
Varistor	46,5	45,3	T85
Relay 1#	48,9	50,2	T70
Relay 2#	45,6	47,6	T70
Relay 3#	50,2	51,7	T70
Relay 4#	45,6	44,3	T70
4-way valve	62,1	52,4	Class B: 110
PCB (main board)	38,5	40,3	145
Terminal block	33,2	41,5	For clause 30.1
Compressor internal wire	48,4	32,1	For reference

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Compressor discharge	77,5	70,1	For reference
Compressor	79,5	72,3	For reference
Fan Motor (top)_YD28X (Kaibang)	32,5	20,6	For reference
Fan Motor (top)_YD28X (Tongde)	35,6	22,6	For reference
Fan Motor (Down)_YD23X (Kaibang)	39,1	42,3	For reference
Fan Motor (Down)_YD23X (Tongde)	38,4	44,2	For reference
Splash motor	57,6	30,2	Class E: 105
Power cord	36,5	32,1	75
Test corner	35,4	27,8	90

11.8-3	**TABLE: Heating test, thermocouples** for GPH12AL-K5NNA3A with compressor capacitor 40uF		P
	Test voltage (V).....:	254,4	—
	Ambient, t_1 (°C) .....:	Cooling:35/23;	
	Ambient, t_2 (°C) .....:	Heating:27/-;	—

Thermocouple locations	T (°C)		Max. T (°C)
	Cooling	Heating	
Running capacitor of Fan Motor (top)	40,7	68,6	T70
Running capacitor of compressor	53,5	38,4	T70
High Frequency Transformer	52,1	46,4	Class B: 110
Running capacitor of Fan Motor (down)	38,4	31,3	T70
Compressor	80,6	74,7	For reference
Fan Motor (top)_YD28X	38,4	42,4	For reference
Fan Motor (Down)_YD23X	52,4	67,1	For reference
Power cord	36,8	37,2	75
Test corner	40,5	26,3	90

11.8-3	**TABLE: Heating test, resistance method**		P
	Test voltage (V) .....:	254,4	—
	Ambient. t (°C)	Cooling:35/23; Heating:27/-;	—

Temperature of winding	R_1 (Ω) at 25°C	R_2 (Ω)		T (°C)		Max. T (°C)	Insulation class
		Cooling	Heating	Cooling	Heating		
Main winding of compressor	3,18	4,06	3,98	96,8	90,3	140	Synthetic
Aux. winding of compressor	3,13	3,98	3,93	95,5	91,3	140	Synthetic

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11.8-4	**TABLE: Heating test, thermocouples** for GPH12AL-K5NNA3C		P
	Test voltage (V).....:	254,4	—
	Ambient, t_1 (°C) .....:	Cooling:35/23;	
	Ambient, t_2 (°C) .....:	Heating:27/-;	—

Thermocouple locations	T (°C)		Max. T (°C)
	Cooling	Heating	
Running capacitor of Fan Motor (top)	39,1	38,4	T70
Running capacitor of compressor	36,2	44,8	T70
X capacitor	42,5	48,3	T110
High Frequency Transformer	48,2	41,5	Class B: 110
Running capacitor of Fan Motor (down)	35,6	39,1	T70
Electric box	38,2	35,6	For clause 30.1
PCB (high voltage board)	44,1	39,8	145
Varistor	45,1	42,5	T85
Relay 1#	47,2	49,3	T70
Relay 2#	46,1	48,5	T70
Relay 3#	49,2	49,6	T70
Relay 4#	41,2	40,5	T70
Liquid Level Switch	36,4	38,2	For reference
4-way valve	64,2	50,2	Class B: 110
PCB (main board)	39,6	42,3	145
Terminal block	34,8	31,2	For clause 30.1
Compressor	78,5	72,6	For reference
Fan Motor (top)	30,5	28,5	For reference
Fan Motor (Down)	41,4	38,4	For reference
Splash motor	55,6	31,5	Class E: 105
Power cord	35,1	29,8	75
Test corner	35,5	27,4	90

11.8-5	**TABLE: Heating test, thermocouples for GPC12AL-K5NNA3D**		P
	Test voltage (V).....:	254,4	—
	Ambient, t_1 (°C) .....:	Cooling:35/23	
	Ambient, t_2 (°C) .....:		—

Thermocouple locations	T (°C)		Max. T (°C)
	Cooling	Heating	
Electrolytic capacitor	42,2	—	T105

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Relay	51,5	—	T70
Upper fan motor enclosure	44,4	—	For reference
Compressor capacitor	34,8	—	T70
Lower fan motor	38,7	—	For reference
Upper fan motor capacitor	34,5	—	T70
Compressor surface	73,3	—	For reference
PCB	37,8	—	145
Winding of high frequency transformer	43,1	—	Class B: 110
Supply cord	37,8	—	75
Lower fan motor capacitor	34,8	—	T70
Varistor	38,0	—	T85
Test corner	28,6	—	90
Appliance enclosure	37,8	—	85

11.8-5	**TABLE: Heating test, resistance method**		P
	Test voltage (V) ..... :	254,4	—
	Ambient. t (°C)	Cooling:35/23; Heating:27/-;	—

Temperature of winding	R_1 (Ω) at 25°C	R_2 (Ω)		T (°C)		Max. T (°C)	Insulation class
		Cooling	Heating	Cooling	Heating		
Main winding of fan motor (YD28X-L Tongde)	498,5	569,8	—	62,1	—	120	B
Aux. winding of fan motor (YD28X-L Tongde)	116,5	133,8	—	63,5	—	120	B

13.2	**TABLE: Leakage current**		P
	Heating appliances: 1,15 x rated power input :	—	—
	Motor-operated and combined appliances: 1,06 x rated voltage :	254,4	—

Leakage current between	I (mA)	Max. allowed I (mA)
L/N and earthing metal parts	Max. 1,587	3,5
L/N and plastic enclosure /Control panel	Max. 0,04 peak	0,35 peak

13.3	**TABLE: Dielectric strength**	P

Test voltage applied between:	Test potential applied (V)	Breakdown / flashover (Yes/No)
Live parts and earthing metal part	1,2x500+700=1300	No

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Supplementary insulation	1,2x500+1450=2050	No
Live parts and reinforced insulation	2,4x500+2400=3600	No
Supplementary information: the max. working voltage measure <500V.		

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

16.2	**TABLE: Leakage current**		P
	Single phase appliances: 1,06 x rated voltage ...:	254,4V	—
	Three phase appliances 1,06 x rated voltage divided by √3: .....:	—	—

Leakage current between	I (mA)	Max. allowed I (mA)
Live parts and earthing metal parts	0,333	3,5
Live parts and plastic enclosure /Control panel	0,009	0,25

16.3	**TABLE: Dielectric strength**		P
Test voltage applied between:		Test potential applied (V)	Breakdown / flashover (Yes/No)
Live parts and earthing metal part		1,2x500+950=1550	No
Supplementary insulation		1,2x500+1450=2050	No
Live parts and reinforced insulation		2,4x500+2400=3600	No
Supplementary information: the max. working voltage measure <500V.			

17	**TABLE: Overload protection**		N/A
Thermocouple locations		Max. temperature rise measured, Δ T (K)	Max. temperature rise limit, Δ T (K)
—		—	—

17	**TABLE: Overload protection, resistance method**					N/A
	Test voltage (V).....:		—			—
	Ambient, t1 (°C) .....:		—			—
	Ambient, t2 (°C) .....:		—			—
Temperature of winding	R1 (Ω)	R2 (Ω)	Δ T (K)	T (°C)	Max. T (°C)	
—	—	—	—	—	—	

19	**Abnormal operation conditions**	N/A

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

Sub-clause	Operating conditions description	Test results description	PEC description	EMP 19.11.4	Software type required	19.11.3 PEC	Final result
19.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.11.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.11.4.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.10X	N/A	N/A	N/A	N/A	N/A	N/A	N/A

19.2	TABLE: Lock motor test, temperature measurements. Test voltage: supplied by the main controller Ambient temperature: 25 °C Duration: 15 days endurance test, after 3 days high-voltage test performed.	P

Measured sample	Insulation class	Enclosure temperature (°C)	Winding temperature (°C)	Max. T (°C)		HV test performed with 1250V	Leakage current (mA)
				Enclosure	Winding		
Fan motor YD23X (Kaibang)	B	108,7	139,8	150	225	Pass	0,083
Fan motor YD23X (Tongde)	B	137,1	155,2	150	225	Pass	0,187
Fan motor YD28X (Kaibang)	B	117,4	143,8	150	225	Pass	0,104
Fan motor YD28X (Tongde)	B	134,0	155,2	150	225	Pass	0,147
Water pump SN03N-1	E	60,2	66,3	150	215	Pass	0,034

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Fan motor YD28X-L (Tongde)	B	137,0	145,0	150	225	Pass	0,142

19.3	**Abnormal operation conditions – Locked rotor test motor-compressor**	P
	Motor-compressor ..... :	QXD-B222A030
	Start device ..... :	—
	Protector ..... :	HPA-030
	Start capacitor ..... :	—
	Run capacitor ..... :	30μF
	Cooling; (static); (fan-m³/h); (oil); ..... :	—
	Thermal motor-protection system ..... :	—

	Self-resetting				Manually reset
Rated voltage	Vn max (V)			Vn max (V)	Vn min (V)
	After 72 h	After 288 h	After 360 h	After 363 h	After 50 cycles
High-voltage test (see 16.3)	Pass (1250V)	—	—	—	—
Leakage current (mA) (see 16.2)	—	—	0,163	0,162	—
Electric strength (see 13.3)	—	—	—	—	—
Room temperature (°C) (20 ± 5°C)		—	23	23	—
Number of cycles (≥ 2000 or 50)	—	—	2000	—	—
Housing temperature (°C) (≤ 150°C)	—	—	68	62	—

19.3	**Abnormal operation conditions – Locked rotor test motor-compressor**	P
	Motor-compressor ..... :	QXD-B222A030
	Start device ..... :	—
	Protector ..... :	HPA-030
	Start capacitor ..... :	—
	Run capacitor ..... :	40uF
	Cooling; (static); (fan-m³/h); (oil); ..... :	—
	Thermal motor-protection system ..... :	Synthetic

	Self-resetting				Manually reset
Rated voltage	Vn max (V)			Vn max (V)	Vn min (V)
	After 72 h	After 288 h	After 360 h	After 363 h	After 50 cycles
High-voltage test (see 16.3)	P	—	P	—	—

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Leakage current (mA) (see 16.2)	—	—	0,52	—	—
Electric strength (see 13.3)	—	—	P	—	—
Room temperature (°C) (20 ± 5°C)	25	—	25	—	—
Number of cycles (≥ 2000 or 50)	—	—	6363	—	—
Housing temperature (°C) (≤ 150°C)	—	—	88,5	—	—
supplementary information:—					

19.5-19.9	**Abnormal operation conditions**	P
Subclause	Effect	Verdict
19.5	No hazards during and after the test.	P
19.6	—	N/A
19.7	No hazards during and after the test.	P
19.8	—	N/A
19.9	—	N/A

19.10	**Abnormal operation conditions**	P
Failure description	Effect	Verdict
Open-circuit fan motor capacitor	No hazards during and after the test.	P
Short-circuit fan motor capacitor	No hazards during and after the test.	P
Open-circuit compressor capacitor	No hazards during and after the test.	P
Short-circuit compressor capacitor	No hazards during and after the test.	P

19.11.2	**Abnormal Operation**			P
Fault condition	Short circuit	Open circuit	Effect	Verdict
According to a) to g) of clause 19.11.2	X	X	1. The appliance can not work normally. 2. The current fuse in the bus of circuit operated. Above two phenomenons occurred. No hazard during and after all tests.	Pass

19.14	**TABLE: Abnormal operation, temperature rises**	P
Thermocouple locations	T (°C)	Required T (°C)
Supply cord	<100	175
Test corner	<100	175

21.1	**TABLE: Impact resistance**		P
Impacts per surface	Surface tested	Impact energy (Nm)	Comments
3	Enclosure	0,5	Pass

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3	Display panel	0,5	Pass

24.1	TABLE: Critical components information				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1)]
Plug	Guangdong Huasheng Electrical Appliances Co., Ltd.	CT-104	16A; 250V	DIN VDE 0620-1	VDE 40006002
Alternative	Changzhou Hongchang Electronics CO., LTD.	DTIII-2P-05	16A; 250V	DIN VDE 0620-1	VDE 40015536
BS plug	Guangdong Huasheng Electrical Appliances Co., Ltd.	CT-307	13A; 250V~	BS 1363-1	ASTA NO 885
Power Cord	Guangdong Huasheng Electrical Appliances Co., Ltd.	H05VV-F	3G1,0mm²	DIN VDE 0282-1 HD 21.5 S3	VDE 40005362
Alternative	Changzhou Hongchang Electronics CO., LTD.	H05VV-F	3G1,0mm²	DIN VDE 0282-1 HD 21.5 S3	VDE124978
Splash motor	Zhuhai Kaibang Motor Manufacturing CO., LTD.	SN03N-1	220-240V; 0,05A; 50Hz; 0,32W; Main: 561±8%Ω; Class E	EN 60335-1 EN 60335-2-40	Tested with appliance
Liquid Level Switch (mechanical)	zhejiang fushi precision technology Co., Ltd	LS-8	24VDC/AC;10mA	EN 60335-2-40 IEC 60079-15	Tested with appliance
Compressor and Fittings	ZHUHAI LANDA COMPRESSOR CO. LTD.	QXD-B222A030	220-240V; 50Hz; 1000W; 3,09±7%Ω; 3,04±7%Ω;	EN 60335-1 EN 60335-2-40	Tested with appliance
Compressor Overload Protector (Internal)	Changzhou Changrong Electrical Appliance Co., Ltd.	HPA-030	open: 125±5°C; close: 80±10°C	EN 60730-1 EN 60730-2-4	TÜV Rheinland R 50349841
Compressor capacitor	Zhuhai Gree Xinyuan Electronic Co., Ltd.	CBB65	30μF; 450VAC; T70; P2/S3	EN 60252-1	VDE 40030641

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Alternative	Zhuhai Gree Xinyuan Electronic Co., Ltd.	CBB65	30μF; 450VAC; T70; P2/S2	EN 60252-1	TÜV Rheinland R 50127276
Alternative	Ningbo Shine Electrical Co., Ltd.	CBB65A	30μF; 450V; T70; P2/S3	EN 60252-1	TÜV Rheinland R 50199650
Alternative	Ningbo Shine Electrical Co. Ltd.	CBB65A-1	30μF; 450V; T70; P2/S3	EN 60252-1	VDE 40031628
Alternative	Anhui Feida Industry Stock Co., Ltd.	CBB65A-1	30μF; 450V; T85; P2/S3	EN 60252-1	VDE 40019572
Alternative	Zhuhai Gree Xinyuan Electronic Co., LTD	CBB65	40μF/450VAC/T70 ; P2/S2	EN 60252-1	TÜV Rheinland R 50127276
Fan Motor (Down)	Zhuhai Kaibang Motor Manufacturing CO., LTD.	YD23X	220-240V; 0,53A; 50Hz; 50W; Main: 123±8%Ω; Aux: 88±8%Ω; Class B	EN 60335-2-40	Tested with appliance
Alternative	Zhuhai city Tongde electric equipment co., ltd	YD23X	220-240V; 0,5A; 50Hz; 50W; M:130,5±8%Ω; A:89,0±8%Ω; Class B	EN 60335-2-40	Tested with appliance
Fan Motor (top)	Zhuhai Kaibang Motor Manufacturing CO., LTD.	YD28X	220-240V; 0,28A; 50Hz; 16W; Main: 352,6±8%Ω; Aux: 95±8%Ω; Class B	EN 60335-2-40	Tested with appliance
Alternative	Zhuhai city Tongde electric equipment co., ltd	YD28X	220-240V; 0,28A; 50Hz; 16W; M:429±8%Ω; A:81,5±8%Ω; Class B	EN 60335-2-40	Tested with appliance
Alternative	Zhuhai city Tongde electric equipment co.,ltd.	YD28X-L	220-240V; 50Hz; 16W; Class B; Main:498±8%Ω; Aux:114±8%Ω	EN 60335-2-40	Tested with appliance
-Overheat protector of fan motor	Jiangsu Changsheng Electric Appliance Co. Ltd.	BR-A Series	250V 5A Operation: 135°C	EN 60730-1 EN 60730-2-2 IEC 60079-15	VDE 40015893
-Alternative	Jiangsu Changsheng Electric Appliance Co. Ltd.	17AM-D Series	250V 8A Operation: 135±5°C	EN 60730-1 EN 60730-2-2 IEC 60079-15	VDE 40016509
-Alternative	Jiangsu Changsheng Electric Appliance Co. Ltd.	BR-A2D Series	250V 6A/125V 10A Operation: 135°C	EN 60730-1 EN 60730-2-2 IEC 60079-15	VDE 40015893

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-Alternative	Changzhou Changhong Tongli Electric Appliance Co. Ltd.	KW Series	250V 6A Operation: 135°C	EN 60730-1 EN 60730-2-2 IEC 60079-15	VDE 40020906
-Alternative	Zhejiang Dongyang Hengdian Thermal Protector Factory	KSD-II Series	250V 5A Operation: 135°C	EN 60730-1 EN 60730-2-2 IEC 60079-15	VDE 139430
-Alternative	Sensata Technologies Holland; B.V.	17AM Series	250V; 10A Operation: 135°C	EN 60730-1 EN 60730-2-2 IEC 60079-15	KEMA:20145 31.05
-Alternative	Sensata Technologies Holland; B.V.	BW Series	250V 6A Operation: 135°C	EN 60730-1 EN 60730-2-2 IEC 60079-15	KEMA:20947 54.01
-Alternative	Jiangsu Changsheng Electric Appliance Co.;Ltd	BR-A-135°C	AC250V; Operation: 135°C	EN 60730-1 EN 60730-2-2 IEC 60079-15	VDE 40040873
-Alternative	Jiangsu Changsheng Electric Appliance Co.;Ltd	18AM-B 135°C	AC250V6A; Operation: 135°C	EN 60730-1 EN 60730-2-2 IEC 60079-15	VDE 40022813
-Alternative	Jiangsu Changsheng Electric Appliance Co. Ltd.	BR-A Series	AC250V; 6A; Operation: 135°C	EN 60730-1 EN 60730-2-2 IEC 60079-15	VDE 40040873
-Alternative	Sensata Technologies Holland; B.V.	BW Series	250V; 16A; Operation: 135°C	EN 60730-1 EN 60730-2-2 IEC 60079-15	KEMA:20947 54.01
Fan motor capacitor	Xiamen Faratronic Co., Ltd.	C6G	3,5µF;450V;T85; P2/S3	EN 60252-1	TÜV Rheinland R 50266163
Alternative	Ningbo Shine Electrical Co., Ltd.	CBB61S	3,5µF/450V/T70; P2/S3	EN 60252-1	TÜV Rheinland R 50076953
Alternative	Shanghai Haoye Electric Co., Ltd.	MKPS	3,5µF/450V; T70; P2/S3	EN 60252-1	TÜV Rheinland R 50035566
Alternative	Shanghai Haoye Electric Co., Ltd.	MKP-1	3,5µF/450V; T85; P2/S3	EN 60252-1	VDE 40023685
Alternative	Guangdong Fengming Electronic Tech. Co., Ltd.	CBB61	3,5µF/450VAC/T70; P2/S3	EN 60252-1	TÜV Rheinland R 50274996

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Main Board for models GPH12AL-K5NNA3A, GPH12AL-K5NNA2A, GPH12AL-K5NNA1A	GREE	M701F2Z	----	EN 60335-2-40	Tested with appliance
-Main Board (High voltage board) for models GPH12AL-K5NNA3A, GPH12AL-K5NNA2A, GPH12AL-K5NNA1A	GREE	M701F2Z	----	EN 60335-2-40	Tested with appliance
Main Board for model GPC12AL-K5NNA3A	GREE	M701F1A	----	EN 60335-2-40	Tested with appliance
-Main Board (High voltage board) for model GPC12AL-K5NNA3A	GREE	M701F1Z	----	EN 60335-2-40	Tested with appliance
Main board for model GPH12AL-K5NNA2B, GPH12AL-K5NNA3C, GPH12AL-K5NNA1C	GREE	M701F2TJ	----	EN 60335-2-40	Tested with appliance
Main board for model GPH12AL-K5NNA2B, GPH12AL-K5NNA3C, GPH12AL-K5NNA1C	GREE	M701F2ASJ	----	EN 60335-2-40	Tested with appliance

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Alternative Main board for model GPH12AL-K5NNA2B, GPH12AL-K5NNA3A, GPH12AL-K5NNA2A, GPH12AL-K5NNA3C, GPH12AL-K5NNA1C, GPH12AL-K5NNA1A	GREE	M701F2SJ	----	EN 60335-2-40	Tested with appliance
Alternative Main board for model GPH12AL-K5NNA2B, GPH12AL-K5NNA3A, GPH12AL-K5NNA2A, GPH12AL-K5NNA3C, GPH12AL-K5NNA1C, GPH12AL-K5NNA1A	GREE	M701F2BKJ	----	EN 60335-2-40	Tested with appliance
Main board for model GPC12AL-K5NNA3B	GREE	M701F1NJ	----	EN 60335-2-40	Tested with appliance
Main board for model GPC12AL-K5NNA3B	GREE	M701F1BLJ	----	EN 60335-2-40	Tested with appliance
Alternative Main board for model GPC12AL-K5NNA3B, GPC12AL-K5NNA3A, GPC12AL-K5NNA2A	GREE	M701F1PJ	----	EN 60335-2-40	Tested with appliance
Alternative Main board for model GPC12AL-K5NNA3B, GPC12AL-K5NNA3A, GPC12AL-K5NNA2A, GPC12AL-K5NNA3D	GREE	M701F1BKJ	----	EN 60335-2-40	Tested with appliance

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WIFI modular for GPH12AL-K5NNA2B, GPC12AL-K5NNA3B, GPH12AL-K5NNA3C, GPH12AL-K5NNA1C	GREE	ZCS53A	----	EN 60335-2-40	Tested with appliance
Relay 1#	Dongguan Sanyou Electrical Appliances Co., Ltd.	SFK-112DM-E	250VAC; 80A; T85	EN 61810-1 IEC/EN 60079-15	TÜV Rheinland R 50138321
Relay 2#	Dongguan Churod Electronics Co., Ltd.	CHF-S-112DA2	250VAC; 25A; T85	EN 61810-1 IEC/EN 60079-15	TÜV Rheinland R 50220099
Alternative	Xiamen Hongfa Electroacoustics Co., Ltd.	HF160F/12-H5	250V; 25A; T85	EN 61810-1 IEC/EN 60079-15	VDE 40024142
Relay 3#	Xiamen Hongfa Electroacoustics Co., Ltd.	JZC-32F	250VAC;5A; T70	EN 61810-1 IEC/EN 60079-15	VDE 40012204
Alternative	Dongguan Sanyou Electrical Appliances Co., Ltd.	SJ-SH-112DM2	250VAC;5A; T85	EN 61810-1 IEC/EN 60079-15	TÜV Rheinland R 50142420
Alternative	Dongguan Sanyou Electrical Appliances Co., Ltd.	SJ-SH-112DM2	250VAC; 5A; T85	EN 61810-1 EN 60255-23 IEC/EN 60079-15	VDE 40002146
Alternative	Dongguan Churod Electronics Co., Ltd.	A1-S-112DA	250VAC; 5A; T85	EN 61810-1 IEC/EN 60079-15	TÜV Rheinland R 50174892
Alternative	Song Chuan Precision Co., Ltd.	307-1AH-S	250VAC; 5A; T85	IEC/EN 61810-1 IEC/EN 60079-15	TÜV Rheinland R 50128391
Alternative	Tyco Electronics(shenzhen)Co., Ltd	OJE-SH-112DM	5A; 250VAC; 12VDC; T7	IEC/EN 61810-1 IEC/EN 60079-15	TÜV Rheinland R 50139166
Fuse	Hollyland Company Limited	50CT	250V; 3,15A	EN 60127-1 EN 60127-2	VDE 40014896
Alternative	Walter Electronic Co. Ltd.	TSC	250V; 3,15A	EN 60127-1 EN 60127-2	VDE 40016670
Alternative	Dongguan Better Electronics Technology Co., Ltd.	524	250V; 3,15A	EN 60127-1 EN 60127-2	VDE 40025424

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Varistor	Chengdu Tieda Electronic Co., Ltd.	MYN15-621K	385V(r,m,s)AC; T85	CECC 42000 CECC 42200 CECC 42201 IEC 61051-1 IEC 61051-2 IEC 61051-2-2	VDE 40008571
Alternative	Fenghua Adv. Tech. (Holding) Co., Ltd.	FNR-14K621	385V(r,m,s)AC; T85	CECC 42000 CECC 42200 CECC 42201 IEC 61051-1 IEC 61051-2 IEC 61051-2-2	VDE 40008242
Y2 Capacitor	TDK Corporation	CS102M	250VAC;102M	EN 60384-14	VDE 40029781
Alternative	Murata Mfg. Co., Ltd.	KY102M	250VAC;102M	EN 60384-14	VDE 40006273
Alternative	Haohua Electronic Co.	CT7	250VAC; 102M	EN 60384-14	VDE 40013601
Alternative	ZHAOQING INFORMED ELECTRONICS FACTORY CO., LTD	CD472M	472M/400V/T125	EN 60384-14	VDE 40048059
X2 capacitor	Xiamen Faratronic Co. Ltd.	MKP62	104M/275V;T110	EN 60384-14	VDE 40000358
Alternative	Foshan City Xin Yuan Electronic Co.,Ltd	MKP-X2	0,1µF; 275V; T105	EN 60384-14	VDE 40027433
Alternative	Yangzhou Nissei Electronics Co., Ltd	MP1	104M/275VAC; T110	EN 60384-14	VDE 40041628
Optical Coupling	Sharp Corporation Electronic Components and Devices Division	PC817	Vceo: 80V;If: 50mA;Ic: 50mA	EN 60747-5-2	VDE 40008087
Optical Coupling	Toshiba Corporation Semiconductor & Storage Products Company	TLP785	Vceo: 80V;If: 60mA; Ic: 50mA	EN 60747-5-2	VDE 40031808
High Frequency Transformer	SHENZHEN YAMAXI ELECTRONICS CO., LTD	EE19-8P(VDE)	≤250V/AC 50Hz; 12V; R1-4: 1,25Ω MAX,R6-7: 130mΩ MAX; R10-9: 60mΩ MAX; 880uH±10%; 50uH MAX; Class B	EN 60335-2-40	Tested with appliance
Alternative	SHENZHEN JINGQUANHUA ELECTRONICS CO.;LTD	EE19-08PA	85-265V AC; 12V; R(4-1)1.5Ω; R(6-7)130mΩ; R(10-9)65mΩ; Class B	EN 60335-2-40	Tested with appliance

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Alternative	DONGGUAN DAZHONG ELECTRONIC CO.;LTD	ECO20-07PA	85V~265V;15V;12V;0~132KHz; R(3-1)=0.95ΩMAX;R(5-6)=0.2ΩMAX;R(8-11)=45mΩMAX;918uH±10%;27.5uH MAX; class B	EN 60335-2-40	Tested with appliance
Alternative	SHENZHEN JINGQUANHUA ELECTRONICS CO.;LTD	ECO20-07PA	85-265V; 5V; 12V; 15V; 0-132KHZ; R(3-1)0.95Ω MAX; R(6-5)0.20Ω MAX; R(8-11)45.0mΩ MAX; L(3-1) 918μH±10%;LK(3-1)27.5μH MAX; Class B	EN 60335-2-40	Tested with appliance
High Frequency Transformer	GREE XIN YUAN ELECTRONIC CO.,LTD.	ECO20-07PA	85~265V AC; P2:6-5 15V; S3:8-11 12V; 0~132KHz; DCR(3-1)≤0,95Ω; DCR(6-5)≤0,20Ω; DCR(8-11)≤45mΩ; 918uH±10%; 27,5uH MAX; Class B	EN 60335-2-40	Tested with appliance
Inductance	XINJI ELECTRONICS COMPONENT(HANGZHOU) CO. LTD	10uH	10uH/1,5A	EN 60335-2-40	Tested with appliance
Alternative	Shenzhen Yamaxi Electronic Co., Ltd.	10uH	10uH/1,5A	EN 60335-2-40	Tested with appliance
Alternative	Dongguan Dazhong Electronic Co., Ltd.	10uH	10uH/1,5A	EN 60335-2-40	Tested with appliance
Filter	XINJI ELECTRONICS COMPONENT(HANGZHOU) CO.LTD	SF2022A-05220	AC250V/0,5A	EN 60335-2-40	Tested with appliance
Alternative	Qingdao Yunlu energy technology Co., Ltd.	LB0522	AC250V/0,5A	EN 60335-2-40	Tested with appliance
Alternative	SHENZHEN YAMAXI ELECTRONIC CO.LTD	SF2022A-05220	AC250V/0,5A	EN 60335-2-40	Tested with appliance

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Alternative	DAZHONG ELECTRONIC CO.LTD	SF2022A-05220	AC250V/0,5A	EN 60335-2-40	Tested with appliance
Rectifier 1#	SHINDENGEN ELECTRIC MFG CO LTD	S1NBC80 (NC 80)	800V;1,5A	EN 60335-2-40	Tested with appliance
Rectifier 2#	Tian Jin Zhong-Huan Semiconductor Joint-Stock Co. Ltd.	T3SB60	600V; 4A	EN 60335-2-40	Tested with appliance & VDE 40009662
Alternative	Leshan Radio Co., Ltd	D3SB60	600V; 4A	EN 60335-2-40	Tested with appliance
Alternative	LITE-ON SEMICONDUCTOR CORP. (WANTAI INTERNATION TRADING LIMITED)	KBJ406GL	600V; 4A	EN 60335-2-40	Tested with appliance
Alternative	Yangzhou HY Technology Development Co., LTD.	4GBJ406	Io=4.0A; Vr=600V	EN 60335-2-40	Tested with appliance
Alternative	SHINDENGEN ELECTRIC MFG CO LTD	D3SB 60	600V; 4A	EN 60335-2-40	Tested with appliance
Alternative	SHINDENGEN ELECTRIC MFG CO LTD	D3SB 60	600V; 4A	EN 60335-2-40	Tested with appliance
Terminal Board	Changzhou Kaidu Electrical Co Ltd	JX02-8	AC250V;2,5mm²	EN 60335-2-40	Tested with appliance
Alternative	Nantong Huaguan Electric Co. Ltd.	JXW-2-G	AC250V;2,5mm²	EN 60998-1 EN 60998-2-1 EN 61210 EN 60335-2-40	Tested with appliance & VDE 40013197
4-way valve	Zhejiang Dunan Artificial Environmental Equipment Co.; Ltd.	DSF-9-R410A	AC220V-240V; 50/60Hz; 7/5W; 1970±197Ω; Class B	EN 60730-1	VDE 40013212
Alternative	Zhejiang Dunan Artificial Environment Co.; Ltd.	DSF-9-R410A	AC220V-240V; 50/60Hz; 7/5W; 1970±197Ω; Class B	EN 60730-1	TUV R50197052
Alternative	Zhongshan Gangli Refrigeration Accessory CO., LTD	SHF-7	AC220-240V; 50/60Hz; 4.5/3.5W; Class B; 2100Ω±150Ω	EN 60730-1	VDE 40026249

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Alternative	Zhejiang Sanhua Climate and Appliance Controls Group Co., Ltd. (Zhejiang Sanhua Trading CO.,LTD)	SHF-7H-34U-PG	AC220-240V; 50/60Hz; 4.5/3.5W; Class B; 2085±208Ω	EN 60730-1	VDE 40003240
Alternative	Zhejiang Dunan Artificial Environmental Equipment Co., Ltd.	DSF-4-R410A	AC220V-240V; 50/60Hz;7/5W;1970±197Ω;ClassB	EN 60730-1	VDE 40013212
Alternative	Zhongshan City Gangli Refrigertion Fittings Co., Ltd.	SHF-4	AC220-240V; 50/60Hz;4.5/3.5W; Class B; 2100Ω±150Ω	EN 60730-1	VDE 40026249
Alternative	Zhejiang Sanhua Climate and Appliance Controls Group Co., Ltd.(Zhejiang Sanhua Trading Co., Ltd.)	SHF-4H-23U-P	220-240V; 50/60Hz;4.5/3.5W; Class B; 2085±208Ω；	EN 60730-1	VDE 40003240
Alternative	Zhuhai ligao precision manufacturing Co., Ltd.	DHF-4T-01	AC220-240V; 50/60Hz;7W/5W 2030Ω±200Ω (20℃); Class B	EN 60730-1	VDE 40045332
PCB Material	Jiangxi Uniongain Electronics Technology Co.,Ltd	DS2	94V-0	EN 60335-2-40	Tested with appliance UL E464601
Alternative	PALWONNELECTRONICS(SHENZHEN) CO.LTD	D3	CEM-1; 94-V0; CTI>175V	EN 60335-2-40	Tested with appliance UL E230435
Alternative	CHANGCHUN PLASTIC CO LTD	CCP-508; CCP-508U	CEM-1; 94-V0; CTI>175V	EN 60335-2-40	Tested with appliance & UL E108591
Alternative	SHENGYI TECHNOLOGY CO LTD	S3116	CEM-1; 94-V0; CTI>175V	EN 60335-2-40	Tested with appliance & UL E109769
Alternative	SHENGYI TECHNOLOGY CO LTD	S3110	CEM-1; 94-V0; CTI>175V	EN 60335-2-40	Tested with appliance & UL E109769
Alternative	SHENGYI TECHNOLOGY CO LTD	S1141	FR-4; 94-V0; CTI>175V	EN 60335-2-40	Tested with appliance & UL E109769
Alternative	KINGBOARD LAMINATES HOLDINGS LTD	KB3151C	FR-1; 94-V0; CTI>175V	EN 60335-2-40	Tested with appliance & UL E123995

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Alternative	SHENGYI TECHNOLOGY CO LTD	S2130	CEM-3; 94-V0; CTI>175V	EN 60335-2-40	Tested with appliance & UL E109769
Alternative	KINGBOARD LAMINATES HOLDINGS LTD	KB6160/P-138	FR-4; 94-V0; CTI>175V	EN 60335-2-40	Tested with appliance & UL E123995
Alternative	NAN YA PLASTICS CORP CCL DEPT ELECTRONIC MATERIAL DIVL DIV	FR-4-86	FR-4; 94V-0	EN 60335-2-40	Tested with appliance & UL E98983
Alternative	Bomin Electronics Co., Ltd.	BM2; BM6-1	94V-0	EN 60335-2-40	Tested with appliance & UL E213371
Alternative	Huizhou Xingzhiguang Co., Ltd	XZG-P1; XZG-T1	94V-0	EN 60335-2-40	Tested with appliance & UL E246887
Alternative	ZHUHAI JOINTEK ELECTRIC CO LTD	JK-004	94V-0	EN 60335-2-40	Tested with appliance & UL E214852
Alternative	GUANGDONG XI NGDA HONGYE ELECTRONIC CO ., LTD	XD-102	94V-0	EN 60335-2-40	Tested with appliance & UL E193079
Alternative	SHUNDE JUNDA	JD-D; JD-E	94V-0	EN 60335-2-40	Tested with appliance & UL E173873
Alternative	BaoYueJia Electronics (ZhongShan) Co., Ltd	BYJ-3	94V-0	EN 60335-2-40	Tested with appliance & UL E230225
Alternative	TATCHUN PRINTED CIRCUIT BOARD CO., LTD	TC-series	94V-0	EN 60335-2-40	Tested with appliance & UL E131175
Alternative	Jiangmen Benlida Printed Circuit Co., Ltd	BLD-A	94V-0	EN 60335-2-40	Tested with appliance & UL E203640
Alternative	SHENGYI TECHNOLOGY CO LTD	S2130	CEM-3; 94V-0	EN 60335-2-40	Tested with appliance & UL E109769
Alternative	KINGBOARD LAMINATES HOLDINGS LTD	KB6160/P-138	FR-4	EN 60335-2-40	Tested with appliance & UL E123995
Alternative	NAN YA PLASTICS CORP CCL DEPT ELECTRONIC MATERIAL DIV	FR-4-86	FR-4,94V-0	EN 60335-2-40	Tested with appliance & UL E98983

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Alternative	NAN YA PLASTICS CORP CCL DEPT ELECTRONIC MATERIAL DIV	UV BLOCK FR-4-86	FR-4,94V-0	EN 60335-2-40	Tested with appliance & UL E98983
Alternative	SHENGYI TECHNOLOGY CO LTD	S1141	FR-4,94V-0	EN 60335-2-40	Tested with appliance & UL E109769
Alternative	KINGBOARD LAMINATES HOLDINGS LTD	KB-6160 / KB-6160C	FR-4,94V-0	EN 60335-2-40	Tested with appliance & UL E123995
Alternative	KINGBOARD LAMINATES HOLDINGS LTD	KB5150/ KB-5150&	FR-4,94V-0	EN 60335-2-40	Tested with appliance & UL E123995
Alternative	ZHUHAI JINHAO ELECTRONICS CO LTD	JP-3	FR-4,94V-0	EN 60335-2-40	Tested with appliance & UL E309382
Alternative	LONRAY(WUPING) ELECTRONIC TECHNOLOGY CO LTD	LR-02	FR-4,94V-0	EN 60335-2-40	Tested with appliance & UL E356536
Alternative	SICHUAN CHANHONG ELECTRONIC CO LTD	CH-2	FR-4,94V-0	EN 60335-2-40	Tested with appliance & UL E169373
Supplementary information: 1) Provided evidence ensures the agreed level of compliance. See OD-CB2039. 2) License available upon request for all the certified components					

28.1	**TABLE: Threaded part torque test**			P
Threaded part identification	Diameter of thread (mm)	Column number (I, II, or III)	Applied torque (Nm)	
Earthing screws	3,8	II	1,2	

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

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6 000	5,5 / 6,0***	—	—	—	—	—
8 000	8,0 / 8,5***	—	—	—	—	—
10 000	11,0 / 11,5***	—	—	—	—	—

Supplementary information:

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

29.2	**TABLE: Creepage distances, basic, supplementary and reinforced insulation**	P

Working voltage (V)	Creepage distance (mm) Pollution degree										
	1	2			3			Type of insulation			Verdict
		Material group			Material group						
		I	II	IIIa/IIIb	I	II	IIIa/IIIb*	B**	S**	R**	
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9		—	—	N/A
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9	—		—	N/A
≤50	0,36	1,2	1,7	2,4	3,0	3,4	3,8	—	—		N/A
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4		—	—	N/A
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4	—		—	N/A
125	0,56	1,5	2,1	3,0	3,8	4,2	4,8	—	—		N/A
250	0,56	1,25	1,8	2,5	3,2	3,6	4,0		—	—	N/A
250	0,56	1,25	1,8	**2,5**	3,2	3,6	4,0	3,2	—	—	P
250	0,56	1,25	1,8	**2,5**	3,2	3,6	4,0	—	>10	—	P
250	1,12	2,5	3,6	**5,0**	6,4	7,2	8,0	—	—	>10	P
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3		—	—	N/A
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3	—		—	N/A
400	2,0	4,0	5,6	8,0	10,0	11,2	12,6	—	—		N/A
500	1,3	2,5	3,6	5,0	6,3	7,1	8,0		—	—	N/A
500	1,3	2,5	3,6	5,0	6,3	7,1	8,0	—		—	N/A
500	2,6	5,0	7,2	10,0	12,6	14,2	16,0	—	—		N/A
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0		—	—	N/A
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	—		—	N/A
>630 and ≤800	3,6	6,4	9,0	12,6	16,0	18,0	20,0	—	—		N/A
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5		—	—	N/A
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	—		—	N/A
>800 and ≤1000	4,8	8,0	11,2	16,0	20,0	22,0	25,0	—	—		N/A

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>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0		—	—	N/A
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	—		—	N/A
>1000 and ≤1250	6,4	10,0	14,2	20,0	25,0	28,0	32,0	—	—		N/A
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0		—	—	N/A
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	—		—	N/A
>1250 and ≤1600	8,4	12,6	18,0	25,0	32,0	36,0	40,0	—	—		N/A
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0		—	—	N/A
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	—		—	N/A
>1600 and ≤2000	11,2	16,0	22,0	32,0	40,0	44,0	50,0	—	—		N/A
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0		—	—	N/A
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	—		—	N/A
>2000 and ≤2500	15,0	20,0	28,0	40,0	50,0	56,0	64,0	—	—		N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0		—	—	N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	—		—	N/A
>2500 and ≤3200	20,0	25,0	36,0	50,0	64,0	72,0	80,0	—	—		N/A
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0		—	—	N/A
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	—		—	N/A
>3200 and ≤4000	25,0	32,0	44,0	64,0	80,0	90,0	100,0	—	—		N/A
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0		—	—	N/A
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	—		—	N/A
>4000 and ≤5000	32,0	40,0	56,0	80,0	100,0	112,0	126,0	—	—		N/A
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0		—	—	N/A
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	—		—	N/A
>5000 and ≤6300	40,0	50,0	72,0	100,0	126,0	142,0	160,0	—	—		N/A
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0		—	—	N/A
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	—		—	N/A
>6300 and ≤8000	50,0	64,0	90,0	126,0	160,0	180,0	200,0	—	—		N/A
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0		—	—	N/A
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	—		—	N/A
>8000 and ≤10000	64,0	80,0	112,0	160,0	200,0	220,0	250,0	—	—		N/A
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0		—	—	N/A
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	—		—	N/A
>10000 and ≤12500	80,0	100,0	142,0	200,0	250,0	280,0	320,0	—	—		N/A

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Supplementary information:

*) Material group IIIb is allowed if the working voltage does not exceed 50 V
**) B = Basic insulation, S = Supplementary insulation, R = Reinforced insulation
1) Lacquered conductors of windings are considered to be bare conductors, but creepage distances need not be greater than the associated clearance specified in Table 16 taking into account 29.1.1.

29.2	TABLE: Creepage distances, functional insulation							P
Working voltage (V)	Creepage distance (mm) Pollution degree							Verdict / Remark
	1	2			3			
		Material group			Material group			
		I	II	IIIa/IIIb	I	II	IIIa/IIIb*	
≤10	0,08	0,4	0,4	0,4	1,0	1,0	1,0	N/A
50	0,16	0,56	0,8	1,1	1,4	1,6	1,8	N/A
125	0,25	0,71	1,0	1,4	1,8	2,0	2,2	N/A
250	0,42	1,0	1,4	**2,0**	2,5	2,8	3,2	P(4,8mm between L and N on PCB board)
400	0,75	1,6	2,2	3,2	4,0	4,5	5,0	N/A
500	1,0	2,0	2,8	4,0	5,0	5,6	6,3	N/A
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	N/A
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	N/A
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	N/A
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	N/A
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	N/A
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	N/A
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	N/A
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	N/A
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	N/A
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	N/A
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	N/A
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	N/A

Supplementary information:

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

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30	TABLE: Resistance to heat and fire																			
Object/ part No.	Manufacturer/ trademark	Type/ model	Ball pressure test °C				Glow wire test (GWT) °C						Glow-wire flammability index (GWFI) °C				Glow- wire ignition temp. (GWIT) °C		Needle-flame test (NFT)	Verdict
			75	125	cl. 11 +40	cl. 19 +25	550	650		750		850	550	650	750	850	675	775		
								te	ti	te	ti									
Plastic enclosure	—	—	P	—	—	—	P	—	—	—	—	—	—	—	—	—	—	—	—	P
Bobbin of fan motor	—	—	—	—	—	—	P	—	—	—	—	—	—	—	—	—	—	—	—	P
Bobbin of transformer	—	—	—	P	—	—	—	—	—	No flame		P	—	—	—	—	—	—	—	P
Relay	—	—	—	—	—	—	—	—	—	No flame		P	—	—	—	—	—	—	—	P
Motor capacitor	—	—	—	—	—	—	—	—	—	No flame		P	—	—	—	—	—	—	—	P
Bobbin of water motor	—	—	—	P	—	—	—	No flame		—	—	—	—	—	—	—	—	—	—	P
Connector on PCB	—	—	—	P	—	—	—	—	—	No flame		P	—	—	—	—	—	—	—	P
PCB	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	P	P

Supplementary information:[1)] Parts of material classified at least HB40 or if relevant HBF
[2)] Parts of material classified as V-0 or V-1 [3)] Flame persisting longer than 2 s (= te – ti) need only be reported for unattended appliances
[4)] Surrounding parts subjected to the needle-flame test of annex E
[5)] Base material classified as V-0 or if relevant VTM-0
[6)] The GWIT pre-selection option, the 850 °C GWFI pre-selection option, and the 850 °C GWT are not applicable for attended appliances
[7)] Tested for all alternative components and recorded the most severe results.

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Appendix EMF			P
	TEST: Evaluation of the magnetic fields		
Applied standards:	IEC 62233:2005, EN 62233:2008 (incl. Corr.1:2008)		
Method	Used method: 5.5.2 Time domain evaluation		—
Applied Limit	ICNIRP Guidelines		—
Identification of the appliance	Type of apparatus	Local air conditioner	
	Rated Voltage	220-240V	
	Rated Frequency	50Hz	
Parameters required prior to the test	Laboratory Ambient Temperature	25 °C ± 10 °C	
	Supply Voltage	(Rated Voltage ± 2 %) V	
	Supply Frequency	(Rated Frequency ± 2 %) Hz	
Parameters recorded during the test	Laboratory Ambient Temperature	25°C	
	Supply Voltage	230V	
	Supply Frequency	50Hz	
Operating Mode			

Method 5.5.2

Measuring Positions	Measuring Distance	Coupling Factor	Measurement Uncertainty
Around	30cm	—	—

Frequency (kHz)	Limit (%)	Measured Maximum Value (%)
0,01 to 400	100	1,674%

Supplementary information:

The measured maximum value in this table may be weighted with the coupling factor if applicable, and the measurement uncertainty is applied if the measured result is more than 75 % of the limit.

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Photo documents:

Top and front view for GPC12AL-K5NNA3A

Top and front view for GPH12AL-K5NNA3A

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Rear and side view

Rear view

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Remove filter view

Supply cord inlet

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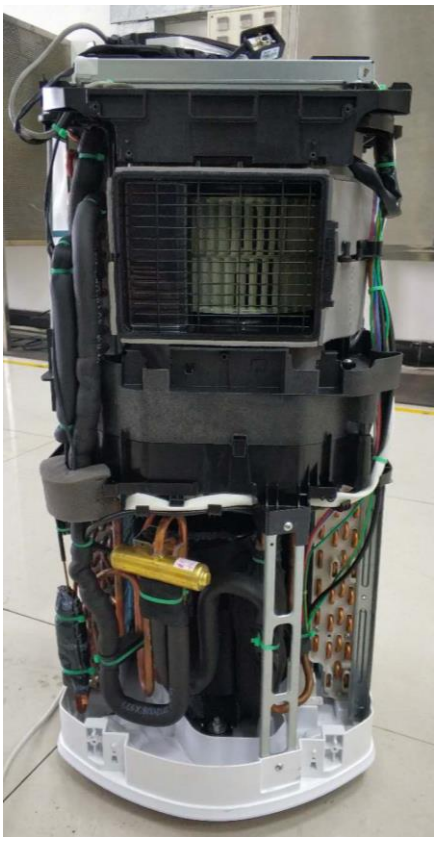
Control panel



Internal view

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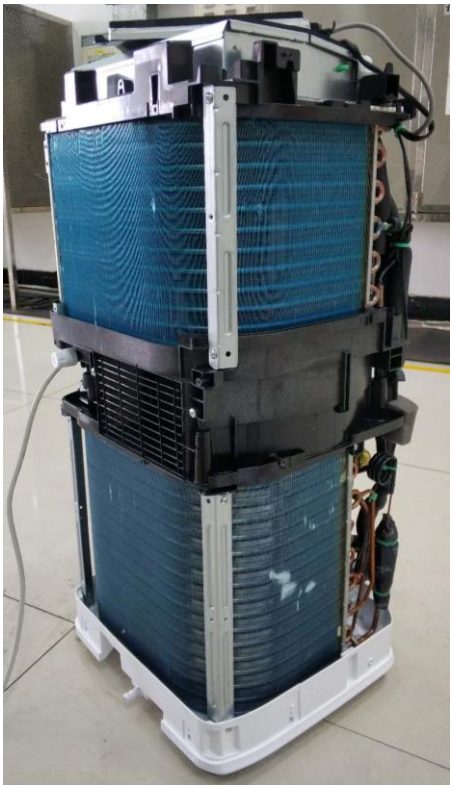

Internal view

Internal view

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Earthing marking

Internal of top cover view (control PCB board)

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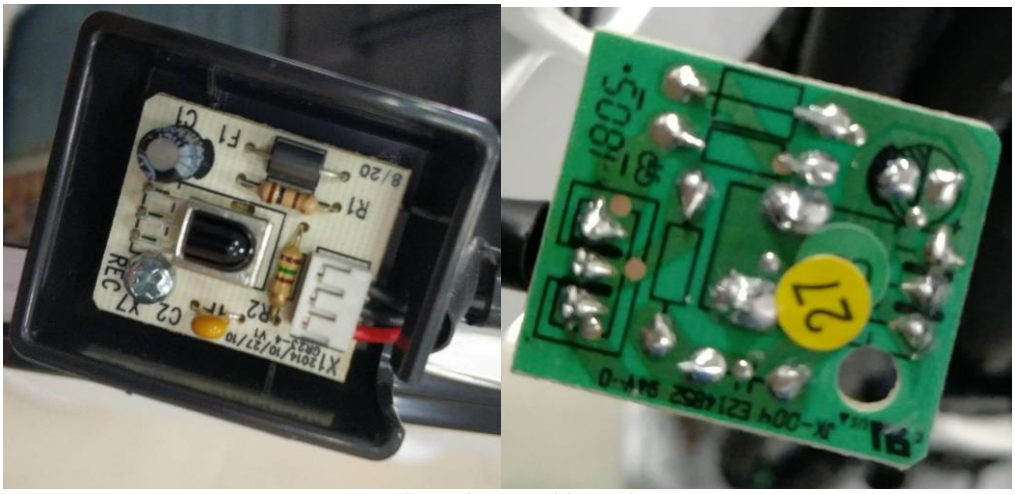

Infrared control board

Control board

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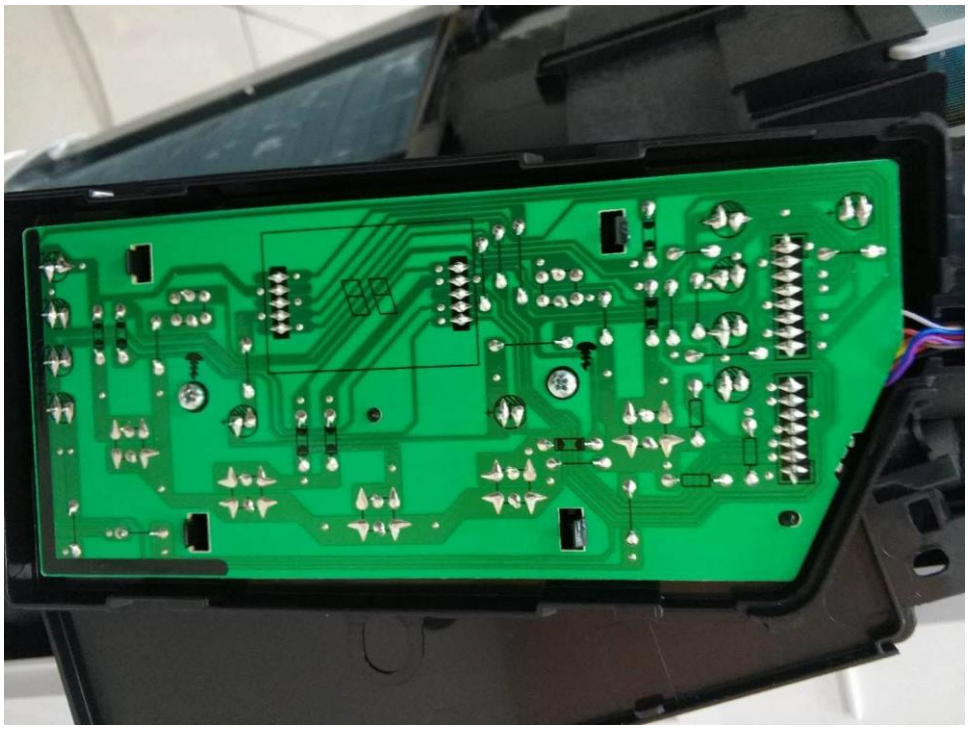
Control board



Control board

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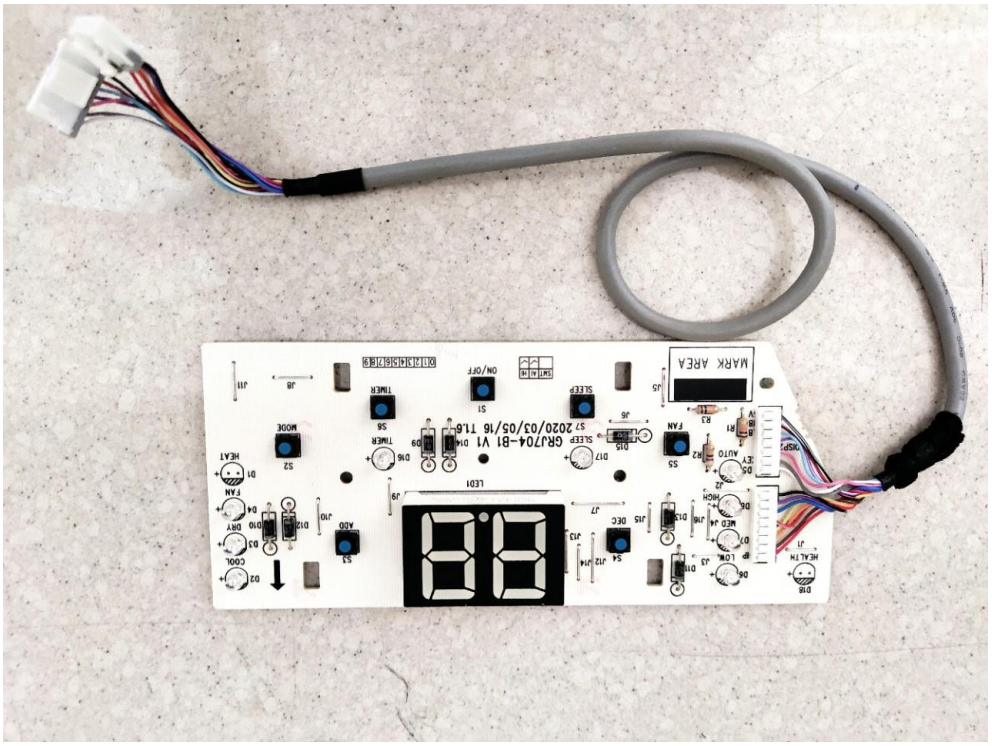
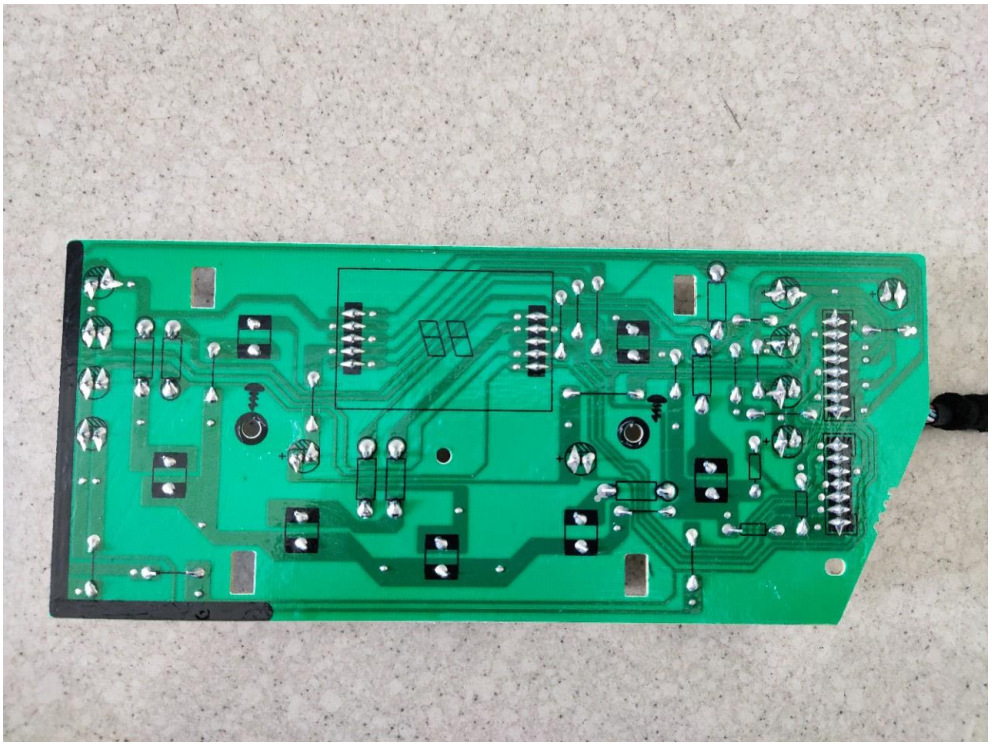


Alternative control panel



Alternative control panel

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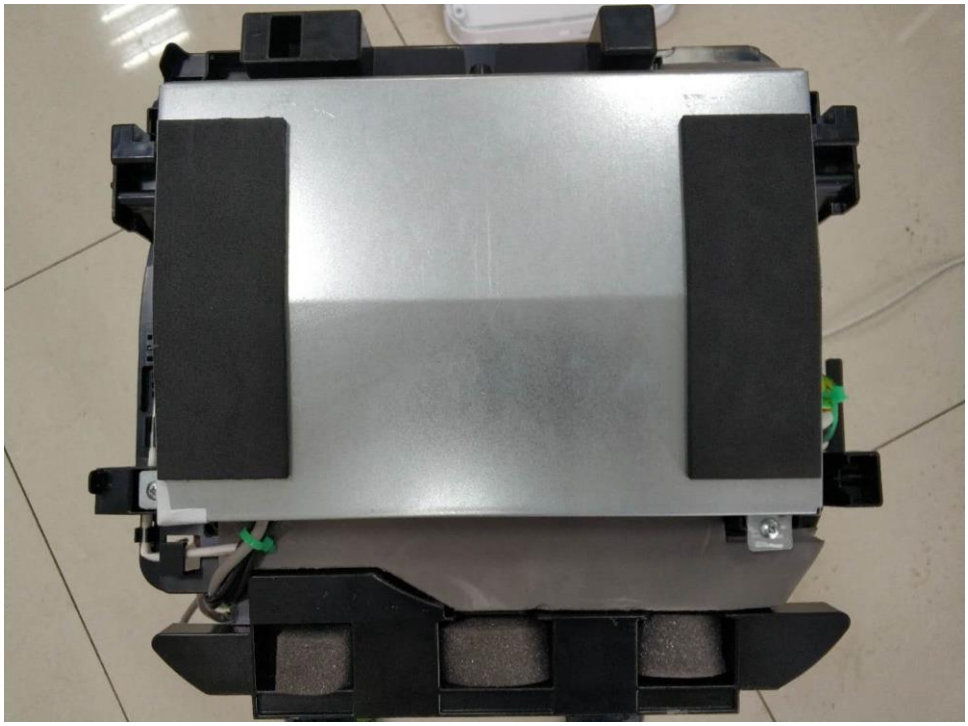
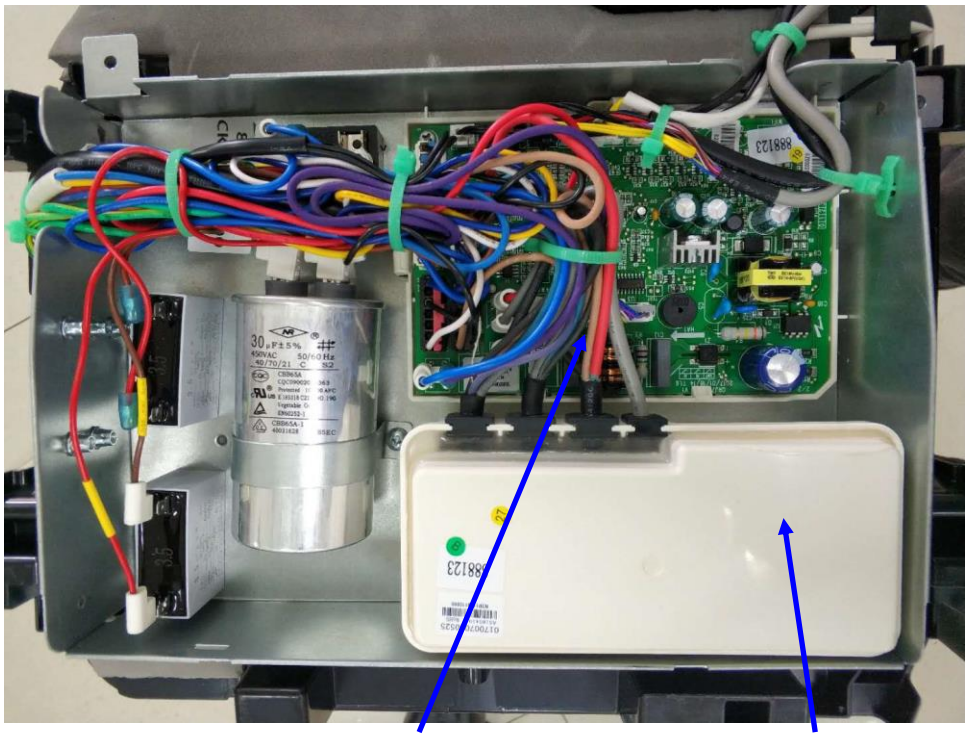


Electric box



Internal view of electric box (main board and main board (high voltage board))

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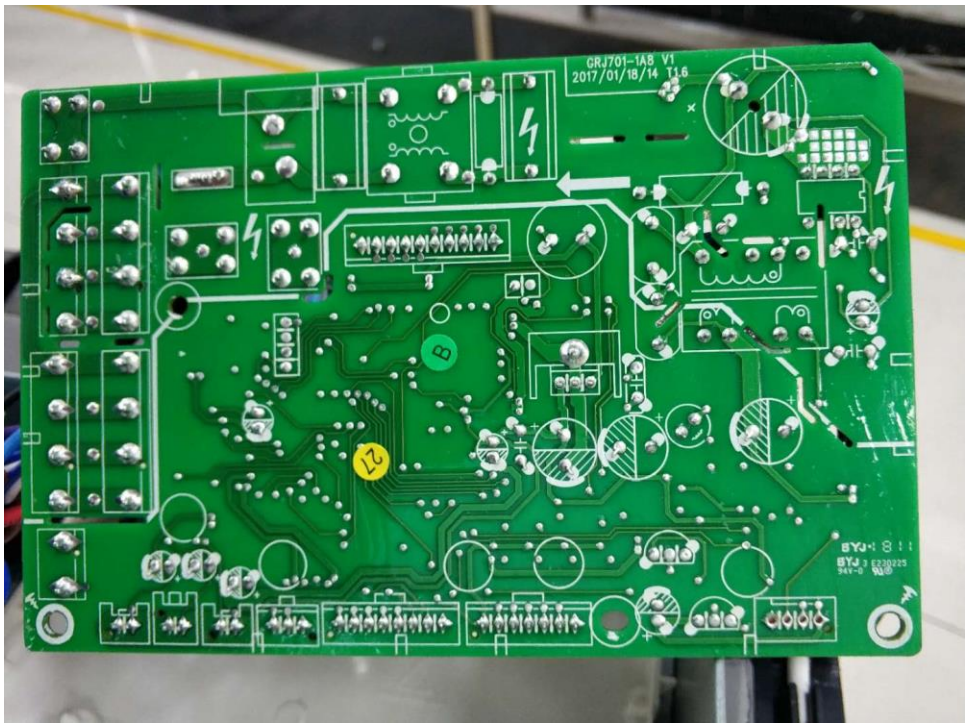
Main board for model GPH12AL-K5NNA3A



Main board for model GPH12AL-K5NNA3A

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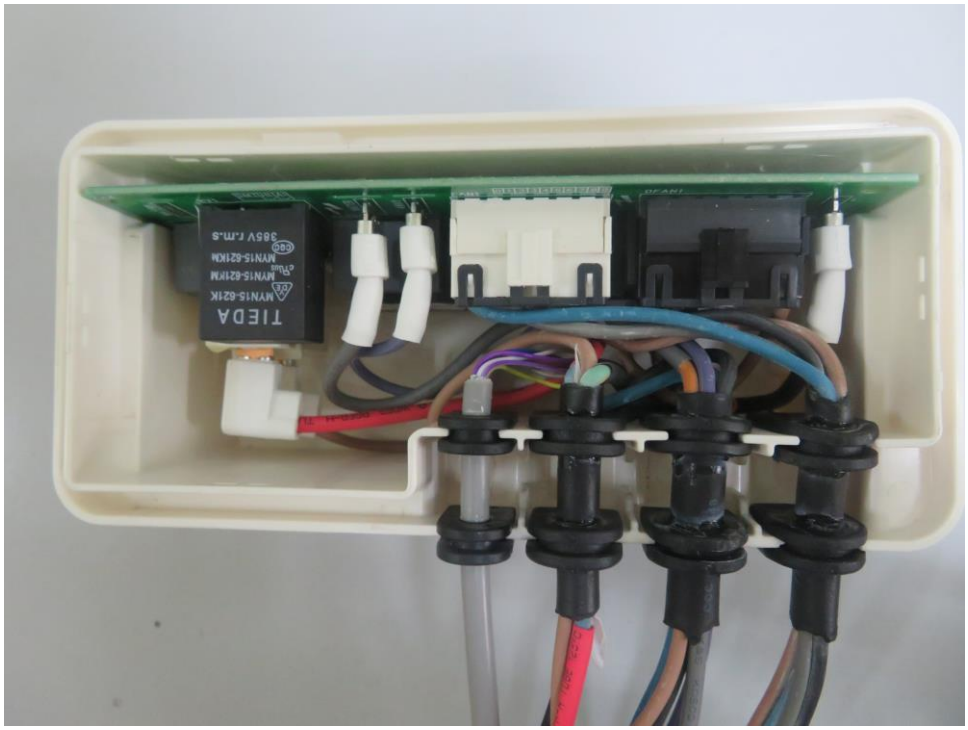
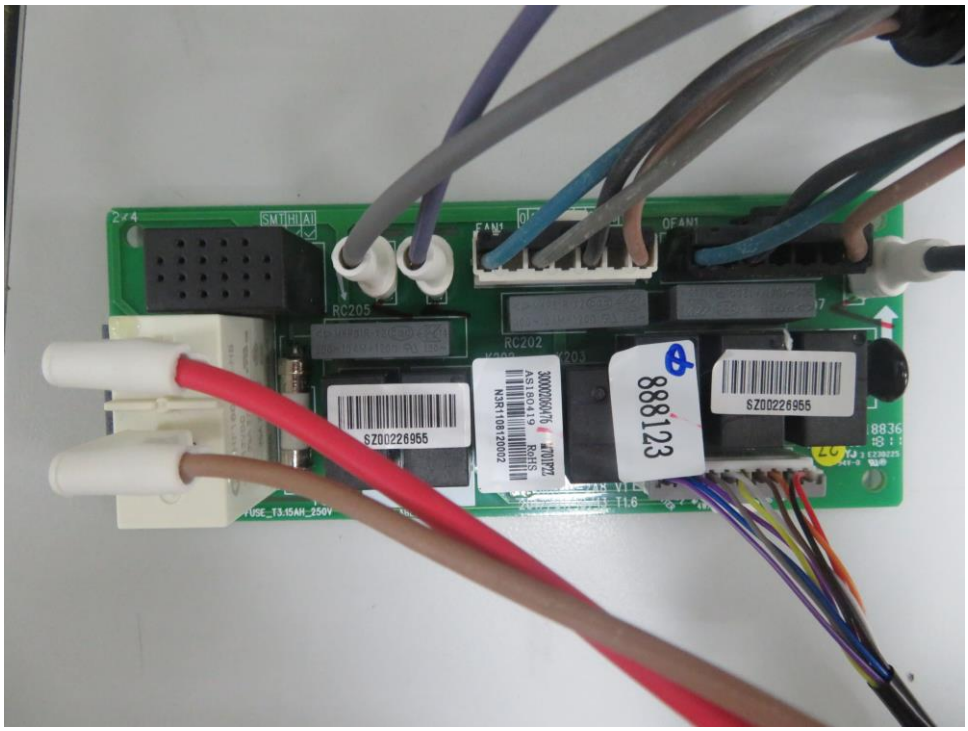


main board (high voltage board) for model GPH12AL-K5NNA3A



main board (high voltage board) for model GPH12AL-K5NNA3A

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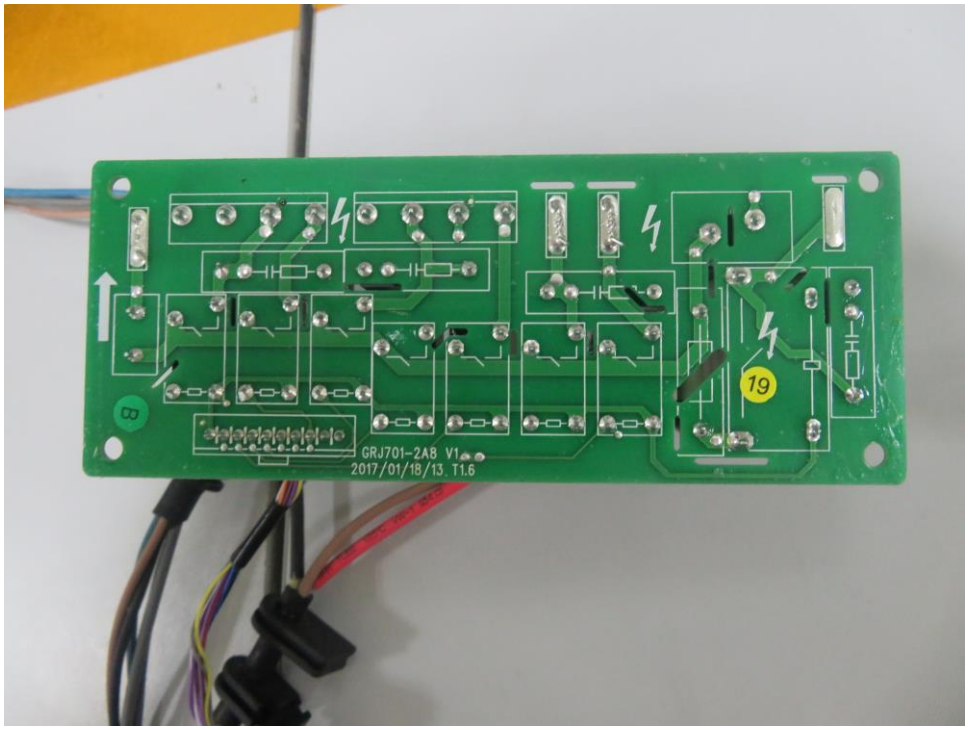

main board (high voltage board) for model GPH12AL-K5NNA3A

Note: the main board (M701F2Z) of model GPH12AL-K5NNA3A and main board (M701F1A) of model GPC12AL-K5NNA3A of are same except main board (M701F1A) has deleting one relay which control 4-way valve.

Fan motor

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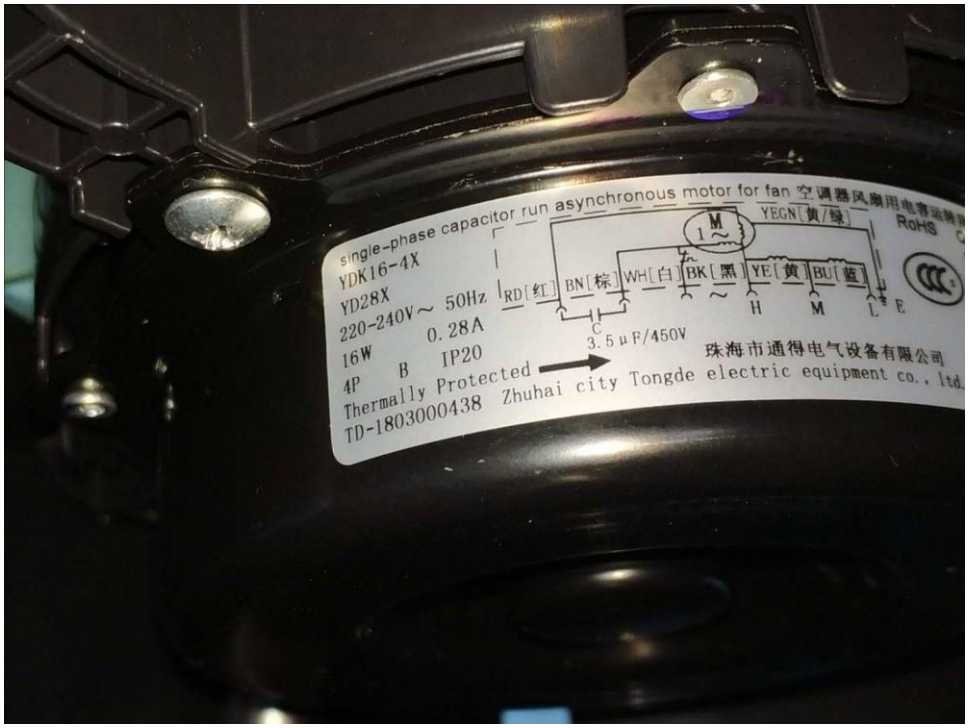
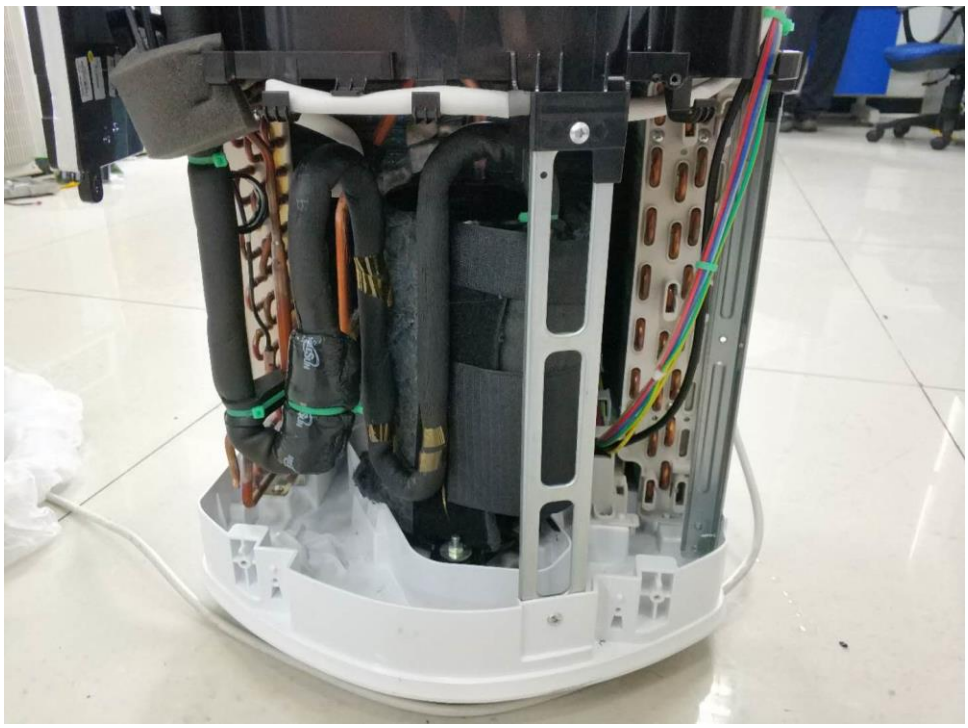


Fan motor marking


Compressor

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Compressor marking

Note: The photos of model GPC12AL-K5NNA3A is same as photos of model GPH12AL-K5NNA3A except GPC12AL-K5NNA3A has not 4-way valve.

Alternative front panel for models GPH12AL-K5NNA3A, GPC12AL-K5NNA3A

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Front panel for model GPH12AL-K5NNA2A

Front panel for model GPC12AL-K5NNA2A

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Following photos for models GPC12AL-K5NNA3B, GPH12AL-K5NNA2B:

Front panel for model GPH12AL-K5NNA2B

Front panel for model GPC12AL-K5NNA3B

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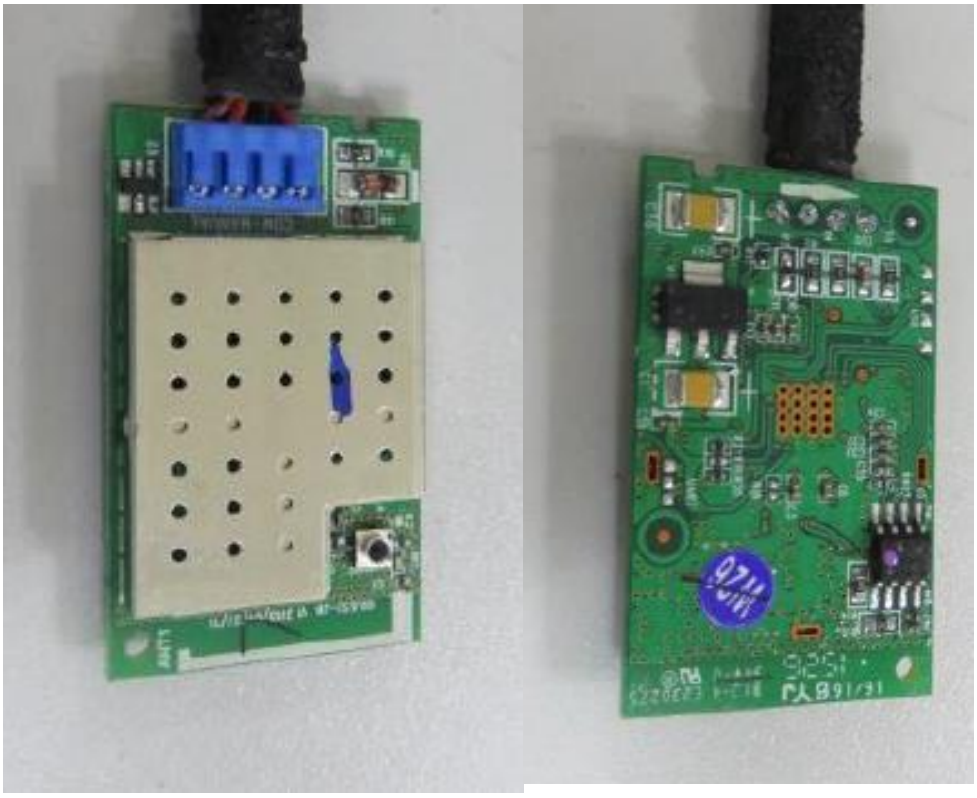
Front panel for model GPC12AL-K5NNA2C; GPH12AL-K5NNA2C



WIFI modular (ZCS53A) PCB baord

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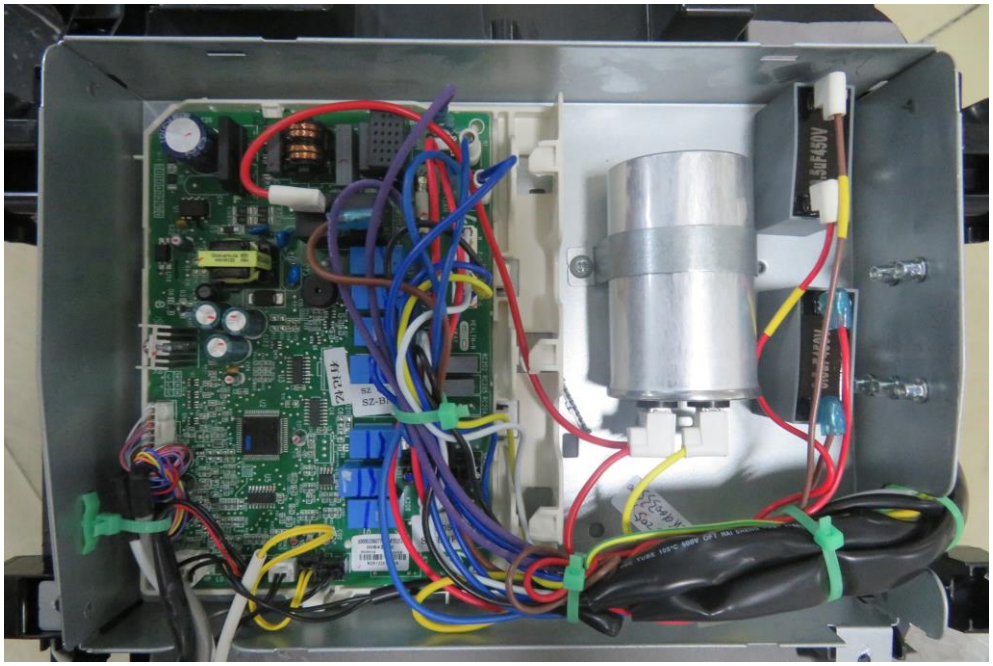
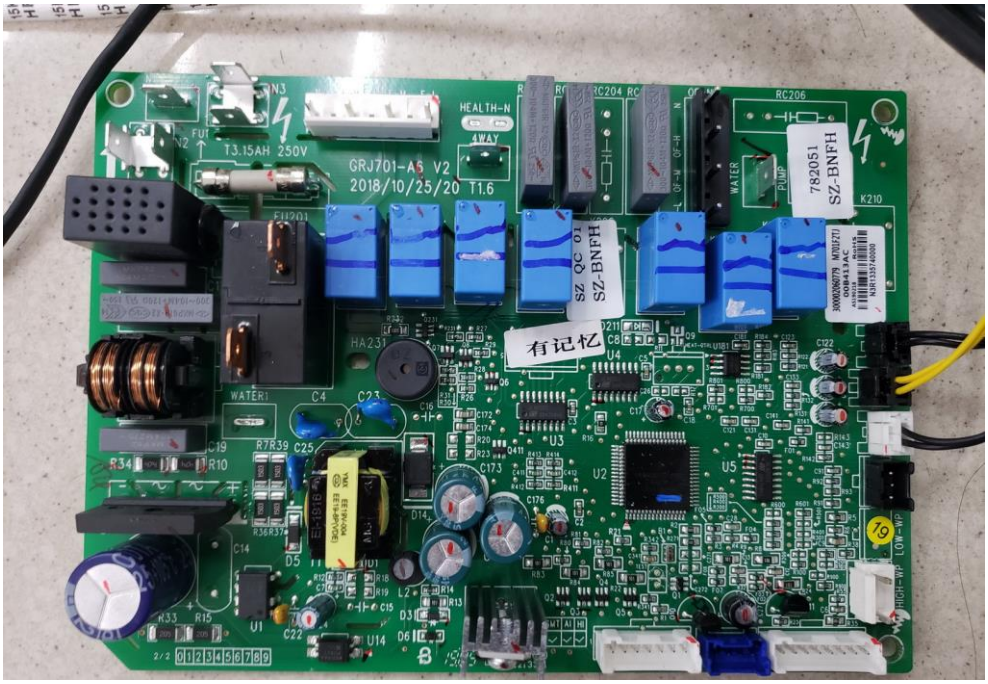


Internal view of electric box (Main PCB board (M701F2TJ))



Main PCB board (M701F2TJ)

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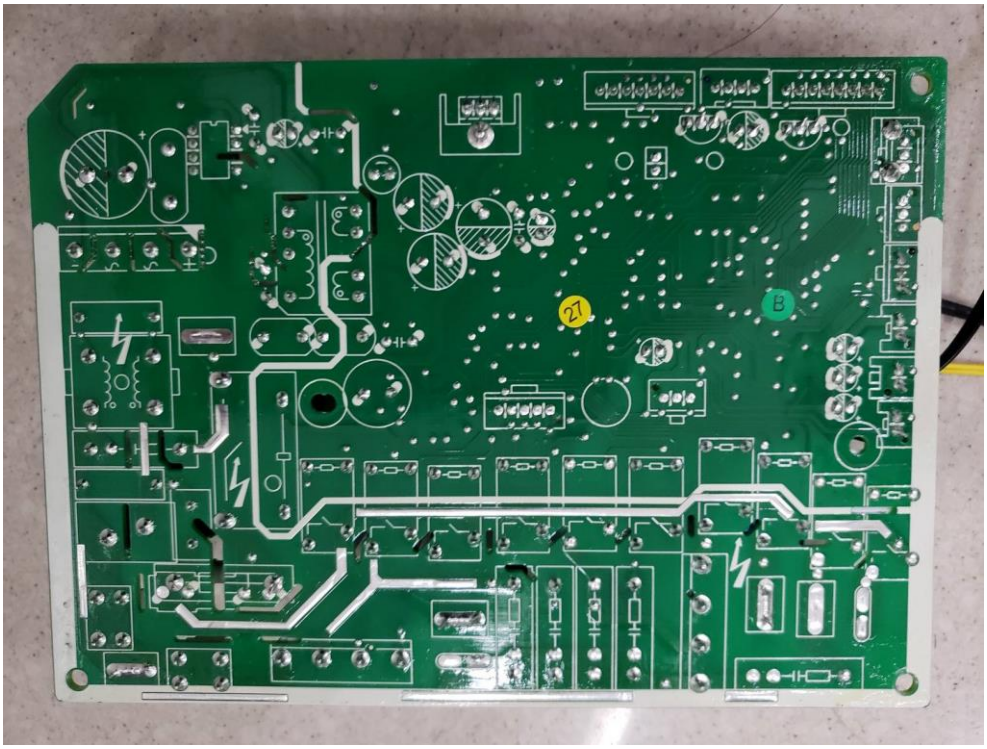
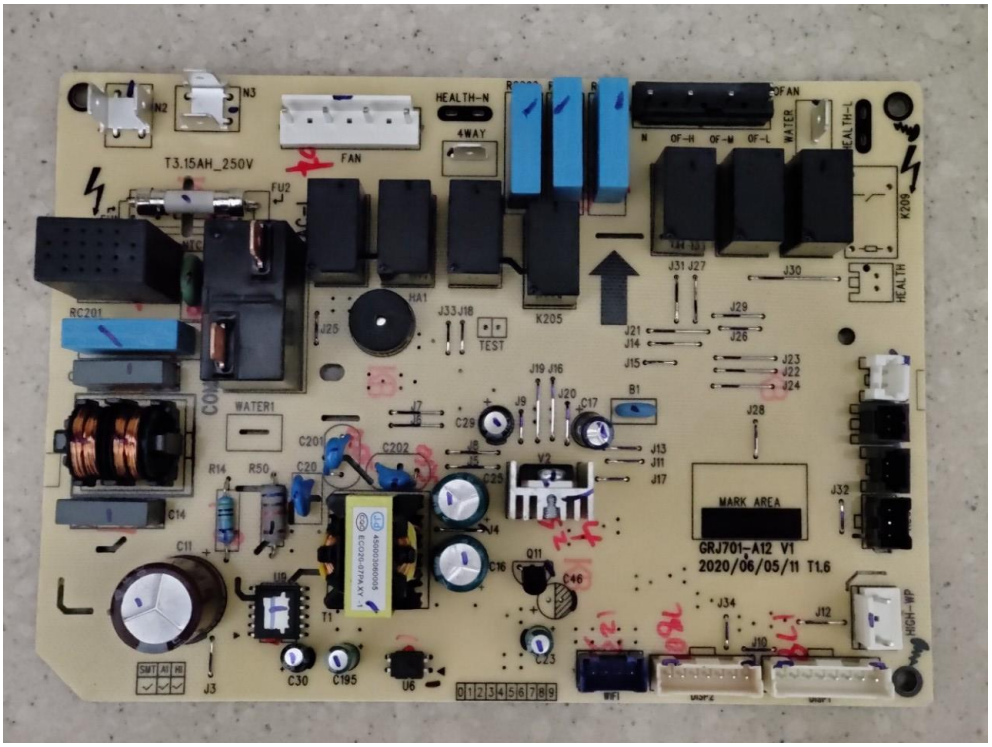


Main PCB board (M701F2TJ)



Main PCB board (M701F2ASJ)

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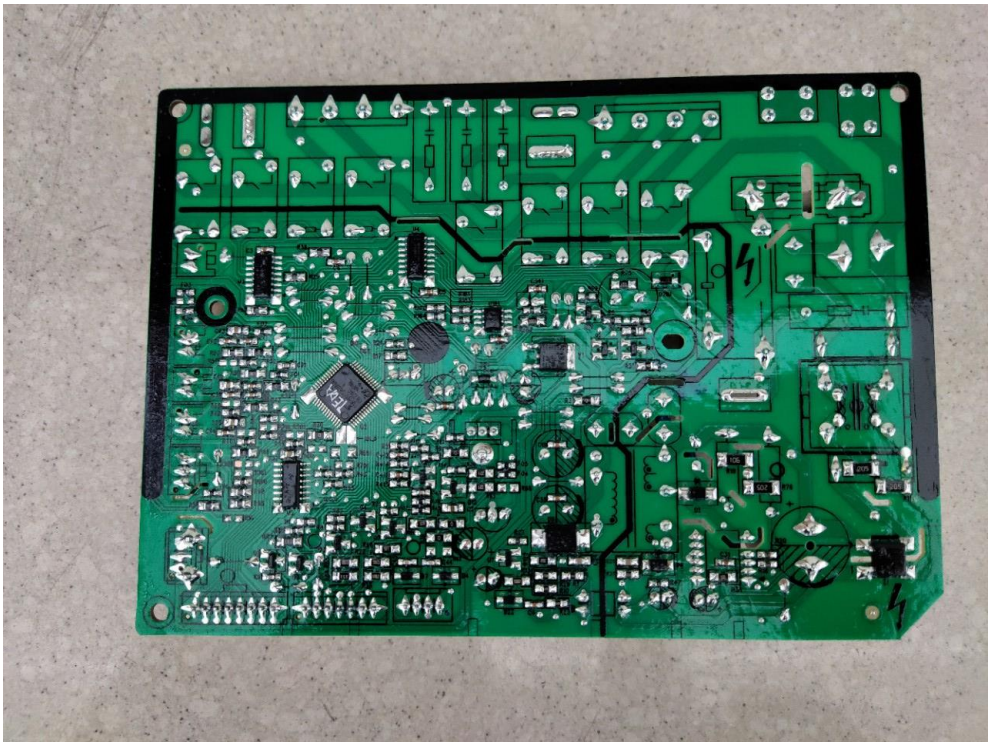

Main PCB board (M701F2ASJ)

Note: The other photos of models GPC12AL-K5NNA3B, GPH12AL-K5NNA2B can reference the photos of models GPC12AL-K5NNA3A, GPH12AL-K5NNA3A for details.

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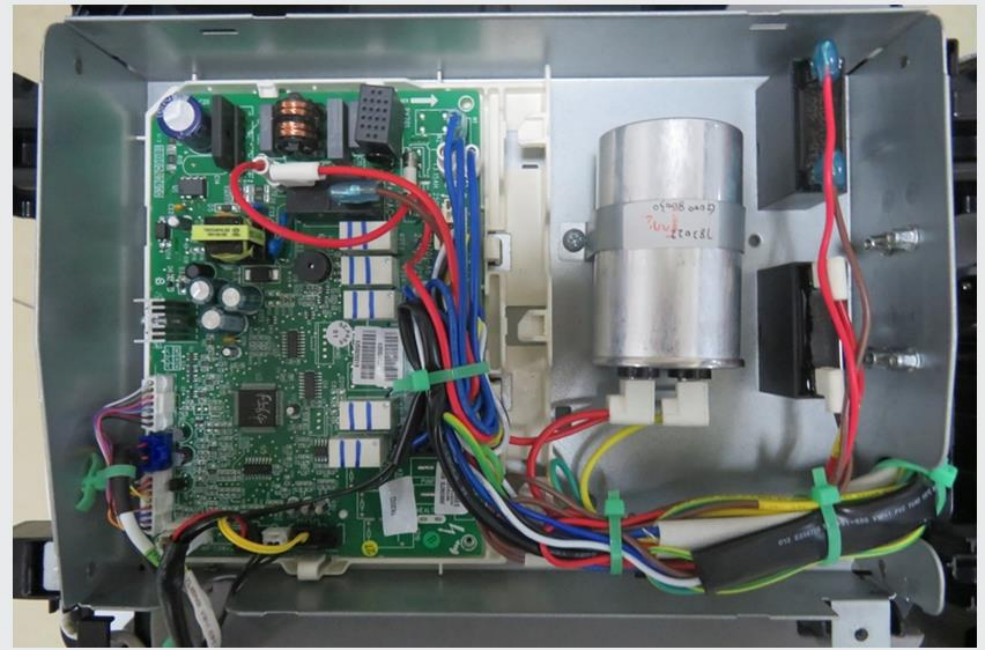
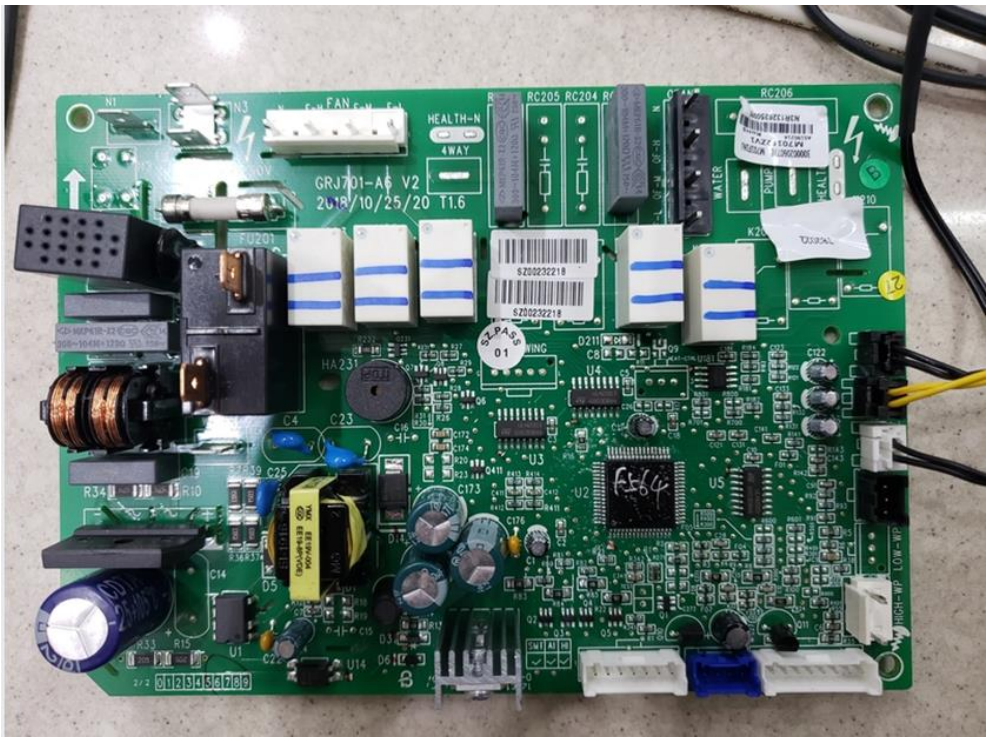


Main PCB M701F1NJ (Electrical box view)



Main PCB M701F1NJ

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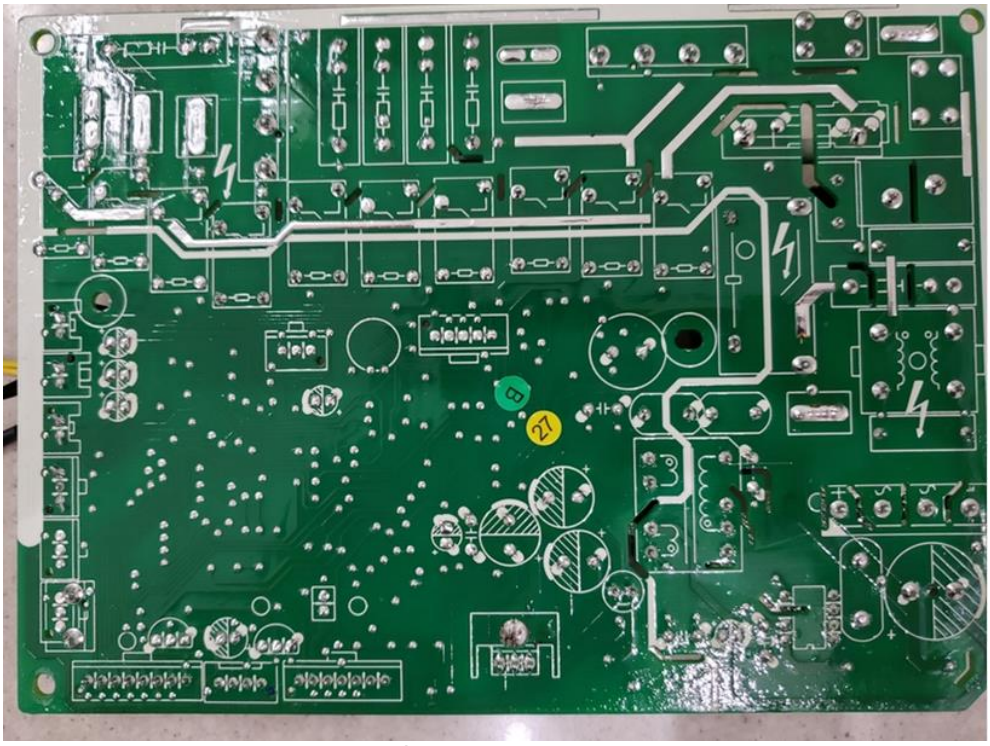
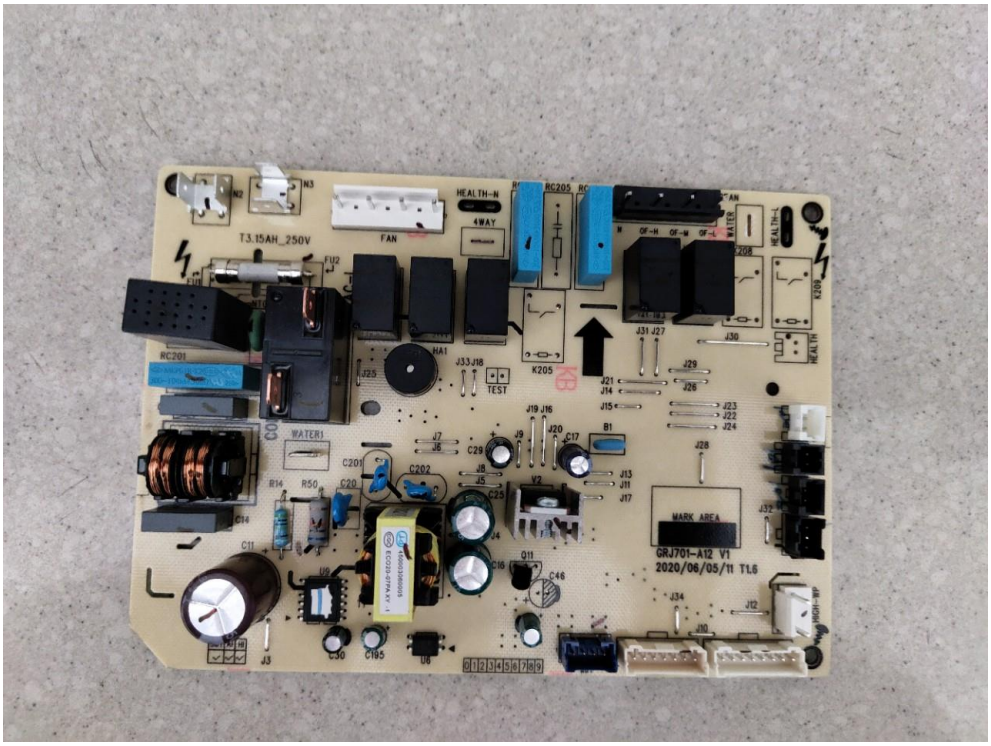


Main PCB M701F1NJ



Main PCB M701F1BLJ

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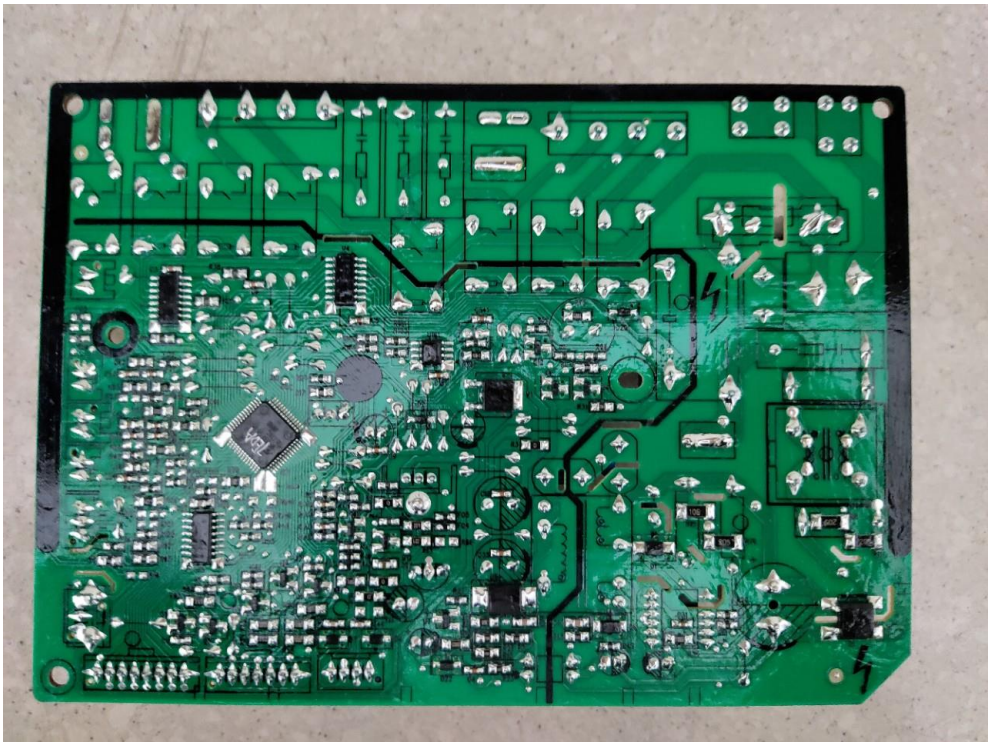
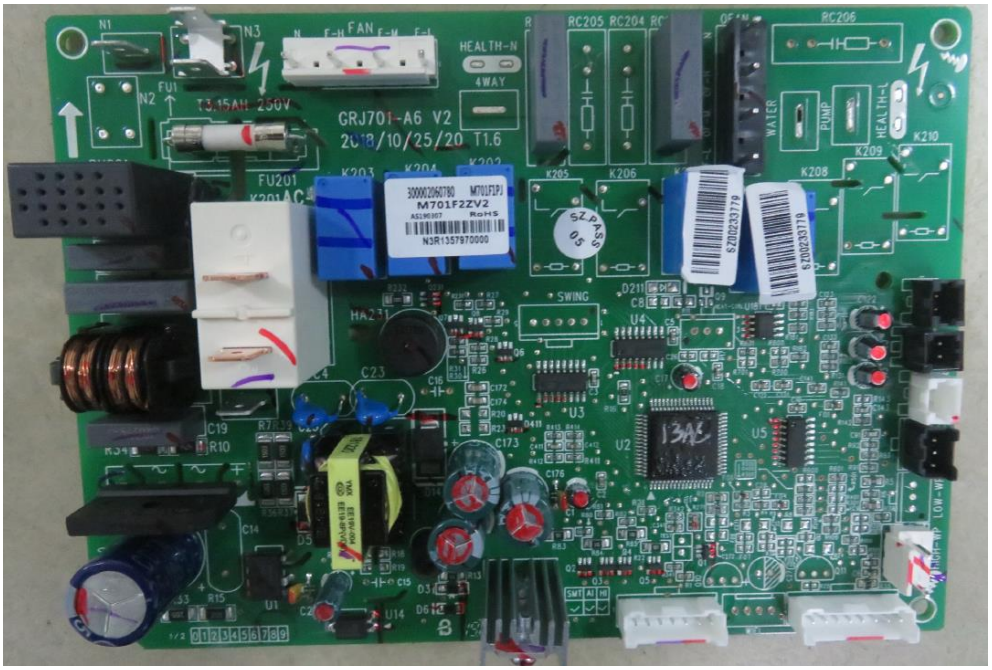


Main PCB M701F1BLJ



Main PCB board (M701F1PJ)

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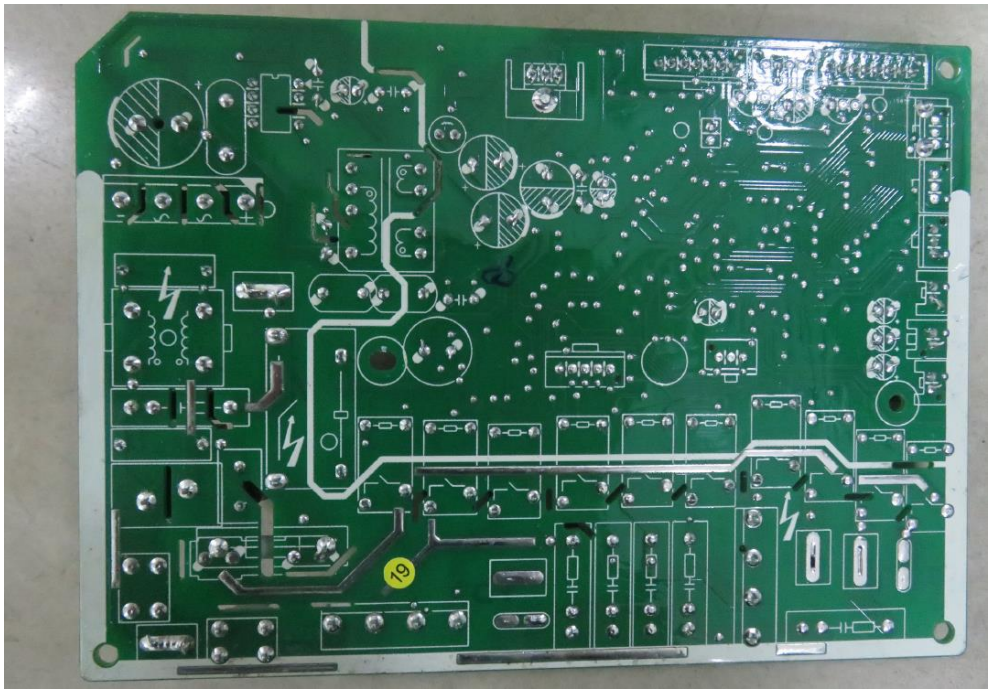
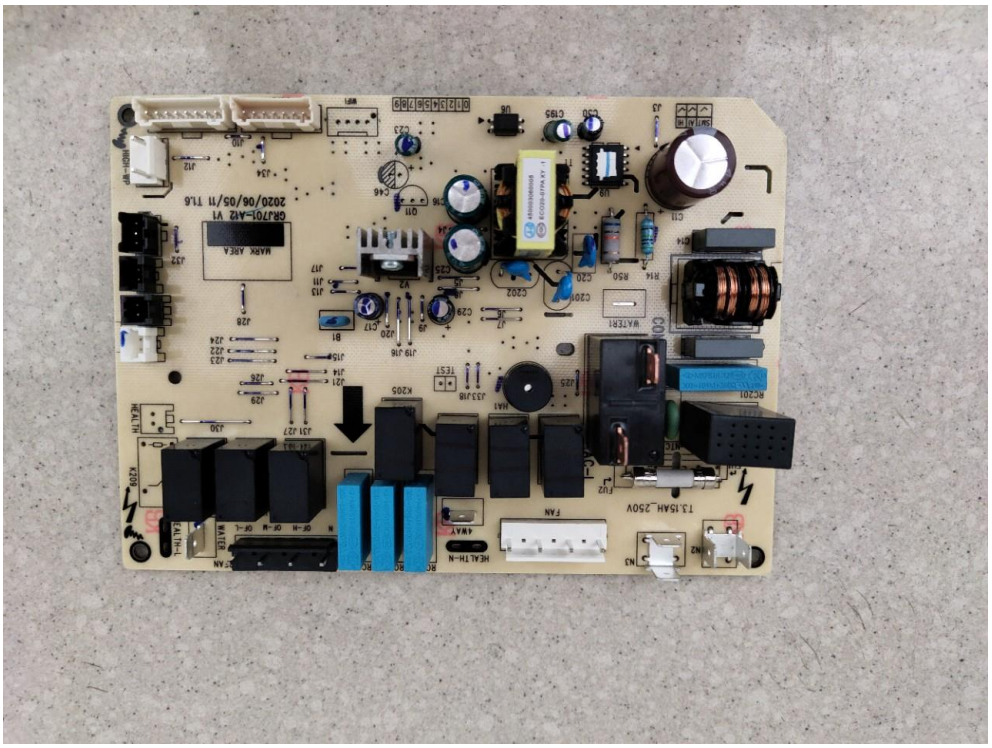


Main PCB board (M701F1PJ)



Main PCB board (M701F1BKJ)

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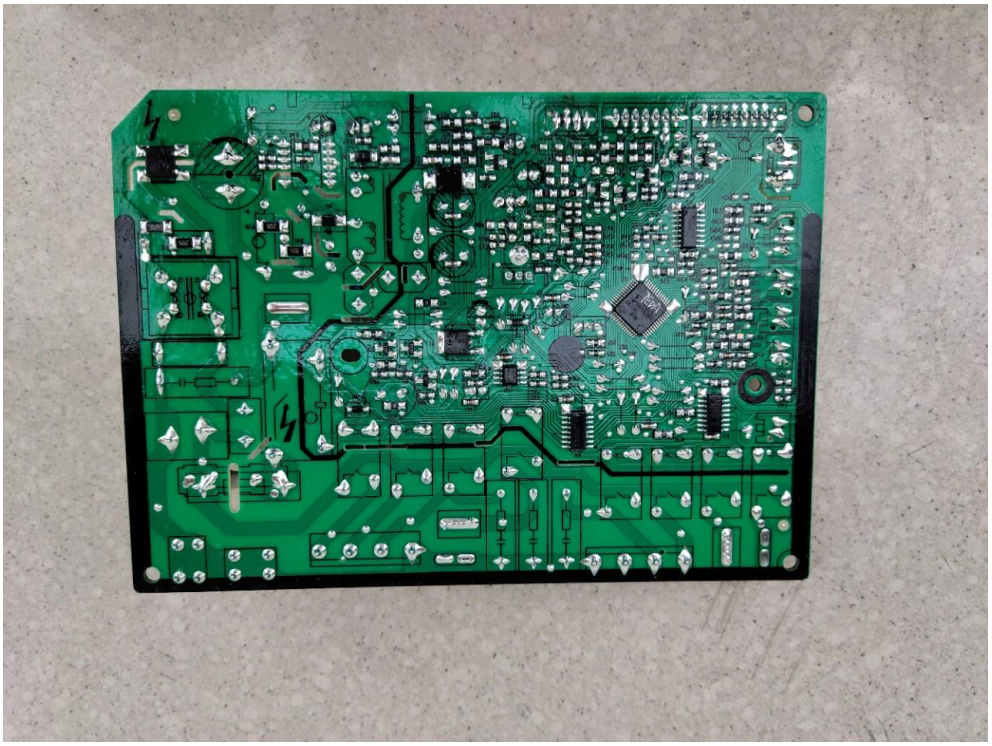
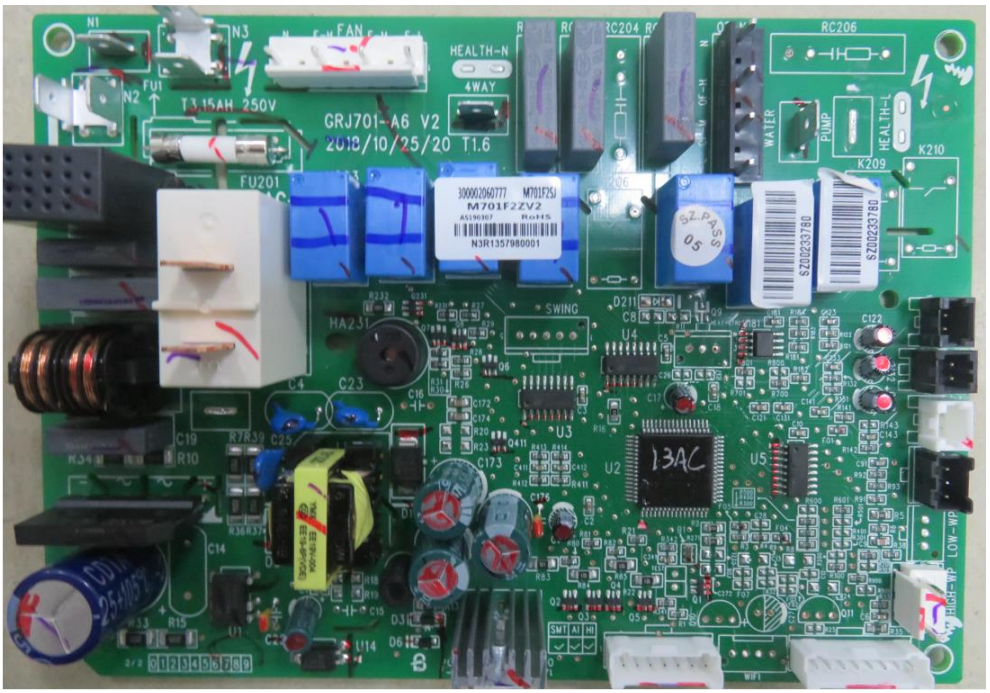


Main PCB board (M701F1BKJ)



Main PCB board (M701F2SJ)

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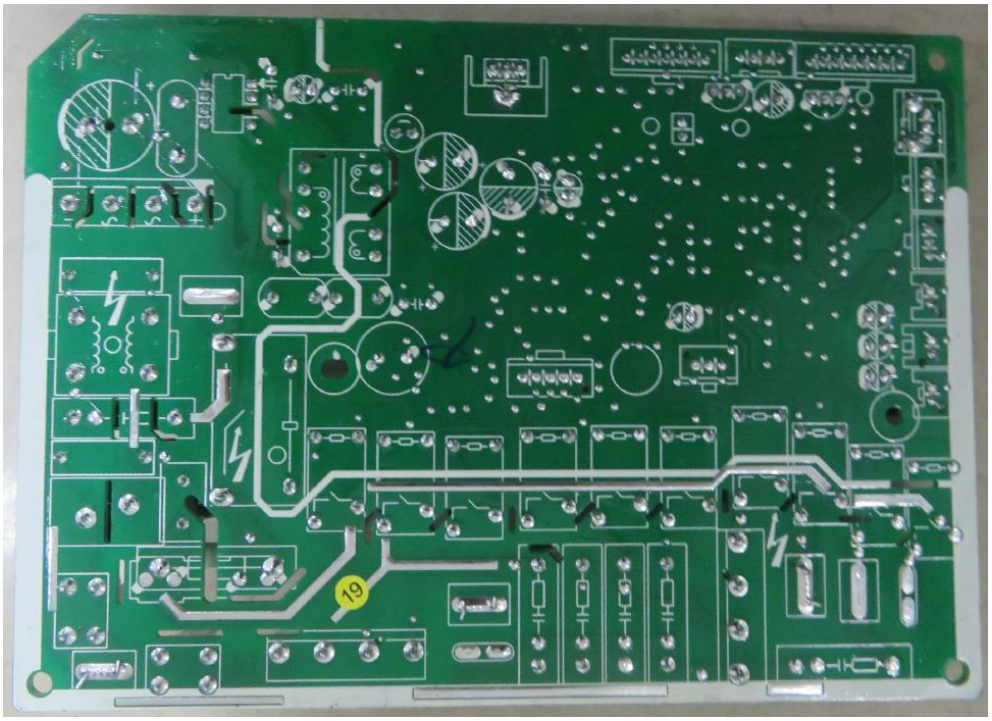
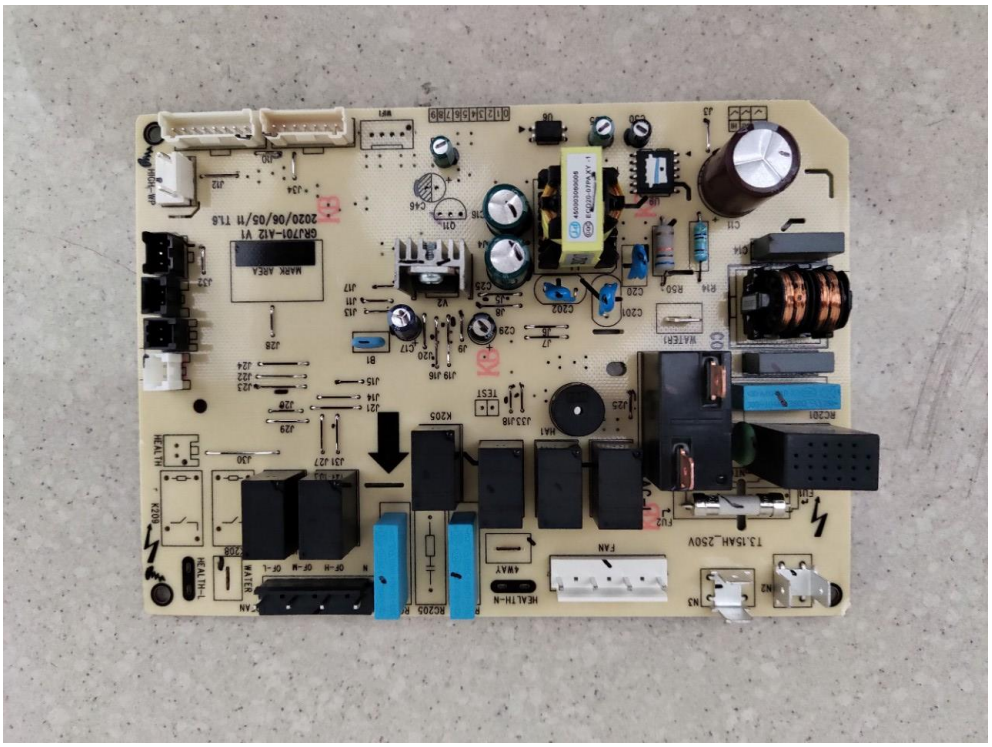


Main PCB board (M701F2SJ)



Main PCB board (M701F2BKJ)

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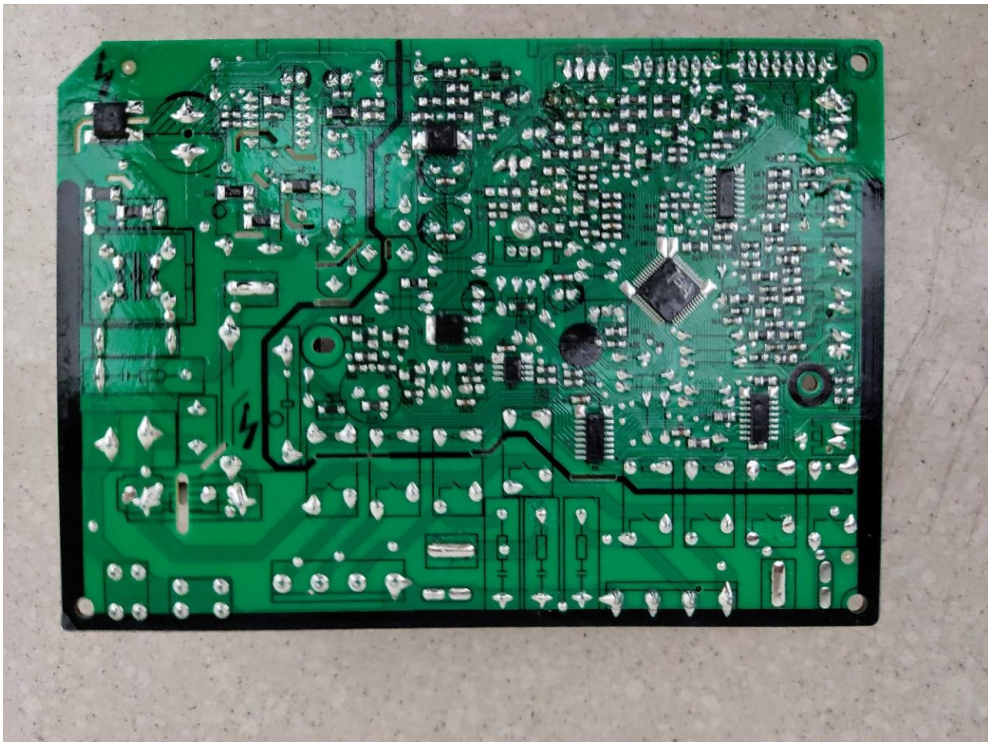

Main PCB board (M701F2BKJ)

Following photos for model GPH12AL-K5NNA3C:

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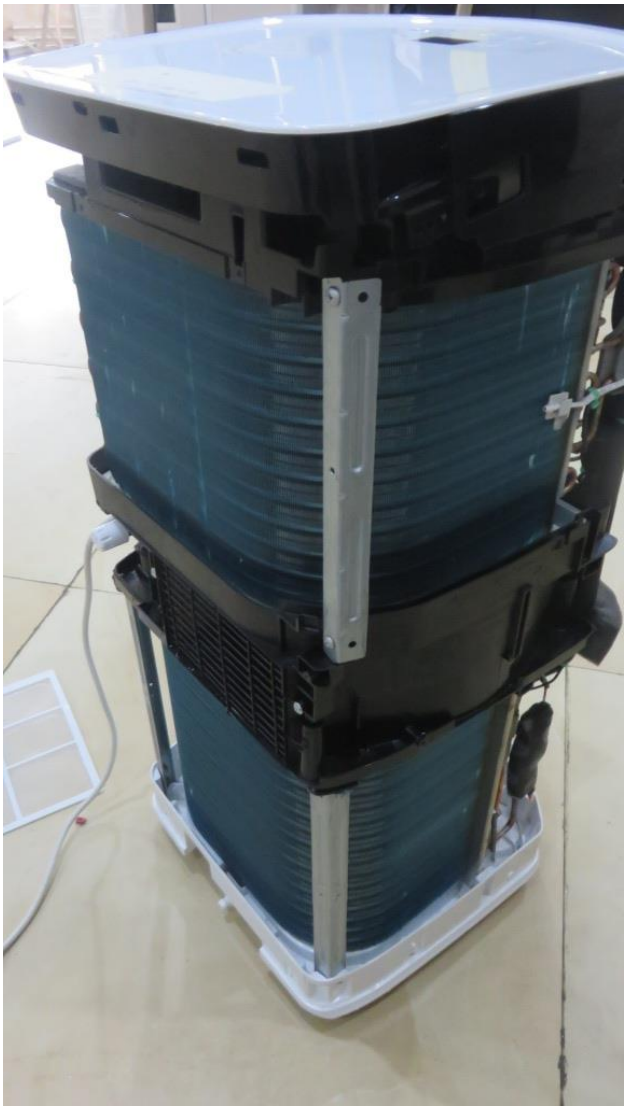

Note: Other photos of model GPH12AL-K5NNA3C can reference photos of model GPH12AL-K5NNA2B.

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Front panel of GPH12AL-K5NNA1C

Alternative front panel of GPH12AL-K5NNA1C

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Front panel GPH12AL-K5NNA1A

Front panel GPC12AL-K5NNA1C

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict

Appendix

ATTACHMENT TO TEST REPORT IEC 60335-2-40 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES Part-2-40: Particular requirements for electrical heat pumps, air conditioners and dehumidifiers	
Differences according to :	EN 60335-2-40:2003 (incl. Corr.:2006) + A11:2004 + A12:2005 + A1:2006 + A2:2009 + A13:2012 (incl. Corr.:2013) EN 60335-1:2012 (incl. Corr.:2014)
Attachment Form No. :	EU_GD_IEC60335_2_40J
Attachment Originator :	VDE
Master Attachment :	2014-06
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	CENELEC COMMON MODIFICATIONS		
6.1	Delete “class 0” and “class 01”		N/A
7.1	Single-phase appliances to be connected to the supply mains: 230 V covered		P
	Multi-phase appliances to be connected to the supply mains: 400 V covered		N/A
7.10	Devices used to start/stop operational functions of the appliance distinguished from other manual devices by means of shape, size, surface texture, position, etc.		P
	An indication that the device has been operated is given by:		----
	- a tactile feedback, or		P
	- an audible and visual feedback		P
7.12	The instructions include the substance of the following:		----
	- this appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved		P
	- children shall not play with the appliance		P
	- cleaning and user maintenance shall not be made by children without supervision		P

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
7.12.1	Installation instructions for appliances intended to be permanently connected to fixed wiring, and have leakage current exceed 10 mA, state that installation of residual current device (RCD) having rated residual operating current not exceeding 30 mA is advisable (EN 60335-2-40)		N/A
	For appliances not accessible to the general public and which are intended to be permanently connected to fixed wiring and which may have leakage currents exceeding 10 mA, the installation instructions shall specify the rating of the residual current device (RCD) to be installed (EN 60335-2-40/A12)		N/A
7.12.Z1	The specific instructions related to the safe operation of this appliance is collated together in the front section of the user instructions		P
	The height of the characters, measured on the capital letters, is at least 3 mm		P
	These instructions are also available in an alternative format, e.g. on a website		P
8.1.1	Also test probe 18 of EN 61032 is applied		P
	The appliance being in every possible position, except that appliances normally used on the floor and having a mass exceeding 40 kg are not tilted. (EN 60335-1:2012/AC:2014)		P
	The force on the probe in the straight position is increased to 10 N when probe 18 is used		P
	When using test probe 18 the appliance is fully assembled as in normal use without any parts removed, and		P
	parts intended to be removed for user maintenance are also not removed		P
8.2	Compliance is checked by applying the test probes of EN 61032		P
	For built-in appliances and fixed appliances, the test probe B and probe 18 of EN 61032 are applied only after installation		N/A
11.8	Footnotes to “External enclosure of motor-operated appliances” to be taken into account		P
13.2	Leakage current measurements (EN 60335-2-40)	(See appended table)	P
15.1.2	Appliances with an automatic cord reel tested with the cord in the most unfavourable position so that the reeling of the wet cord may affect electrical insulation during operation, the cord not being dried before reeling		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
15.2	Drain pan filled to brim and subjected to continuous overflow and fan(s) switched on (EN 60335-2-40)		P
16.2	Leakage current measurements (EN 60335-2-40)	(See appended table)	P
20.2	When using the test probe similar to test probe B with a circular stop face, the accessories and detachable covers are removed		P
	Test probe 18 applied with a force of 2,5 N on the appliance fully assembled		P
24.1	Components comply with the safety requirements specified in the relevant standards as far as they reasonably apply		P
	The requirements of clause 29 of this standard apply between live parts of components and accessible parts of the appliance.		P
	The requirements of 30.2 of this standard apply to parts of non-metallic material in components including parts of non-metallic material supporting current-carrying connections inside components		P
	Components that have not been previously tested or do not comply with the standard for the relevant component are tested according to the requirements of 30.2		P
	Components that have been previously tested and shown to comply with the resistance to fire requirements in the standard for the relevant component need not be retested provided that:		----
	- the severity specified in the component standard is not less than the severity specified in 30.2, and		N/A
	- the test report for the component states whether it complied with the standard for the relevant component with or without flame, flames not exceeding 2 s during the test are ignored		N/A
	Unless components have been previously tested and found to comply with the relevant standard for the number of cycles specified, they are tested in accordance with 24.1.1 to 24.1.9		P
	For components mentioned in 24.1.1 to 24.1.9, no additional tests specified in the relevant standard for the component are necessary other than those specified in 24.1.1 to 24.1.9		P
	Components that have not been separately tested and found to comply with the relevant standard, and		P
	components that are not marked or not used in accordance with their marking,		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	are tested in accordance with the conditions occurring in the appliance, the number of samples being that required by the relevant standard		N/A
	Lamp holders and starter holders that have not been previously tested and found to comply with the relevant standard are tested as a part of the appliance and additionally comply with the gauging and interchangeability requirements of the relevant standard under the conditions occurring in the appliance		N/A
	Where the relevant standard specifies these gauging and interchangeability requirements at elevated temperatures, the temperatures measured during the tests of clause 11 are used		N/A
	Plugs and socket-outlets and other connecting devices of interconnection cords are not interchangeable with plugs and socket-outlets listed in IEC/TR 60083 or IEC 60906-1, or		N/A
	with connectors and appliance inlets complying with the standard sheets of IEC 60320-1,		N/A
	if direct supply to these parts from the supply mains gives rise to a hazard		N/A
24.1.7	If the remote operation of the appliance is via a telecommunication network, the relevant standard for the telecommunication interface circuitry in the appliance is EN 41003		N/A
	Compliance with clause 8 of this standard is not impaired by connecting the appliance to a device covered by EN 41003		N/A
24.Z1	For motor running capacitors (IEC 60252-1 type P2) with a metallic enclosure having an overpressure fuse the flame testing of internal plastic parts supporting current carrying connections as required in 30.2.2 and 30.2.3.1 is not necessary		N/A
25.6	Supply cords of single-phase portable appliances having a rated current not exceeding 16 A, fitted with a plug complying with the following standard sheets of IEC/TR 60083:		----
	- for class I appliances: standard sheet C2b, C3b or C4..... :		N/A
	- for class II appliances: standard sheet C5 or C6..... :		N/A
25.7	Rubber sheathed cords (60245 IEC 53) are not suitable for appliances intended to be used outdoors or when they are liable to be exposed to significant amount of ultraviolet radiation		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	Halogen-free thermoplastic compound sheathed supply cords have properties at least those of:		----
	- halogen-free thermoplastic compound sheathed cords (H03Z1Z1H2-F or H03Z1Z1-F), for appliances having a mass not exceeding 3 kg		N/A
	- halogen-free thermoplastic compound sheathed cords (H05Z1Z1H2-F or H05Z1Z1-F), for other appliances		N/A
	Cross-linked halogen-free compound sheathed supply cords have properties at least those of cross-linked halogen-free compound sheathed cords (H07ZZ-F)		N/A
26.11	Conductors connected by soldering are not considered to be positioned or fixed so that reliance is not placed upon the soldering alone to maintain them in position unless they are held in place near the terminals independently of the solder		N/A
29.3.Z1	Appliance constructed so that if there is a possibility of damaging the insulation during installation, the insulation withstands the scratch and penetration test of 21.2		N/A
32	Compliance regarding electromagnetic fields is checked according to EN 62233		P
GG.2	Requirements for charge limits in unventilated areas (EN 60335-2-40/A1)		P
GG.Z1	Non fixed factory sealed single package units with a charge amount of $m_1 < M \leq 2 \times m_1$ (EN 60335-2-40/A1)		P
Annex I, 19.I.101	The appliance is supplied at rated voltage and operated under normal operation with each of the fault conditions specified		N/A
	The duration of the test is as specified in 19.7		N/A
ZA	**ANNEX ZA** (NORMATIVE) **SPECIAL NATIONAL CONDITIONS**		---
	Norway		----
19.5	The test is also applicable to appliances intended to be permanently connected to fixed wiring		N/A
	Norway		----

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
22.2	The second paragraph of this subclause, dealing with single-phase, permanently connected class I appliances having heating elements, is not applicable due to the supply system		N/A
	All CENELEC countries		----
25.6 and 25.25	Information concerning National plug and socket-outlets is available from the CENELEC website. Normative national requirements concerning plug and socket-outlets are shown in the relevant National standard		N/A
	Ireland and United Kingdom		----
25.8	In the table, the lines for 10 A and 16 A are replaced by:		----
	> 10 and ≤ 13 1,25 (1,0)[b](EN 60335-1:2012/AC:2014)		P
	> 13 and ≤ 16 1,5 (1,0)[b] (EN 60335-1:2012/AC:2014)		N/A
ZB	**ANNEX ZB** (INFORMATIVE) **A-DEVIATIONS**		----
	Ireland		----
25.6	These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and in general allow only plugs complying with I.S. 401:1997, or equivalent, to be fitted to domestic appliances		N/A
	United Kingdom		----
25.6	These regulations apply to all plugs for domestic use at a voltage of not less than 200 V and in general allow only plugs to BS 1363 to be fitted to domestic appliances. It also allows plugs to BS 4573 and EN 50075 to be fitted to shavers and toothbrushes		P
ZC	**ANNEX ZC** (NORMATIVE) **NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS**		----
	A list of referenced documents in this standard		P

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
ZD	**ANNEX ZD** (INFORMATIVE) **IEC and CENELEC CODE DESIGNATIONS FOR FLEXIBLE CORDS**		----
	A table with IEC and CENELEC code designations for flexible cords		P
ZE	**ANNEX ZE** (INFORMATIVE) **SPECIFIC ADDITIONAL REQUIREMENTS FOR APPLIANCES AND MACHINES INTENDED FOR COMMERCIAL USE**		----
7.1	Business name and full address of the manufacturer and, where applicable, his authorized representative ..... :		N/A
	Model or type reference ..... :		N/A
	Serial number, if any ..... :		N/A
	Production year		N/A
	Designation of the appliance ..... :		N/A
7.12	Instructions provided with the appliance so that the appliance can be used safely		N/A
	The instructions contain at least the following information:		----
	- the business name and full address of the manufacturer and, where applicable, his authorized representative		N/A
	- model or type reference of the appliance as marked on the appliance itself, except for the serial number		N/A
	- the designation of the appliance together with its explanation in case it is given by a combination of letters and/or numbers		N/A
	- the general description of the appliance, when needed due to the complexity of the appliance		N/A
	- specific precautions if required during installation, operation, adjusting, user maintenance, cleaning, repairing or moving		N/A
	- when needed drawings, diagrams, descriptions and explanations necessary for the safe use and user maintenance of the appliance		N/A
	- the possible reasonably foreseeable misuse and, whenever relevant, a warning against the effects it may have on the safe use of the appliance		N/A
	The words “Original instructions” appear on the language version(s) verified by the manufacturer or by the authorized representative		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	When a translation of the original instructions has been provided by a person introducing the appliance on the market; the meaning of the sentence “Translation of the original instructions” appear in the relevant instructions delivered with the appliance		N/A
	The instructions for maintenance/service to be done by specialized personnel, mandated by the manufacturer or the authorized representative may be supplied in only one Community language which the specialized personnel understand		N/A
	The instructions indicate the type and frequency of inspections and maintenance required for safe operation including the preventive maintenance measures		N/A
	“This appliance is intended to be used by expert or trained users in shops, in light industry and on farms, or for commercial use by lay persons”. (EN 60335-2-40/A13)		N/A
7.12.ZE1	If needed for specific appliances, the following information to be given:		----
	- on use, transportation, assembly, dismantling when out of service, testing or foreseeable breakdowns, if these operations have consequences on stability of the appliance in order to avoid overturning, falling or uncontrolled movements of the appliance or of its component parts		N/A
	- on how to maintain adequate mechanical stability when in use, during transportation, assembly, dismantling, scrapping and any other action involving the appliance		N/A
	- on the protective measures to be taken by the user, including, where appropriate, the personal protective equipment to be provided		N/A
	- on the operating method to be followed in the event of accident or breakdown; if a blockage is likely to occur the operating method to safely unblock the appliance		N/A
	- on the specifications on the spare parts to be used, when these affect the health and safety of the operator		N/A
	- on airborne noise emissions, determined and declared in accordance with the Annex ZAB, which includes: (EN 60335-2-40/A13)		----
	- the A-weighted emission sound pressure level at workstations, where this exceeds 70 dB(A).....; (EN 60335-2-40/A13)		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	- where this level does not exceed 70 dB(A), no value needs to be given, but the instructions shall state that the A-weighted sound pressure level is below 70 dB. (EN 60335-2-40/A13)		N/A
	- the peak C-weighted instantaneous sound pressure value at workstations, where this exceeds 63 Pa (130 dB in relation to 20 µPa) :		N/A
	- the A-weighted sound power level emitted by the machinery, where the A-weighted emission sound pressure level at workstations exceeds 80 dB(A)..... :		N/A
7.12.ZE2	The instructions includes a warning to disconnect the appliance from its power source during service and when replacing parts		N/A
	If the removal of the plug is foreseen, it is clearly indicated that the removal of the plug has to be such that an operator can check from any of the points to which he has access that the plug remains removed		N/A
	If this is not possible, due to the construction of the appliance or its installation, a disconnection with a locking system in the isolated position is provided		N/A
19.11.4.8	The appliance continues to operate, without causing any hazard to the user, from the same point in its operating cycle at which the voltage fluctuation occurred, or		N/A
	a manual operation is required to restart it		N/A
20.1	Appliances and their components and fittings have adequate mechanical stability during transportation, assembly, dismantling and any other action involving the appliance		N/A
20.2	Dangerous moving transmission parts safeguarded either by design or guards		N/A
	When guards are used, they are fixed guards, interlocking movable guards or protective devices		N/A
	Moving parts directly involved in the function of the appliance which cannot be made completely inaccessible fitted with:		----
	- fixed guards or interlocking movable guards preventing access to those sections of the parts that are not used in the work, and		N/A
	- adjustable guards restricting access to those sections of the moving parts where access is necessary		N/A
	Interlocking movable guards used where frequent access is required		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
21.1	Appliances and their components and fittings have adequate mechanical strength and is constructed to withstand such rough handling that may be expected in normal use, during transportation, assembly, dismantling, scrapping and any other action involving the appliance		N/A
22.ZE.1	For appliances provided with a seat, the seat gives adequate stability		N/A
	The distance between the seat and the control devices capable of being adapted to the operator		N/A
22.ZE.2	For appliances provided with separate devices for the start and the stop functions, the stop function is unambiguously identifiable and does always override the start function		N/A
	For appliances provided with one device performing the start and the stop function, the stop function is unambiguously identifiable and does always override the start function		N/A
22.ZE.3	Appliances designed in such a way that incorrect mounting is avoided, if this can lead to an unsafe situation		N/A
	If this is not possible, information on the correct mounting is given directly on the part and/or the enclosure		N/A
22.ZE.4	Where the weight, size or shape prevents appliances from being moved manually, they are fitted with attachments for lifting gear, or		N/A
	so designed that they can be fitted with such attachments, or		N/A
	be shaped in such a way that standard lifting gear can easily be used		N/A
	Appliances to be moved manually are constructed or equipped so that they can be moved easily and safely		N/A
22.ZE.5	The fixing systems of fixed guards which prevent access to dangerous moving transmission parts only removable with the use of tools		N/A
	If such guards have to be removed by the user for routine cleaning or maintenance their fixing systems remain attached to the fixed guards or to the machine after removal		N/A
	Where possible, guards are incapable of remaining in place without their fixings		N/A
	This does not apply if, after removal of the screws, or if the component is incorrectly repositioned, the appliance becomes inoperative		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	Movable guards are interlocked		N/A
	The interlocking devices prevent the start of hazardous appliance functions until the guards are fixed in their position, and give a stop command whenever they are no longer closed		N/A
	Where it is possible for an operator to reach the danger zone before the risk due to hazardous appliance functions has ceased, movable guards associated with a guard locking device in addition to an interlocking device that:		----
	- prevents the start of hazardous appliance functions until the guard is closed and locked, and		N/A
	- keeps the guard closed and locked until the risk of injury from the hazardous appliance functions has ceased		N/A
	Interlocking movable guards remain attached to the appliance when open, and		N/A
	they are designed and constructed in such a way that they can be adjusted only by means of an intentional action		N/A
22.ZE.6	Interlocking movable guards designed in such a way that the absence or failure of one of their components prevents starting or stops the hazardous appliance functions		N/A
	The guard is opened at the extent needed to cause the interlocking to operate and is then closed. This operation is carried out for 5 000 cycles at a rate of 5 cycles per min. (EN 60335-2-40/A13/AC)		N/A
	After this test any defect that may be expected in normal use is applied to the interlock system, including interruption of the supply, only one defect being simulated at a time		N/A
	After these tests the interlock system is fit for further use		N/A
22.ZE.7	Adjustable guards restricting access to areas of the moving parts strictly necessary for the work are:		----
	- adjustable manually or automatically, depending on the type of work involved, and		N/A
	- readily adjustable without the use of tools		N/A
22.ZE.8	In case of interruption, re-establishment after an interruption or fluctuation in whatever manner of the power supply, the appliance does not restart		N/A
	However, automatic restarting of the operation is allowed if the appliance may continue to operate, without causing any hazard to the user, from the same point in its operating cycle at which the voltage interruption or fluctuation occurred		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
22.ZE.9	Appliances fitted with means to isolate them from all energy sources		N/A
	Such isolators are clearly identified, and		N/A
	they are capable of being locked if reconnection endanger persons		N/A
	After the energy source is disconnected, it is possible to dissipate any energy remaining or stored in the circuits of the appliance without risk to persons		N/A
ZF	**ANNEX ZF** (INFORMATIVE) **CRITERIA APPLIED FOR THE ALLOCATION OF PRODUCTS COVERED BY STANDARDS IN THE EN 60335 SERIES UNDER LVD OR MD**		----
	List of standards under CENELEC/TC61 with the allocation under the LVD (Low Voltage Directive) or the MD (Machinery Directive) ..... :	LVD	P
ZG	**ANNEX ZG** (NORMATIVE) **UV APPLIANCES**		----
	The following modifications to this standard apply to appliances having UV emitters		N/A
	This annex is not applicable to appliances covered by the scopes of IEC 60335-2-27, IEC 60335-2-59 or IEC 60335-2-109		N/A
7.12.ZG	The instructions for appliances incorporating UVC emitters include the substance of the following: WARNING — This appliance contains a UV emitter. Do not stare at the light source		N/A
32	For appliances incorporating UV emitters the manufacturer delivers a declaration providing evidence that the plastic material exposed to the radiation is UV resistant		N/A
ZZ	**ANNEX ZZ** (INFORMATIVE) **COVERAGE OF ESSENTIAL REQUIREMENTS OF EC DIRECTIVES**		----
	Description of the relation between this European standard and the LVD (Low Voltage Directive, 2006/95/EC) and the MD (Machinery Directive, 2006/42/EC)	Low Voltage Directive 2014/35/EU	P

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
ZAA	**ANNEX ZAA (INFORMATIVE) (EN 60335-2-40/A11) THE RELEVENCE OF THE PRESSURE EQUIPMENT DIRECTIVE**		----
	Refrigerating systems having a pressure greater than 0,05 MPa are considered to be assemblies falling within the scope of the Pressure Equipment Directive, 97/23/EC. However, according to Article 1, item 3.6 of the directive, equipment classified no higher than category I and covered by the low voltage directive is excluded from its scope. (EN 60335-2-40/A11)		P
	According to guideline 1/39 of the directive, this exclusion applies to both components and assemblies (refrigerant circuits). This applies to appliances containing vessels (e.g. compressors, receivers) or piping with limits in accordance with the following (EN 60335-2-40/A11):		P
	Vessels (EN 60335-2-40/A11)		----
	- dangerous refrigerants (Annex II, Table 1) (EN 60335-2-40/A11):		----
	- volume not exceeding 1 l, or (EN 60335-2-40/A11)		N/A
	- pressure x volume not exceeding 5 MPa l (EN 60335-2-40/A11)		P
	- non-dangerous refrigerants (Annex II, Table 2) (EN 60335-2-40/A11):		----
	- volume not exceeding 1 l, or (EN 60335-2-40/A11)		N/A
	- pressure x volume not exceeding 20 MPa l (EN 60335-2-40/A11)		N/A
	Piping (EN 60335-2-40/A11)		----
	- dangerous refrigerants (Annex II, Table 6) (EN 60335-2-40/A11):		----
	- numerical designation not exceeding 25, or (EN 60335-2-40/A11)		N/A
	- pressure not exceeding 1 MPa and numerical designation not exceeding 100, or (EN 60335-2-40/A11)		N/A
	- pressure exceeding 1 MPa and pressure x numerical designation not exceeding 100 MPa (EN 60335-2-40/A11).		P
	- non-dangerous refrigerants (Annex II, Table 7) (EN 60335-2-40/A11):		----
	- numerical designation not exceeding 100, or (EN 60335-2-40/A11)		N/A
	- pressure x numerical designation not exceeding 350 MPa (EN 60335-2-40/A11).		N/A
	For other components, the most onerous limit of the two applies (EN 60335-2-40/A11)		P

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
	The volume is the internal volume of the vessel and includes the volume of pipework up to the first connection. It excludes the volume of fixed internal parts (EN 60335-2-40/A11)		N/A
	The pressure is the maximum pressure the vessel or piping system is exposed to, as specified by the manufacturer of the appliance (EN 60335-2-40/A11)		N/A
	The numerical designation designates the size common to all components in the piping system (EN 60335-2-40/A11)		N/A
	If any component exceeds the limits given above, the appliance has to comply with the directive. The technical requirements are given in Annex I and the conformity assessment tables and procedures in Annexes II and III of the directive (EN 60335-2-40/A11)		N/A
	Commonly used dangerous refrigerants, identified as Group 1 in the directive, are listed in table ZAA.1 (EN 60335-2-40/A11)		N/A
	Commonly used non-dangerous refrigerants, identified as Group 2 in the directive, are listed in table ZAA.2 (EN 60335-2-40/A11)		N/A
ZAB	**ANNEX ZAA (NORMATIVE) (EN 60335-2-40/A13) EMISSION OF ACOUSTICAL NOISE FROM APPLIANCES COVERED BY ANNEX ZE**		----
ZAB.1	Noise reduction is an integral part of the design process and achieved by particularly applying measures at source to control noise, see for example EN ISO 11688-1. (EN 60335-2-40/A13)		N/A
	Success of the applied noise reduction measures is assessed on the basis of the actual noise emission values in relation to other machines of the same type with comparable non-acoustical technical data. (EN 60335-2-40/A13)		N/A
ZAB.2.1	A-weighted emission sound pressure level determined in accordance with EN 11203:2009, 6.2.3 d) with the surface S being the measurement surface used for the sound power level determination. (EN 60335-2-40/A13)		N/A
	If the sound power level determination is based on a measurement method requiring a reverberant sound field, the surface S to define Q, shall be a parallelepiped measurement surface at a distance of 1 m from the reference box enclosing the source and assuming only one reflecting surface. (EN 60335-2-40/A13)		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
ZAB.2.2	A-weighted sound power level determined in accordance with EN 12102 applying a measurement method of at least grade 2. (EN 60335-2-40/A13)		N/A
	If a grade 3 measurement method used for determining the A-weighted sound power level, the. reasons are explicitly mentioned (EN 60335-2-40/A13)		N/A
ZAB.2.3	Total measurement uncertainty is depending on the standard deviation of reproducibility σ_{R0} of the measurement method and the standard deviation σ_{omc} representing the instability of the operating and mounting conditions. (EN 60335-2-40/A13)		N/A
	σ_{R0} has an upper value for a grade 2 measurement method of about 1,5 dB, whereas σ_{omc} may have values between 0,5 dB for small variations of the sound power due on the mounting and operating conditions or 4 dB for very instable sources (EN 60335-2-40/A13)		N/A
	Total measurement uncertainty for the A-weighted emission sound pressure level is of the same order as the one for the respective sound power level measurement. (EN 60335-2-40/A13)		N/A
ZAB.2.4	Information to be recorded covers all the technical requirements of this noise test code. (EN 60335-2-40/A13)		N/A
	Any deviations from this noise test code or from the basic standards upon which it is based are to be recorded together with the technical justification for such deviations. (EN 60335-2-40/A13)		N/A
ZAB.2.5	Information to be given in the test report includes : (EN 60335-2-40/A13)		N/A
	- he data required by the manufacturer for inclusion in the noise declaration,. (EN 60335-2-40/A13)		N/A
	- the data required by the user to verify the declared values. (EN 60335-2-40/A13)		N/A
	Thus the following information shall be included .. : (EN 60335-2-40/A13)		N/A
	- reference to the noise test code and the basic noise emission standards used; (EN 60335-2-40/A13)		N/A
	- description of the installation and operation conditions used; (EN 60335-2-40/A13)		N/A
	- location of the work station(s) and other specified positions; (EN 60335-2-40/A13)		N/A

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	- the noise emission values obtained (EN 60335-2-40/A13)		N/A
	Test report states that all requirements of the noise test code have been fulfilled, or, if this is not the case, it shall identify any unfulfilled requirements. (EN 60335-2-40/A13)		N/A
	Deviations from the requirements stated and a technical justification for these deviations shall be given. (EN 60335-2-40/A13)		N/A
ZAB.2.6	Noise emission declaration is made according to EN ISO 4871 (EN 60335-2-40/A13)		N/A
	Emission sound pressure level L_{pA} is made as a dual number noise emission declaration, thus declaring the determined value for L_{pA} and the respective uncertainty K_{pA}. (EN 60335-2-40/A13)		N/A
	Sound power level L_{WA} is declared as single number noise emission declaration declaring the sum of the measured sound power level and its uncertainty K_{WA}. (EN 60335-2-40/A13)		N/A
	Noise declaration states that the noise emission values have been obtained according to this noise test code. (EN 60335-2-40/A13)		N/A
	Any deviations from this noise test code or from the basic standards upon which it is based are clearly indicated. (EN 60335-2-40/A13)		N/A
	Additional noise emission values are given in the declaration. (EN 60335-2-40/A13)		N/A
	If undertaken, verification of the noise emission values shall be conducted according to EN ISO 4871, using the same mounting and operating conditions as those used for the initial determination. (EN 60335-2-40/A13)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

Appendix

Variations to EN 60335-1:2012/A13:2017			
ZZA	**ANNEX ZZA (INFORMATIVE)** **REALATIONSHIP BETWEEN THIS EUROPEAN STANDARD AND THE SAFETY OBJECTIVES OF DIRECTIVE 2014/35/EU [2014 OJ L96] AIMED TO BE COVERED**		----
	Description relating to harmonized standards in the field of the Low Voltage Directive, M/511, to provide one voluntary means of conforming to safety objectives of Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits [2014 OJ L96]		P
	A table with correspondence between this European standard and Annex I of Directive 2014/35/EU [2014 OJ L96]		P
ZZB	**ANNEX ZZB (INFORMATIVE)** **REALATIONSHIP BETWEEN THIS EUROPEAN STANDARD AND THE ESSENTIAL REQUIREMENTS OF DIRECTIVE 2006/42/EC AIMED TO BE COVERED**		----
	Description relating to Mandate for standardisation in the field of machinery “M/396” to provide one voluntary means of conforming to essential requirements of EU Directive 2006/42/EC		N/A
	A table with correspondence between this European standard and Annex I of Directive 2006/42/E [OJ No L 157]		N/A

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Appendix

A1:2013 to IEC 60335-1:2010			
Clause	Requirement – Test	Result – Remark	Verdict
5	GENERAL CONDITIONS FOR THE TESTS		----
5.17	Modification: Appliances powered by rechargeable batteries that are recharged in the appliance are tested in accordance with Annex B.		N/A
	Addition: **Battery-operated appliances** powered by batteries that are non-rechargeable or not recharged in the appliance are tested in accordance with Annex S.		N/A
7	MARKING AND INSTRUCTIONS		----
7.1	Addition: **Class II appliances** and **class III appliances** incorporating a functional earth shall be marked with the symbol IEC 60417-5018 (2011-07).		N/A
7.4	Modification: Appliances adjustable for different rated voltages or rated frequencies, the voltage or the frequency setting is clearly discernible		N/A
	Modification: 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
7.8	Except for type Z attachment, terminals for connection to the supply mains indicated as follows:		----
	Addition: - functional earthing terminals shall be indicated by symbol IEC 60417-5018 (2011-07).		N/A
7.12	Modification: “Instructions for use…”. Delete for use		P
	Addition: For appliances intended for use at altitudes exceeding 2 000 m, the maximum altitude of use shall be stated.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

A1:2013 to IEC 60335-1:2010			
Clause	Requirement – Test	Result – Remark	Verdict
	Addition: The instructions for appliances incorporating a functional earth shall state the substance of the following:		----
	Addition: This appliance incorporates an earth connection for functional purposes only.		N/A
7.12.1	Addition: For appliances marked with different **rated voltages** or different **rated frequencies** (separated by a /), instructions shall be included to indicate to the user or installer what action must be taken to adjust the appliance for operation at the required **rated voltage** or **rated frequency**.		N/A
7.15	Addition: The symbol IEC 60417-5018 (2011-07) shall be placed next to the symbol IEC 60417-5172 (2003-02) or the symbol IEC 60417-5180 (2003-02) as appropriate.		N/A
10	POWER INPUT AND CURRENT		----
10.1	Modification: 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, then the power input is the maximum value that is exceeded for more than 10 % of the representative period. Otherwise the power input is taken as the arithmetic mean value.		N/A
10.2	Modification: 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, then the current is the maximum value that is exceeded for more than 10 % of the representative period. Otherwise the current is taken as the arithmetic mean value.		N/A
11	HEATING		----
11.8	Modification: “Table 3 - Maximum normal temperature rises” to be taken into account		P

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict

A1:2013 to IEC 60335-1:2010			
Clause	Requirement – Test	Result – Remark	Verdict
13	LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE		----
13.2	For **class 0 appliances**, **class II appliances**, **class II constructions** and **class III appliances**, the leakage current is measured by means of the circuit described in Figure 4 of IEC 60990		P
	Modification: For **class 0I appliances** and **class I appliances**, a low impedance ammeter responding to the **rated frequency** of the appliance may be used		N/A
19	ABNORMAL OPERATION		----
19.7	Addition: If the timer or programmer is an electronic type that operates to ensure compliance with the test before the maximum period under the conditions of Clause 11 is reached, it is considered to be a **protective electronic circuit** as well as a control that operates under the conditions of Clause 11.		N/A
22	CONSTRUCTION		----
22.5	Addition: 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 one at a time to the appliance.		N/A
	Addition: The discharge test is then repeated three times and for each test, the voltage shall not exceed 34 V.		N/A
22.32	Modification: Ceramic and similar porous material in which heating conductors are embedded is considered to be basic insulation, not reinforced insulation		N/A
22.33	Modification: Conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed **accessible metal parts** shall not be in direct contact with **live parts** or unearthed metal parts that are separated from **live parts** by **basic insulation** only.		P

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Clause	Requirement + Test	Result - Remark	Verdict

A1:2013 to IEC 60335-1:2010			
Clause	Requirement – Test	Result – Remark	Verdict
22.53	Addition: **Class II appliances** and **class III appliances** that incorporate functionally earthed parts shall have at least **double insulation** or **reinforced insulation** between **live parts** and the functionally earthed parts.		N/A
22.54	Addition: Button cells and batteries designated R1 shall not be accessible without the aid of a **tool** unless the cover of their compartment can only be opened after at least two independent movements have been applied simultaneously.		N/A
23	INTERNAL WIRING		----
23.5	Addition: For **class II construction**, the requirements for **supplementary insulation** and **reinforced insulation** apply 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
24	COMPONENTS		----
24.1	Addition: Compliance with the IEC standard for the relevant component does not necessarily ensure compliance with the requirements of this standard.		P
	Addition: Motors are not required to comply with IEC 60034-1. They are tested as part of the appliance according to this standard.		P
	Addition: Relays shall be tested as part of the appliance according to this standard. They may be alternatively tested to IEC 60730-1, in which case they must also meet the additional requirements in IEC 60335-1.		P
	Addition: Unless otherwise specified, the requirements of Clause 29 of this standard apply between **live parts** of components and **accessible parts** of the appliance.		P

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict

A1:2013 to IEC 60335-1:2010			
Clause	Requirement – Test	Result – Remark	Verdict
	Addition: Unless otherwise specified, components may comply with the requirements for **clearances** and **creepage distances** for functional insulation as specified in the relevant component standard.		P
	Addition: Unless otherwise specified, the requirements of 30.2 of this standard apply to parts of non-metallic material in components including parts of non-metallic material supporting current-carrying connections inside components.		P
	Addition: Components that have not been previously tested and shown to comply with the IEC standard for the relevant component are tested according to the requirements of 30.2 of this standard.		P
	Addition: Power electronic converter circuits are not required to comply with IEC 62477-1. They are tested as part of the appliance according to this standard.		N/A
24.1.2	Addition: The relevant standard for transformers in associated switch mode power supplies is Annex BB of IEC 61558-2-16.		P
	Addition: Clause 26 of IEC 61558-1 and Annex H of IEC 61558-1 are not applicable.		P
24.1.4	Addition: Thermal cut-outs of the capillary type shall comply with the requirements for type 2.K controls in IEC 60730-2-9.		N/A
24.1.5	Modification: However, for class II appliances classified higher than IPX0, the appliance couplers complying with IEC 60320-2-3		N/A
25	SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS		----
25.1	Appliance not intended for permanent connection to fixed wiring, means for connection to the supply:		----

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Clause	Requirement – Test	Result – Remark	Verdict
	Modification: - 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;		P
25.7	Supply cords, other than for class III appliances, being one of the following types:		----
	Deleting: - cross-linked polyvinyl chloride sheathed (at least 60245 IEC 88)		N/A
25.10	Addition: In multi-phase appliances, the colour of the neutral conductor of the **supply cord**, if any, shall be blue.		N/A
25.20	Modification: The conductors of the supply cord for type Y and Z attachment shall be from accessible metal parts		P
27	PROVISION FOR EARTHING		----
27.1	Addition: **Class II appliances** and **class III appliances** may incorporate an earth for functional purposes.		N/A
27.2	Addition: These requirements are not applicable to **class II appliances** and **class III appliances** that incorporate an earth for functional purposes.		N/A
27.3	Addition: These requirements are not applicable to **class II appliances** and **class III appliances** that incorporate an earth for functional purposes.		N/A
27.4	Addition: These requirements are not applicable to **class II appliances** and **class III appliances** that incorporate an earth for functional purposes.		N/A
27.5	Addition: These requirements are not applicable to **class II appliances** and **class III appliances** that incorporate an earth for functional purposes.		N/A
	Addition: The test is carried out until steady conditions have been established.		P

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Clause	Requirement + Test	Result - Remark	Verdict

A1:2013 to IEC 60335-1:2010			
Clause	Requirement – Test	Result – Remark	Verdict
	Addition: The resistance of the **supply cord** is not included in the resistance calculation.		P
27.6	Addition: This requirement is not applicable to **class II appliances** and **class III appliances** that incorporate an earth for functional purposes.		N/A
29	CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION		----
29.1	Addition: For appliances intended for use at altitudes exceeding 2 000 m, the clearances in Table 16 shall be increased according to the relevant multiplier values in Table A.2 of IEC 60664-1.		N/A
	Impulse voltage test is not applicable:		----
	Addition: - for basic insulation of class 0 and class 01 appliances or to appliances intended for use at altitudes exceeding 2 000 m.		N/A
29.3	Compliance checked:		----
	Modification: - for insulation, other than single layer internal wiring insulation, by an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3, and		N/A
	Addition: - by an assessment of the thermal quality of the material according to 29.3.3 combined with an electric strength test in accordance with 23.5, for each single layer internal wiring insulation touching each other, or		N/A
B	Modification: ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES THAT ARE RECHARGED IN THE APPLIANCE		----
	Addition: These appliances take one of the following three forms of construction:		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict

A1:2013 to IEC 60335-1:2010			
Clause	Requirement – Test	Result – Remark	Verdict
	Addition: a) The appliance can be supplied directly from the supply mains or a renewable energy source such as a solar cell, the battery charging circuitry and other supply unit circuitry being incorporated within the appliance.		N/A
	Addition: b) The part of the appliance incorporating the battery is supplied from the supply mains or a renewable energy source such as a solar cell, via a detachable supply unit. The battery charging circuitry is incorporated within the part of the appliance containing the battery. In this case, the complete appliance is the detachable supply unit plus the part of the appliance containing the battery and the battery charging circuitry.		N/A
	Addition: c) The part of the appliance incorporating the battery is supplied from the supply mains or a renewable energy source such as a solar cell, via a **detachable supply unit**. The battery charging circuitry is incorporated within the **detachable supply unit**. In this case, the complete appliance is the detachable supply unit with the battery charging circuitry plus the part of the appliance containing the battery.		N/A
7.1	Addition: Appliances intending to be supplied from a **detachable supply unit** for the purposes of recharging the battery shall be marked with symbol IEC 60417-6181 (2013-03) and its type reference along with symbol ISO 7000-0790 (2004-01) or with the substance of the following:		N/A
	Addition: Use only with <model designation> supply unit		N/A
7.6	Addition: Symbols 60417-6181		N/A
7.12	Addition: For appliances intending to be supplied from a **detachable supply unit** for the purposes of recharging the battery, the type reference of the **detachable supply unit** shall be stated along with the substance of the following:		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict

A1:2013 to IEC 60335-1:2010			
Clause	Requirement – Test	Result – Remark	Verdict
	Addition: WARNING: For the purposes of recharging the battery, only use the detachable supply unit provided with this appliance.		N/A
	Addition: If the symbol for **detachable supply unit** is used, its meaning shall be explained.		N/A
7.15	Addition: The type reference of the **detachable supply unit** shall be placed in close proximity to the symbol.		N/A
11.8	Addition: The temperature rise of the battery surface shall not exceed the temperature rise limit in the battery manufacturer's specification for the type of battery supplied.		N/A
	Addition: If no limit is specified, the temperature rise shall not exceed 20 K.		N/A
19.13	Addition: The battery shall not rupture or ignite.		N/A
H	ANNEX H (NORMATIVE) SWITCHES		----
20	Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies		----
	Modification: Clause 20 is applicable to clearances across full disconnection and micro-disconnection.		N/A
	Modification: It is also applicable to creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in Table 24.		N/A
S	Addition: ANNEX S (NORMATIVE) BATTERY-OPERATED APPLIANCES POWERED BY BATTERIES THAT ARE NON-RECHARGEABLE OR NOT RECHARGED IN THE APPLIANCE		----
	The following modifications to this standard are applicable for **battery-operated appliances** where the batteries are either non-rechargeable (primary batteries) or rechargeable batteries (secondary batteries) that are not recharged in the appliance.		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict

A1:2013 to IEC 60335-1:2010			
Clause	Requirement – Test	Result – Remark	Verdict
5	General condition for the tests		----
5.8.1	Where the supply terminals for the connection of the battery have no indication of polarity, the more unfavourable polarity shall be applied.		N/A
5.S.101	**Battery-operated appliances** intended for use with a **battery box** are tested with the **battery box** supplied with the appliance or with the **battery box** recommended in the instructions.		N/A
5.S.102	**Battery-operated appliances** are tested as **motor-operated appliances.**		N/A
7	**Marking and instructions**		----
7.1	**Battery-operated appliances** shall be marked with the battery voltage and the polarity of the terminals unless the polarity is irrelevant.		N/A
	Battery-operated appliances shall also be marked with the		N/A
	- name, trade mark or identification mark of the manufacturer or responsible vendor;		N/A
	- model or type reference;		N/A
	- IP number according to degree of protection against ingress of water, other than IPX0;		N/A
	- type reference of battery or batteries.		N/A
	If relevant, the positive terminal shall be indicated by the symbol IEC 60417-5005 (2002-10) and the negative terminal by the symbol IEC 60417-5006 (2002-10).		N/A
	If appliances use more than one battery, they shall be marked to indicate correct polarity connection of the batteries.		N/A
7.6	Symbols 60417-5005 and Symbols 60417-5006		N/A
7.12	The instructions for **battery-operated appliances** shall contain the substance of the following, as applicable:		----
	- the types of batteries that may be used;		N/A
	- how to remove and insert the batteries;		N/A
	- non-rechargeable batteries are not to be recharged;		N/A
	- rechargeable batteries are to be removed from the appliance before being charged;		N/A
	- different types of batteries or new and used batteries are not to be mixed;		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict

A1:2013 to IEC 60335-1:2010			
Clause	Requirement – Test	Result – Remark	Verdict
	- batteries are to be inserted with the correct polarity;		N/A
	- exhausted batteries are to be removed from the appliance and safely disposed of;		N/A
	- if the appliance is to be stored unused for a long period, the batteries should be removed;		N/A
	- the supply terminals are not to be short-circuited.		N/A
11	Heating		----
11.5	By means of an external power supply, **battery-operated appliances** are supplied at the terminals for the connection of the battery with the most unfavourable supply voltage between		----
	- 0,55 and 1,0 times the battery voltage, if the appliance can be used with non-rechargeable batteries;		N/A
	- 0,75 and 1,0 times battery voltage, if the appliance is designed for use with rechargeable batteries only.		N/A
	The values specified in Table S.101 for the internal resistance per cell of the battery shall be taken into account.		N/A
19	Abnormal operation:		----
19.1	For **battery-operated appliances**, the tests are carried out with the battery fully charged unless otherwise specified.		N/A
19.13	The battery shall not rupture or ignite.		N/A
19.S.101	**Battery-operated appliances** are supplied with the voltage specified in 11.5. The supply terminals having an indication of polarity are connected to the opposite polarity, unless such a connection is unlikely to occur due to the construction of the appliance.		N/A
19.S.102	For **battery-operated appliances** with provision for multiple batteries, one or more of the batteries shall be reversed and the appliance shall be operated, if reversal of batteries is allowed by the construction.		N/A
25	Supply connection and external flexible cords		----
25.5	The flexible leads or flexible cord used to connect an external battery or **battery box** in **battery-operated appliances** shall be connected to the appliance by a **type X attachment**.		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict

A1:2013 to IEC 60335-1:2010			
Clause	Requirement – Test	Result – Remark	Verdict
25.13	This requirement is not applicable to the flexible leads or flexible cord connecting external batteries or a **battery box** with an appliance.		N/A
25.S.101	**Battery-operated appliances** shall have suitable means for connection of the battery.		N/A
	If the type of battery is marked on the appliance, the means of connection shall be suitable for this type of battery.		N/A
26	Terminal for external conductors		----
26.5	Terminal devices in an appliance for the connection of the flexible leads or flexible cord connecting an external battery or **battery box** shall be so located or shielded that there is no risk of accidental connection between supply terminals.		N/A
30	Resistance to heat and fire		N/A
30.2.3.2	Addition: There shall be no battery in the area of the vertical cylinder used for the consequential needle flame test unless the battery is shielded by a barrier that meets the needle flame test of Annex E or that comprises material classified as V-0 or V-1 according to IEC 60695-11-10 provided that the test sample used for the classification was no thicker than the relevant part of the appliance.		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

AMENDMENT 2: 2016 TO IEC 60335-1:2010

Clause	Requirement – Test	Result – Remark	Verdict
5	GENERAL CONDITIONS FOR THE TESTS		—
5.10	Addition: A **class III construction** part of the appliance is tested connected to its **detachable power supply part** taking into account the instructions provided with the appliance.		N/A
6	**CLASSIFICATION**		—
6.1	Addition: For a class III construction with a detachable power supply part the appliance is classified according to the detachable power supply part		N/A
7	**MARKING AND INSTRUCTIONS**		—
7.1	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
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
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 ....:		P
	Moulded in, engraved, or stamped markings either raised above or have a depth below the surface of at least 0,25 mm, unless		N/A
	contrasting colours are used		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict

Clause	Requirement – Test	Result – Remark	Verdict
	Markings checked by inspection, measurement and rubbing test as specified		P
8	**PROTECTION AGAINST ACCESS TO LIVE PARTS**		--
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
13	**LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE**		--
13.2	The leakage current is measured by means of the circuit described in figure 4 of IEC 60990 :1999		P
	For class 0I appliances and class I appliances, except parts of class II construction, C may be replaced by a low impedance ammeter		N/A
19	**ABNORMAL OPERATION**		—
19.1	If the control performs more than one function, only that aspect of the control under consideration is rendered inoperative. Other functions of the control may continue to operate normally.		N/A
19.7	the capacitor is of class S2 or S3 of IEC 60252-1		P
19.11.3	If the appliance incorporates a protective electronic circuit that operates to ensure compliance with clause 19, the appliance is tested as specified		N/A
19.11.4.2	The appliance is subjected to radiated fields in accordance with IEC 61000-4-3, at frequency ranges specified		N/A
22	**CONSTRUCTION**		--
22.5	No risk of electric shock when touching pins, for appliances having a capacitor with rated capacitance equal to or greater than 0,1μF, the appliance being disconnected from the supply at the instant of voltage peak		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

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict

Clause	Requirement – Test	Result – Remark	Verdict
	A choking hazard does not apply to appliances for commercial use		N/A
	If the part is removed and can be contained within the small parts cylinder, it is considered to be a choking hazard		N/A
22.55	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 .....:		P
	The requirement concerning position does not preclude use of a push on push off switch		P
	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
24	**COMPONENTS**		--
24.2	Appliances not fitted with:		--
	- switches, automatic controls or power supplies in flexible cords		P
24.8	- the capacitors are of class S2 or S3 according to IEC 60252-1		P
25	**SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS**		—
25.7	- 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
25.10	Where additional neutral conductors are provided in the supply cord:		N/A
	– other colours may be used for these additional neutral conductors;		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict

Clause	Requirement – Test	Result – Remark	Verdict
	– 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
25.23	- 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
B	**ANNEX B (NORMATIVE)** **APPLIANCES POWERED BY RECHARGEABLE BATTERIES THAT ARE RECHARGED IN THE APPLIANCE**		—
7.12	instructions for appliances incorporating batteries intended to be replaced by the user include required information		N/A
	Instructions for appliances containing non user-replaceable batteries state the substance of the following:		N/A
	This appliance contains batteries that are only replaceable by skilled persons		N/A
	Instructions for appliances containing non-replaceable batteries shall state the substance of the following:		N/A
	This appliance contains batteries that are non-replaceable		N/A
P	**ANNEX P (INFORMATIVE)** **GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN TROPICAL CLIMATES**		--
	Modifications applicable for class 0 and 01 appliances having a rated voltage exceeding 150V, intended to be used in countries having a tropical climate and that are marked with symbol IEC 60417-6332		--
	Modifications may also be applied to class 1 appliances having a rated voltage exceeding 150V, intended to be used in countries having a tropical climate and that are marked with symbol IEC 60417-6332, if liable to be connected to a supply mains that excludes the protective earthing conductor		--
7.1	The appliance marked with symbol IEC 60417-6332		N/A
	If symbol IEC 60417-6332 is used, its meaning is explained		N/A
T	**ANNEX T (NORMATIVE)** **UV-C RADIATION EFFECT ON NON-METALLIC MATERIALS**		--
	Requirements for non-metallic materials subject to direct or reflected UV-C radiation exposure and whose mechanical and electrical properties are relied upon for compliance with the		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict

Clause	Requirement – Test	Result – Remark	Verdict
	Does not apply to glass, ceramic and similar materials		N/A
	Tested as specified in ISO 4892-1 and ISO 4892-2, with the following modifications:		--
	Modifications to ISO 4892-1:		--
5.1.6	The UV-C emitter is a low pressure mercury lamp with a quartz envelope having a continuous spectral irradiance of 10 W/m2 at 254 nm		N/A
	Subclause 5.1.6.1 and Table 1 are not applicable		N/A
5.2.4	The black-panel temperature shall be 63 °C +/- 3 °C		N/A
5.3.1	Humidification of the chamber air is specified in part 2 when necessary		N/A
9	This clause is not applicable		N/A
	Modifications to ISO 4892-2:		N/A
7.1	At least three test specimens are tested		N/A
	Ten samples of internal wiring is tested		N/A
7.2	The specimens are attached to the specimen holders such that they are not subject to any stress		N/A
7.3	Apparatus prepared as specified		N/A
	The test specimens and, if used, the irradiance-measuring instrument are exposed for 1 000 h		N/A
7.4	If used, a radiometer is mounted and calibrated such that it measures the irradiance at the exposed surface of the test specimen		N/A
7.5	Material properties and test methods for parts providing mechanical support or impact resistance as specified in Table T.1		N/A
	Material properties and test method for electrical insulation of internal wiring as specified in Table T.2		N/A
8	This clause is not applicable		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict

Variations to EN 60335-1:2012/ A1:2019			
11.8	In Table 3 delete footnotes za, zb, zc, zd.		N/A
24.1	Components shall comply with the safety requirements specified in the relevant EN standards as far as they reasonably apply.		P
Annex ZC	Normative references to international publications with their corresponding European publications		P

Variations to EN 60335-1:2012/ A14:2019			
7.10	Add: A push-push button switch used for start and stop the operation shall not be used for other functions such as changing the motor speed.		N/A
	For hand-held appliances with **rated power input** 50 W or lower it is acceptable to have a push-push button for different functions including on / off if there is an immediate feedback to the user e.g. by tactile feedback or audible and visible feedback.		N/A
	Audible feedback is any audible response got immediately after the operation of the switch. The click of a switch can be accepted as an audible feedback provided that it is originated inside the switch that is operated and can be heard at a distance of 77 cm from the switch. The sound of the motor is regarded as an audible feedback.		N/A
	Constructions with switches that have two different stable positions (meaning that it can be seen or felt when they have been pressed or rotated) are considered to have a tactile feedback.		N/A
8.1.1	Replace by Test probe B and probe 18 of EN 61032 are applied with a force not exceeding 1 N, the appliance being in every possible position, except that appliances normally used on the floor and having a mass exceeding 40 kg are not tilted.		P
8.1.3	Add the text “, test probe 18” after “test probe B,”		P
20.2	replace Note 1: the word “movable” by “moving” and replace “main function” by “working function”.		P
22.12	Add: Other parts that are intended to be detached during use, maintenance or cleaning (examples are batteries, battery covers, lids, attachments, steam nozzles) are not considered as parts providing a similar function as handles, knobs, grips, levers.		N/A

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IEC 60335-2-40			
Clause	Requirement + Test	Result - Remark	Verdict
22.17	Add: This is not applicable to **built-in appliances**.		N/A
24.1	Add: NOTE Z3 For details of plugs used in CENELEC countries listed in IEC TR 60083 see Annex ZH.		N/A
25.1	Add: Plugs and pins for insertion into socket outlets shall follow the relevant standards sheets in Annex ZH.		N/A
25.6	Delete the addition: ~~**Supply cords** of single-phase portable **appliances** having a **rated current** not exceeding 16 A shall be fitted with a plug complying with the following standard sheets of IEC/TR 60083.~~ ~~– for **class I appliances** standard sheet C2b, C3b or C4;~~ ~~– for **class II appliances** standard sheet C5 or C6.~~		N/A
25.25	Replace and add: Dimensions of the pins and engagement face of plugs of appliances that are inserted into socket-outlets are to be in accordance with the dimensions of the relevant plug standard. NOTE Z1 Common plugs and socket-outlets types in CENELEC countries as shown in Annex ZH.		N/A
32	Delete in the third paragraph “EN 50366 or”		N/A

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Variations to EN 60335-1:2012/ A2:2019			
7.10	Delete the paragraphs starting with “Devices used to start/stop….” until the end of the requirement “……by vulnerable persons.”. This includes Notes Z1 and Z2.		N/A
22.12	Delete Note Z1 Hazard includes ingestion or a choking hazard for **vulnerable people**.		N/A
24.Z1	Replacement Type S2 and S3 capacitors according to EN 60252-1 are not required to undergo the testing as required by 30.2.2 and 30.2.3.1.		P
25.7	Delete the existing text starting “Halogen free thermoplastic……..” until ”……..designation H07ZZ-F).		N/A

--- End of report ---

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