



Ref. Certif. No.

JPTUV-012166

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST  
CERTIFICATES FOR ELECTRICAL EQUIPMENT  
(IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE  
CERTIFICATS D'ESSAIS DES EQUIPEMENTS  
ELECTRIQUES (IECEE) METHODE OC

### CB TEST CERTIFICATE CERTIFICAT D'ESSAI OC

Product  
Produit

Room air conditioner indoor unit

Name and address of the applicant  
Nom et adresse du demandeur

Electra Air-conditioning (Shenzhen) Co., Ltd.  
2 WUHE AVENUE S.,  
BANTIAN, BUJI, Shenzhen,Guangdong, P.R. China

Name and address of the manufacturer  
Nom et adresse du fabricant

Electra Air-conditioning (Shenzhen) Co., Ltd.  
2 WUHE AVENUE S.,  
BANTIAN, BUJI, Shenzhen,Guangdong, P.R. China

Name and address of the factory  
Nom et adresse de l'usine

Electra Air-conditioning (Shenzhen) Co., Ltd.  
2 WUHE AVENUE S.,  
BANTIAN, BUJI, Shenzhen,Guangdong, P.R. China

Rating and principal characteristics  
Valeurs nominales et caractéristiques principales

AC 380-400V 3N; 50Hz; Class I  
1) 3120W, 2) 3160W  
Refrigerant: R22, R407C  
IP20 (Indoor unit only)  
ELECTRA

Trade mark (if any)  
Marque de fabrique (si elle existe)

1) KN-36SH, KN-36SH R407C  
2) KN-45SH, KN-45SH R407C

Model/type Ref.  
Ref. de type

For model differences, refer to the test report.

Additional information (if necessary)  
Information complémentaire (si nécessaire)

A sample of the product was tested and found  
to be in conformity with  
Un échantillon de ce produit a été essayé et a été  
considéré conforme à la

IEC 60335-2-40:1995 + A1  
IEC 60335-1:1991 + A1 + A2

As shown in the Test Report Ref. No. which forms part  
of this Certificate  
Comme indiqué dans le Rapport d'essais numéro de  
référence qui constitue une partie de ce Certificat

12011921 001

This CB Test Certificate is issued by the National Certification Body  
Ce Certificat d'essai OC est établi par l'Organisme National de Certification



TÜV Rheinland Group

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Signature:

Dipl.-Ing. M. Geiser

Date: 29.09.2005

**TEST REPORT****IEC 60335-2-40**

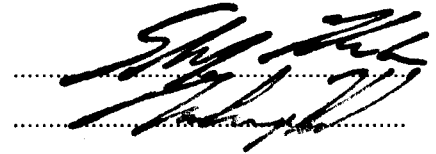
**Safety of household and similar electrical appliances**  
**Part 2: Particular requirements for electrical heat pumps, air-conditioners and dehumidifiers**

Report Reference No.....: 12011921 001

Compiled by (+ signature) .....: S. Kischka

Approved by (+ signature) .....: M. Kera

Date of issue.....: 2005-09-13



CB Testing laboratory Name.....: TÜV Rheinland Japan Ltd., Yokohama Laboratory

Address.....: 4-25-2 Kita-Yamata, Tsuzuki-ku, Yokohama 224-0021, Japan

Testing location/procedure.....: CBTL  SMT  TMP 

Address.....: Same as above

Applicant's Name.....: Electra Air-Conditioning (Shenzhen) Co.,Ltd.

Address.....: 2 Wuhe Avenue S., Bantian, Buji, Shenzhen, Guangdong, P. R. China

## Test specification

Standard .....: IEC 60335-2-40:1995 + A1:2000 used in conjunction with  
IEC 60335-1:1991 + A1:1994 + A2:1999

Test procedure .....: CB

Non-standard test method.....: N.A.

Test Report Form No.....: IEC60335\_2\_40C

TRF originator.....: AENOR

Master TRF.....: Dated 2002-02

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Test item description .....: Room air conditioner indoor unit

Trademark .....: ELECTRA

Model and/or type reference.....: KN-36SH, KN-45SH  
KN-36SH R407C, KN-45SH R407C

Manufacturer.....: Same as applicant

Factory.....: Same as applicant

Rating(s) .....: 380-400V 3N~ 50Hz

Rated Power input: see rating label for details

Refrigerant: R22, R407C

IP20

**Copy of the marking plate:**

Refrigerant: R22

|                |                      |                |                           |
|----------------|----------------------|----------------|---------------------------|
| <b>ELECTRA</b> | <b>MODEL:KN-36SH</b> |                |                           |
| PROD NO.:      | Fuse: 25 A(G)        |                |                           |
| TYPE:          | COS $\phi$ =0.95     |                |                           |
| 380-400V~ 50Hz | IP20                 | Rev.A          | Dehumidification: 4.0 l/h |
| R22            | Prated: 3120 W       | PS: 4.4MPa     | Ps: 0.6MPa                |
|                | Ph: 3000 W           | Temp.Class: T1 | Weight: 48 kg             |

|                |                      |                |                           |
|----------------|----------------------|----------------|---------------------------|
| <b>ELECTRA</b> | <b>MODEL:KN-45SH</b> |                |                           |
| PROD NO.:      | Fuse: 30 A(G)        |                |                           |
| TYPE:          | COS $\phi$ =0.95     |                |                           |
| 380-400V~ 50Hz | IP20                 | Rev.A          | Dehumidification: 4.8 l/h |
| R22            | Prated: 3160 W       | PS: 4.4MPa     | Ps: 0.6MPa                |
|                | Ph: 3000 W           | Temp.Class: T1 | Weight: 48 kg             |

Refrigerant: R407C

|                |                            |                |                           |
|----------------|----------------------------|----------------|---------------------------|
| <b>ELECTRA</b> | <b>MODEL:KN-36SH R407C</b> |                |                           |
| PROD NO.:      | Fuse: 25 A(G)              |                |                           |
| TYPE:          | COS $\phi$ =0.95           |                |                           |
| 380-400V~ 50Hz | IP20                       | Rev.A          | Dehumidification: 4.0 l/h |
| R407C          | Prated: 3120 W             | PS: 4.4MPa     | Ps: 0.6MPa                |
|                | Ph: 3000 W                 | Temp.Class: T1 | Weight: 48 kg             |

|                |                            |                |                           |
|----------------|----------------------------|----------------|---------------------------|
| <b>ELECTRA</b> | <b>MODEL:KN-45SH R407C</b> |                |                           |
| PROD NO.:      | Fuse: 30 A(G)              |                |                           |
| TYPE:          | COS $\phi$ =0.95           |                |                           |
| 380-400V~ 50Hz | IP20                       | Rev.A          | Dehumidification: 4.8 l/h |
| R407C          | Prated: 3160 W             | PS: 4.4MPa     | Ps: 0.6MPa                |
|                | Ph: 3000 W                 | Temp.Class: T1 | Weight: 48 kg             |

**Summary of testing**

1. All tests performed on models KN-36SH, KN-45SH to represent other similar models.
2. Input test, heating test and abnormal tests made in a test chamber, which can imitate the most severe condition in normal use.

**Test items particulars**

Serial Number ..... : Prototype samples

Additional information..... : N(.A.)

..... :

..... :

**Test case verdicts**

Test case does not apply to the test object ..... : N(.A.)

Test item does meet the requirement..... : P(ass)

Test item does not meet the requirement ..... : F(ail)

**Testing**

Date of receipt of test item ..... : 2005-05-11

Date(s) of performance of test..... : 2005-07-11—2005-07-23

**General remarks**

**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 IEC 60335-1.**

This test report shall not be reproduced except in full, without the written approval of the issuing testing laboratory.

Clause numbers between brackets refer to clauses in IEC 60335-1

"(see Enclosure #)" refers to an additional information appended to the report.

"(see appended table)" refers to a table appended to the report.

Throughout this report a comma is used as the decimal separator.

**General product information:**

- The appliances are indoor unit only, it can be mounted on the ceiling.
- The unit is supplied permanently connected to fixed wiring.
- The test was performed with a connection to representative outdoor unit;
- The appliances are equipped with supplementary heater.
- The equipment is equipped with an infrared wireless battery powered remote control unit.

**Model description:**

KN-(Suffix 1)SH(Suffix 2)

Suffix 1: can be 36, 45, the size of heating exchanger and external enclosure are different, by which different capacity are achieved;

Suffix 2: can be blank(R22), R407C, indicates different refrigerant is used;

**Model list:**

| No. | Model name    | Rated Voltage     | Rated input | Refrigerant |
|-----|---------------|-------------------|-------------|-------------|
| 1   | KN-36SH       | 380-400V 3N~ 50Hz | 3120W       | R22         |
| 2   | KN-45SH       | 380-400V 3N~ 50Hz | 3160W       | R22         |
| 3   | KN-36SH R407C | 380-400V 3N~ 50Hz | 3120W       | R407C       |
| 4   | KN-45SH R407C | 380-400V 3N~ 50Hz | 3160W       | R407C       |

| IEC 60335-2-40 |   |   |         |
|----------------|---|---|---------|
| Clause         | Requirement - Test  | Result - Remark   | Verdict |
| <b>4</b>       | <b>GENERAL NOTES ON TESTS</b>   |   | P       |
|                | Tests performed according to Cl. 4, e.g. nature of supply, sequence of testing, etc.                            |   | P       |
| 4.6            | Appropriate controls rendered inoperative during the test (IEC 60335-2-40:1995)                                 |   | P       |
| 4.101          | Motor-compressors comply with IEC 60335-2-34 (IEC 60335-2-40:1995)  | Indoor part   | N       |
|                | Motor-compressors subjected to the relevant test (IEC 60335-2-40:1995)  |   | N       |
| <b>6</b>       | <b>CLASSIFICATION</b>   |   | P       |
| 6.1            | Protection against electric shock: Class I, II, III   | Class I   | P       |
| 6.2            | Protection against harmful ingress of water, IP degree in accordance with IEC 529 (IEC 60335-2-40:1995)         | IP20  | N       |
|                | Appliances for outdoor use (IEC 60335-2-40:1995)  |   | N       |
|                | Appliances for indoor use (IEC 60335-2-40:1995)   | IP20  | P       |
|                | Appliances for laundry rooms (IEC 60335-2-40:1995)  | Warning: "the appliance shall not be installed in the laundry" is stated on user manual   | N       |
| 6.101          | Degree of accessibility (accessible/not accessible to the general public (IEC 60335-2-40:1995)                  | Accessible to general public, but intended to be technically maintained (except for air filter cleaning) only by qualified service personnel. | P       |
| <b>7</b>       | <b>MARKING</b>  |   | P       |
| 7.1            | Rated voltage or voltage range (V) .....  | 380-400V  | P       |
|                | Symbol for nature of supply including number of phases, unless for single phase operation (IEC 60335-2-40:1995) | 3N~   | P       |
|                | Rated frequency or frequency range (Hz) .....   | 50Hz  | P       |
|                | Rated input or rated current  | See rating label.   | P       |
|                | Manufacturer's or responsible vendor's name, trademark or identification mark                                   | ELECTRA   | P       |
|                | Model or type reference   | See rating label  | P       |
|                | Symbol for Class II   | Class I appliance   | N       |
|                | Symbol for degree of protection against ingress of water, other than IPX0 (IEC 60335-2-40:1995)                 | IP20  | N       |
|                | Mass of the refrigerant or of each refrigerant in a blend (except for azeotropic type (IEC 60335-2-40:1995)     |   | N       |
|                | Refrigerant identification (IEC 60335-2-40:1995)  | R22, R407C  | P       |

| IEC 60335-2-40 |  |  |         |
|----------------|--|--|---------|
| Clause         | Requirement - Test   | Result - Remark  | Verdict |
|                | Permissible excessive operating pressure in pascals for sanitary hot water heat pumps (IEC 60335-2-40:1995)              |  | N       |
|                | Excessive operating pressure of the refrigerant circuit for suction and discharge, if they differ (IEC 60335-2-40:1995)  | Specified on rating label  | P       |
|                | The maximum operating pressure for the heat exchanger (IEC 60335-2-40/A1:2000)   |  | P       |
|                | Separate marking of the appliances with all the rated characteristics of the supplementary heaters (IEC 60335-2-40:1995) |  | P       |
|                | Marking of the direction of the fluid flow (IEC 60335-2-40:1995)   |  | N       |
| 7.2            | Warning for stationary appliances  | Single supply  | N       |
|                | Warning placed in vicinity of terminal cover   |  | N       |
| 7.3            | Range of rated values correctly marked   | Single voltage (range) supply.   | N       |
| 7.4            | Voltage setting clearly discernible  | Single voltage (range) supply.   | N       |
| 7.5            | Marking of rated input for each rated voltage  | Single voltage (range) supply.   | N       |
|                | Marking for upper and lower limits of rated input  |  | N       |
| 7.6            | Correct symbols used   | (see sub-clause 7.1)   | P       |
| 7.7            | Correct connection diagram, fixed to the appliance   | Near the terminal  | P       |
| 7.8            | Not for type Z attachment:   |  | P       |
|                | - marking of terminals for the neutral conductor (N)   | Neutral conductor terminal marked with letter 'N'.   | P       |
|                | - marking of earthing terminals  | Protective earthing terminals in indoor and outdoor unit are marked with symbol IEC60417 No. 4019 besides the terminals. | N       |
|                | - marking not placed on removable parts  | Marking of earthing terminals is applied by embossing into metal.  | P       |
|                | - marking of terminal for single-pole protective device  |  | N       |
| 7.9            | Marking or placing of switches which may cause a hazard  |  | N       |
| 7.10           | Indications of switches and regulating devices by use of figures, letters or other                                       |  | N       |
|                | The figure 0 indicates only OFF position, unless no confusion with the OFF position                                      |  | N       |

| IEC 60335-2-40 |   |                                       |         |
|----------------|---|---------------------------------------|---------|
| Clause         | Requirement - Test  | Result - Remark                       | Verdict |
| 7.11           | Indication for direction of adjustment of controls  |                                       | P       |
| 7.12           | Instructions for safe use provided  |                                       | P       |
|                | Classification of 6.101 included, for appliances not accessible to general public (IEC 60335-2-40:1995)   |                                       | N       |
| 7.12.1         | Sufficient details for installation or maintenance supplied:  | Provided.                             | P       |
|                | - national wiring regulations for installation (IEC 60335-2-40:1995)  | Provided.                             | P       |
|                | - dimensions of space for installation (IEC 60335-2-40:1995)  |                                       | P       |
|                | - wiring diagram (IEC 60335-2-40:1995)  | Stuck on the inner side of top cover. | P       |
|                | - range of external static pressures (only heat pumps and appliances with electric resistance heaters) (IEC 60335-2-40:1995)                          |                                       | P       |
|                | - minimum clearance from appliances with supplementary heaters to combustible surfaces (IEC 60335-2-40:1995)  |                                       | P       |
|                | - indication of suitable parts for outdoor use (IEC 60335-2-40:1995)  |                                       | N       |
|                | - method of connection to the electrical supply and interconnection of separate components (IEC 60335-2-40:1995)                                      |                                       | P       |
|                | - type and rated characteristics of fuses (IEC 60335-2-40:1995)   | T 3,15A/250VAC                        | P       |
|                | - details of supplementary heating elements, including fitting instructions (IEC 60335-2-40:1995)   |                                       | P       |
|                | - maximum and minimum water or brine operating temperatures (IEC 60335-2-40:1995)   |                                       | N       |
|                | - maximum and minimum water or brine operating pressures (IEC 60335-2-40:1995)  |                                       | N       |
|                | - indication of open water storage tanks (IEC 60335-2-40:1995)  |                                       | N       |
| 7.12.2         | Means for disconnection with contact separation at least 3 mm or instruction regarding means of disconnection in the fixed wiring (IEC 60335-1/A2:99) | Specified on installation manual.     | P       |
| 7.12.3         | Insulation in contact with parts exceeding 50 K; instruction  |                                       | N       |
| 7.12.4         | Information with regard to building-in:   | Ceiling mounted.                      | N       |
|                | - dimensions of space   |                                       | N       |
|                | - dimensions and position of support  |                                       | N       |



| IEC 60335-2-40 |   |   |          |
|----------------|---|---|----------|
| Clause         | Requirement - Test  | Result - Remark   | Verdict  |
|                | - ventilation openings  |   | N        |
|                | - connection/interconnection plug accessible  |   | N        |
| 7.12.5         | Replacement cord, type X attachment   | Fixed wiring  | N        |
|                | Replacement cord, type Y attachment   |   | N        |
|                | Replacement cord, type Z attachment   |   | N        |
| 7.13           | Instructions and other texts in official language   | In English  | P        |
| 7.14           | Marking easily legible and durable  | Polyester film labels are used for both rating labels. Other labeling/marketing also provided in a reliable manner. | P        |
| 7.15           | Marking on a main part  |   | P        |
|                | Marking clearly discernible from outside  | On the right side of enclosure and are visible after installation from the outside.                                 | P        |
|                | Stationary appliance: name or trademark and model or type reference visible after installation                | Rating label includes trademark and type number.  | P        |
|                | Indication for switches and controls in vicinity of components; not on removable parts if misleading          |   | P        |
| 7.16           | Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link | Fuse on PCB for indoor unit and outdoor unit. Type and rating is indicated besides the fuse holder.                 | P        |
| 7.101          | Marking of fuses and overload protective devices, if replaceable (IEC 60335-2-40:1995):                       |   | P        |
|                | - fuse rated current in amperes, type and rated voltage (IEC 60335-2-40:1995)                                 | T 3,15A 250VAC  | P        |
|                | - manufacturer and model of the overload protective device (IEC 60335-2-40:1995)                              |   | N        |
| 7.102          | Marking for connection with aluminium wire, if necessary (IEC 60335-2-40:1995)                                | The use of aluminum wires is not intended.  | N        |
| <b>8</b>       | <b>PROTECTION AGAINST ACCESSIBILITY TO LIVE PARTS</b>   |   | <b>P</b> |
| 8.1            | Adequate protection against accidental contact with live parts  | (See respective sub-clauses)  | P        |
| 8.1.1          | All positions; detachable parts removed   | (See below)   | P        |

| IEC 60335-2-40 |   |   |         |
|----------------|---|---|---------|
| Clause         | Requirement - Test  | Result - Remark   | Verdict |
|                | <p>Installation only by authorised service personnel.</p> <p>Basic insulation is provided before installation is carried out.</p> <p>Test finger and test pin applied to all openings of indoor part after equipment was installed as described in installation manual.</p> <p>The evaporator is connected to earth, no bare live parts accessible through openings in the enclosure.</p> <p><b>Insulation System:</b></p> <ul style="list-style-type: none"> <li>- Basic insulation provided between earthed metal electrical box and live parts inside;</li> <li>- No bare live parts accessible through openings in the enclosure (earthed metal)</li> <li>- Remote control unit is supplied by 3V battery.</li> </ul> |   | -       |
|                | Removal of lamps: protection against contact with live parts  | No lamps  | N       |
|                | Use of test finger: no contact with live parts  |   | P       |
| 8.1.2          | Use of test pin: no contact with live parts   | No bare live parts are accessible with the test pin.  | N       |
|                | Test pin applied to openings in earthed metal enclosures having a coating such as enamel or lacquer (IEC 60335-1/A2:1999)   | No enamel or varnish coated metal enclosures.   | N       |
| 8.1.3          | Use of test probe: no contact with live parts of visible glowing heating elements   |   | N       |
| 8.1.4          | Accessible part not considered live if:   |   | P       |
|                | - extra-low a.c. voltage: peak values not exceeding 42,4 V  |   | N       |
|                | - extra-low d.c. voltage: not exceeding 42,4 V  | Remote controller   | P       |
|                | - or separated from live parts by protective impedance, d.c. current not exceeding 2 mA   |   | N       |
|                | - or separated from live parts by protective impedance, a.c. peak value not exceeding 0,7 mA  |   | N       |
|                | - for peak value 42,4 V up to and including 450 V capacitance not exceeding 0,1 $\mu$ F   |   | N       |
|                | - for peak value 450 V up to and including 15 kV capacitance not exceeding 0,1 $\mu$ F  |   | N       |
| 8.1.5          | Live parts protected at least by basic insulation before installation or assembly:  |   | P       |
|                | - built-in appliances   |   | N       |
|                | - fixed appliances  | Installation only by authorized service personnel. Basic insulation is provided before installation is carried out. | P       |

| IEC 60335-2-40 |  |  |          |
|----------------|--|--|----------|
| Clause         | Requirement - Test   | Result - Remark  | Verdict  |
|                | - separate units   |  | N        |
| 8.2            | Class II appliances and constructions adequately protected against accidental contact with basic insulation and metal parts separated from live parts with only basic insulation                                 |  | P        |
| <b>10</b>      | <b>POWER INPUT AND CURRENT</b>   |  | <b>P</b> |
| 10.1           | Power input at rated voltage and normal operating temperature not deviating from rated input by more than shown in table; measured power input (W); rated input (W); deviation .....                             | (see appended table)   | P        |
| 10.2           | Current at normal operating temperature not deviating from rated current by more than shown in table; measured current at rated voltage under normal operation (A); rated current (A); deviation .....           | Not marked on rating label.                                  | N        |
| <b>11</b>      | <b>HEATING</b>   |  | <b>P</b> |
| 11.1           | No excessive temperatures in normal use  |  | P        |
|                | Compliance is checked by the tests of Annex C, if (IEC 60335-2-40:1995):   | The insulation materials used in the motors are UL approved. | P        |
|                | - temperature of motor winding exceeds values shown in Table 3 (IEC 60335-2-40:1995)   |  | N        |
|                | - there is no doubt about the classification of the insulation system of the motor (IEC 60335-2-40:1995)   |  | P        |
| 11.2           | Placing and mounting of appliance (IEC 60335-2-40:1995):   |  | P        |
|                | - clearances to adjacent surfaces (IEC 60335-2-40:1995)  |  | P        |
|                | - static pressures, (IEC 60335-2-40:1995) except for fan coils where the flow rates and liquid temperatures, that shall be the maximum specified in the manufacturer's instruction (IEC 60335-2-40:1995+A1:2000) |  | P        |
|                | - adjustable limit controls set at the maximum cut-out setting and the minimum differential (IEC 60335-2-40:1995)  |  | P        |
|                | - flows (IEC 60335-2-40:1995)  |  | P        |
|                | For appliances with supplementary heaters, use test casing of 11.9 (IEC 60335-2-40:1995)   |  | P        |
|                | For appliances with supplementary heaters, an inlet duct is connected to the inlet air opening (IEC 60335-2-40:1995)   | No air inlet duct involved.                                  | N        |
|                | Air outlet duct if necessary (IEC 60335-2-40:1995)   |  | N        |

| IEC 60335-2-40 |  |   |          |
|----------------|--|---|----------|
| Clause         | Requirement - Test   | Result - Remark   | Verdict  |
| 11.3           | Temperature rises determined by thermocouples or resistance method   | Temperature rises of fan motor was determined by the resistance method. For all other parts the thermocouple method was used. | P        |
| 11.4           | Test performed at supply voltage between 0,94 and 1,06 times the rated voltage (IEC 60335-2-40:1995)   | 244V is considered as the most severe voltage   | P        |
|                | Heating appliances operated under normal operation at 1,15 times rated power input   |   | N        |
| 11.5           | Test conducted in the heating mode and in the cooling mode, if both exist (IEC 60335-2-40:1995)  |   | P        |
|                | All the supplementary heating elements operative simultaneously (IEC 60335-2-40:1995)  |   | P        |
| 11.6           | Defrost test in the most unfavourable conditions, if needed (IEC 60335-2-40:1995)  | Indoor unit   | N        |
| 11.7           | Appliances operated continuously until steady conditions except for defrost tests (IEC 60335-2-40:1995)  |   | P        |
| 11.8           | Monitored temperatures not exceeding the values of Table 3 (IEC 60335-2-40:1995)   | (See appended table)  | P        |
|                | Protective devices do not operate  |   | P        |
|                | Sealing compound not flowing out   |   | P        |
|                | Temperature of the air in the outlet duct not exceeding 90 °C (IEC 60335-2-40:1995)  |   | N        |
| 11.9           | Test casing and installation of the rest of the appliances in accordance with the manufacturer's instructions (IEC 60335-2-40:1995)  | Test casing was used.   | P        |
|                | Glass fibre insulation for appliances without indication of minimum clearances according to the manufacturer; thermocouple in contact with the enclosure (IEC 60335-2-40:1995) |   | N        |
| <b>13</b>      | <b>LEAKAGE CURRENT</b>   |   | <b>P</b> |
| 13.1           | Leakage current not excessive and electric strength adequate   |   | P        |
| 13.2           | Leakage current measured by means of circuit described in Annex G (IEC 60335-2-40:1995)  |   | P        |
|                | Leakage current measurements   | (See appended table)  | P        |
| 13.3           | Electric strength test of insulation. See Note in Interpretation Sheet I-SH 02, August 1994  | (See appended table)  | P        |
|                | No breakdown during the test   |   | P        |
| <b>15</b>      | <b>MOISTURE RESISTANCE</b>   |   | <b>P</b> |

| IEC 60335-2-40 |   |                                       |          |
|----------------|---|---------------------------------------|----------|
| Clause         | Requirement - Test  | Result - Remark                       | Verdict  |
| 15.1           | Enclosure provides the degree of moisture protection against the ingress of water (rain, overflow from the drain pan of defrosting, tests of 15.2, 15.3, 11.6 and Cl. 16) (IEC 60335-2-40:1995) | Performed<br>See also clause 16       | P        |
|                | Motor-compressor not operated and detachable parts not removed during 15.2 and 15.3 (IEC 60335-2-40/A1:2000)  |                                       | N        |
|                | After test, water inside the enclosure has not reduced the creepage distances and clearances below the values of Cl. 29 (IEC 60335-2-40:1995)   |                                       | P        |
| 15.2           | Tests in accordance with IEC 529 in appliances other than IPX0, as specified (IEC 60335-2-40:1995)  | IP20                                  | N        |
| 15.3           | Spillage of liquid does not affect the electrical insulation (IEC 60335-2-40:1995)  |                                       | P        |
| 15.4           | Spillage test according to IEC 60335-2-40/A1:2000   |                                       | N        |
| <b>16</b>      | <b>LEAKAGE CURRENT AND ELECTRIC STRENGTH</b>  |                                       | <b>P</b> |
| 16.1           | No excessive leakage current and adequate insulation and electric strength (tests 16.2 and 16.3)  |                                       | P        |
| 16.2           | Leakage current measurements (IEC 60335-2-40:1995)  | (See appended table)                  | P        |
| 16.3           | Electric strength tests (values in table 5). See Note in Interpretation Sheet I-SH 02, August 1994  | (See appended table)                  | P        |
| <b>17</b>      | <b>OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS</b>  |                                       | <b>P</b> |
|                | No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use  |                                       | P        |
|                | Appliance supplied with 1,06 or 0,94 times rated voltage and the most unfavourable short-circuit or overload likely to occur in normal use applied  | (See appended table)                  | P        |
|                | Temperature rise of insulation of the conductors of safety extra-low voltage circuits not exceeding the relevant value specified in table 3 by more than 15 K                                   | No safety extra-low voltage circuits. | N        |
|                | Temperature of the winding not exceeding the value specified in table 6   |                                       | P        |
|                | Except fail-safe transformer complying 15.5 of IEC 61558-1 (IEC 60335-1/A2:1999)  |                                       | N        |
| <b>19</b>      | <b>ABNORMAL OPERATION</b>   |                                       | <b>P</b> |
| 19.1           | The risk of fire or mechanical damage or electric shock under abnormal or careless operation obviated (tests 19.2-19.14) (IEC 60335-2-40:1995)  |                                       | P        |

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|----------------|--|------------------------|---------|
| Clause         | Requirement - Test   | Result - Remark        | Verdict |
|                | 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 60335-2-40:1995) |                        | P       |
| 19.2           | Test of appliance with motor rotors, other than motor-compressors, operated for 15 days (360 h) or until a protection device opens the circuit (IEC 60335-2-40:1995)   |                        | P       |
|                | Insulation of motor windings (IEC 60335-2-40:1995) .....   | (See appended table)   | P       |
|                | Temperature of enclosure does not exceed (°C) (IEC 60335-2-40:1995) .....  | (See appended table)   | P       |
|                | Temperature of the windings does not exceed the values shown in the table; temperature (°C) (IEC 60335-2-40:1995) .....  | (See appended table)   | P       |
|                | Electric strength test as specified in 16.3, 72 h after the beginning of the test (IEC 60335-2-40:1995)  | (See appended table)   | P       |
|                | A 30 mA residual current device does not open (IEC 60335-2-40:1995)  |                        | P       |
|                | At the end, the leakage current between the windings and the enclosure does not exceed 2 mA (IEC 60335-2-40:1995)  |                        | P       |
| 19.3           | Motor-compressor complies with IEC 60335-2-34 (IEC 60335-2-40:1995) .....  |                        | N       |
|                | Test of the motor-compressor with the rotor locked as specified in 19.3 of IEC 60335-2-34 (IEC 60335-2-40:1995)  |                        | N       |
| 19.4           | Test of three-phase motors operated under the conditions of Cl. 11 with one phase disconnected until steady conditions (IEC 60335-2-40:1995)   | Single phase fan motor | N       |
| 19.5           | Test of appliance with heat transfer medium flow of the outdoor heat exchanger restricted or shut off when reaching steady conditions (IEC 60335-2-40:1995)  |                        | N       |
|                | Test of appliance with heat transfer flow of the indoor heat exchanger restricted or shut off when reaching steady conditions (IEC 60335-2-40:1995)  |                        | P       |
|                | Disconnection of the motor common to both the outdoor and the indoor heat exchangers when reaching steady conditions (IEC 60335-2-40:1995)   |                        | N       |
| 19.6           | Test of appliances using water as heat transfer medium (IEC 60335-2-40:1995)   |                        | N       |

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|----------------|---|--|---------|
| Clause         | Requirement - Test  | Result - Remark  | Verdict |
| 19.7           | The test of air to air appliances at rated voltage or at the upper limit of the rated voltage range. The dry-bulb temperature is 5 K below the values specified by the manufacturer (IEC 60335-2-40:1995)           | 11°C   | P       |
|                | Test with the dry-bulb temperature 10 K over the values specified by the manufacturer (IEC 60335-2-40:1995)   | 42°C   | P       |
| 19.8           | Test of appliances with supplementary electric heaters (IEC 60335-2-40:1995)  | Test was performed and no hazard occurred.                     | P       |
| 19.9           | Test at a temperature permitting continuous operation of the motor-compressor and the electric heating elements at the same time (IEC 60335-2-40:1995)  |  | N       |
| 19.10          | Test of the appliance with any defect which may be expected during normal use (IEC 60335-2-40:1995)   |  | P       |
| 19.11          | Electronic circuits, compliance checked by evaluation of the fault conditions specified in 19.11.2 for all circuits or parts of circuits, unless they comply with the conditions specified in 19.11.1               |  | P       |
|                | Windings temperature not exceeding values shown in Table 6 (IEC 60335-2-40:1995)  |  | P       |
|                | Appliance shall comply with the conditions of 19.14 (IEC 60335-2-40:1995)   |  | P       |
|                | Appliance withstands the test: a conductor becomes open circuited and three conditions are met (IEC 60335-2-40:1995)  |  | P       |
| 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 the following conditions:  |  | N       |
|                | - the electronic circuit is a low-power circuit, that is, the maximum power at low-power points does not exceed 15 W according to the tests specified   |  | N       |
|                | - the protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction in other parts of the appliance does not rely on the correct functioning of the electronic circuit                 |  | N       |
| 19.11.2        | Fault conditions applied one at a time, the appliance operated under conditions specified in Cl. 11, but supplied at rated voltage, the duration of the tests as specified:   |  | P       |
|                | a) short circuit of creepage distances and clearances between live parts of different potential, if these distances are less than the values specified in 29.1, unless the relevant part is adequately encapsulated | The Cl/Cr measured not less than the values specified in 29,1. | N       |
|                | b) open circuit at the terminals of any component   | (See appended table)   | P       |

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|----------------|--|---|---------|
| Clause         | Requirement - Test   | Result - Remark                             | Verdict |
|                | c) short circuit of capacitors, unless they comply with IEC 60384-14 or 14.2 of IEC 60065  | (See appended table)                        | P       |
|                | d) short circuit of any two terminals of an electronic component, other than integrated circuits. This fault condition is not applied between the circuits of an optocoupler   | (See appended table)                        | P       |
|                | e) failure of triacs in the diode mode   |   | N       |
|                | f) failure of an integrated circuit. In this case the possible hazardous situations of the appliance are assessed to ensure that safety does not rely on the correct functioning of such a component   |   | N       |
|                | Short-circuit of low-power circuits (IEC 60335-2-40:1995)  |   | N       |
|                | The duration of the tests (IEC 60335-2-40:1995):   |   | P       |
|                | - as specified in 11.7 but only for one operating cycle (in case the fault cannot be recognised by user) IEC 60335-2-40:1995)  |   | N       |
|                | - as specified in 19.2, if fault can be recognised by user (IEC 60335-2-40:1995)   |   | P       |
|                | - until steady conditions are established (IEC 60335-2-40:1995)  |   | N       |
|                | Test ended if interruption of supply occurs within the appliance (IEC 60335-2-40:1995)   |   | P       |
|                | Fault condition f) applied to encapsulated or similar components (IEC 60335-2-40:1995)   |   | N       |
|                | PTC's, NTC's and VDR's resistors not short-circuited if used as specified by manufacturer (IEC 60335-2-40:1995)  |   | P       |
| 19.12          | If the safety of the appliance for any of the fault conditions specified in 19.11.2 depends on the operation of a miniature fuse-link complying with IEC 127, the test is repeated but with fuse-link replaced by an ammeter (IEC 60335-2-40:1995) | Fuse on PCB not operate in test of 19.11.2. | N       |
|                | Current $\leq 2,1$ times rated current of fuse-link, circuit not adequately protected (fuse-link short-circuited) (IEC-335-2-40:95)  |   | N       |
|                | Current $\geq 2,75$ times rated current of fuse-link, circuit adequately protected (IEC 60335-2-40:1995)   |   | N       |
|                | Current $\geq 2,1$ and $I \leq 2,75$ times rated current, fuse-link short-circuited and test carried out during specified time (IEC 60335-2-40:1995)   |   | N       |
| 19.13          | During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts   |   | P       |



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|----------------|--|-----------------------|---------|
| Clause         | Requirement - Test   | Result - Remark       | Verdict |
|                | Test for appliances with PTC heating elements (IEC 60335-2-40:1995)  |                       | N       |
| 19.14          | No flames, molten metal, poisonous or ignitable gas or deformed enclosures (IEC 60335-2-40:1995)   |                       | P       |
|                | Temperatures rise shall not exceed the values shown in Table 7 (IEC 60335-2-40:1995)   |                       | P       |
|                | The electric strength test, the test voltage being:  |                       | P       |
|                | - basic insulation: 1000 V   |                       | P       |
|                | - supplementary insulation: 2750 V   |                       | P       |
|                | - reinforced insulation: 3750 V  |                       | P       |
| 19.15          | Appliance with supplementary heaters and free air discharge subjected to the additional tests of (IEC 60335-2-40/A1:2000)                              |                       | P       |
|                | Appliance operated under conditions of clause 11 with temperature controls shorts-circuited and appliance covered as required (IEC 60335-2-40/A1:2000) |                       | P       |
|                | During the test the temperature rise not exceed 150°C (IEC 60335-2-40/A1:2000)   |                       | P       |
| <b>20</b>      | <b>STABILITY AND MECHANICAL HAZARDS</b>  |                       | P       |
| 20.1           | Adequate stability   | Fixed to the ceiling. | P       |
|                | Tilting test through an angle of 10 ° (appliance placed on an inclined plane/horizontal plane); appliance does not overturn                            |                       | N       |
|                | Tilting test repeated on appliances with heating elements, angle of inclination increased to 15 °  |                       | N       |
|                | Possible heating test in overturned position; temperature rise does not exceed values shown in Table 7   |                       | N       |
| 20.2           | Moving parts adequately arranged or enclosed as to provide protection against personal injury  |                       | P       |
|                | Protective enclosures, guards and similar parts are non-detachable   |                       | P       |
|                | Adequate mechanical strength and fixing of protective enclosures   |                       | P       |
|                | Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard, if unexpectedly reclosed                                      |                       | P       |
|                | Not possible to touch dangerous moving parts with test finger  |                       | P       |
| <b>21</b>      | <b>MECHANICAL STRENGTH</b>   |                       | P       |

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|----------------|---|--|----------|
| Clause         | Requirement - Test  | Result - Remark  | Verdict  |
|                | Appliance has adequate mechanical strength and is constructed as to withstand rough handling (safety requirements of ISO 5149 apply, IEC 60335-2-40:1995)   |  | P        |
|                | No damage after three blows applied to various parts of the enclosure, impact energy $0,5 \pm 0,04$ Nm  | Indoor unit: 3 blows applied to remote control window and operation panel. | P        |
|                | If necessary, supplementary or reinforced insulation subjected to the electric strength test of 16.3  |  | P        |
|                | If necessary, repetition of groups of three blows on a new sample   |  | N        |
| <b>22</b>      | <b>CONSTRUCTION</b>   |  | <b>P</b> |
| 22.1           | Appliance marked with the first numeral of the IP system: relevant requirements of IEC 529 are fulfilled  | IP20   | P        |
| 22.2           | Stationary appliance: means to provide all-pole disconnection from the supply provided, the following means being available:  |  | P        |
|                | - a supply cord fitted with a plug  |  | N        |
|                | - a switch complying with 24.3  |  | N        |
|                | - a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided  |  | P        |
|                | - an appliance coupler  |  | N        |
|                | Single-phase Class I appliance with heating elements, intended to be permanently connected to fixed wiring, incorporating single-pole switches or single-pole protective devices for the disconnection of the heating element(s): the switches/devices being connected in the phase conductor |  | P        |
| 22.3           | Appliance provided with pins: no undue strain on socket-outlets   |  | N        |
|                | Applied torque not exceeding 0,25 Nm  |  | N        |
| 22.4           | Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets  |  | N        |
| 22.5           | No risk of electric shock when touching the pins of the plug  |  | N        |
| 22.6           | Electrical insulation not affected by condensing water or leaking liquid  |  | P        |
|                | Electrical insulation of Class II appliances not affected in case of a hose rupture or seal leak  |  | N        |
|                | Electrical insulation not affected by snow penetration to the appliance enclosure (IEC 60335-2-40:1995)   | Indoor unit.   | N        |

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|----------------|---|---|---------|
| Clause         | Requirement - Test  | Result - Remark   | Verdict |
| 22.7           | Adequate safeguards against the risk of excessive pressure in appliances provided with steam-producing devices  | No over-pressure expected, which could lead to a hazardous situation. Refrigerant circuit is intrinsic pressure safe according to ISO 5149. See also clause 21. | P       |
| 22.8           | Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and which 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  |   | P       |
|                | Adequate insulating properties of oil or grease to which insulation is exposed  |   | N       |
| 22.10          | Location or protection of reset buttons of non-self-resetting controls is so that accidental resetting is unlikely  | No non-self-resetting controls  | N       |
| 22.11          | Reliable fixing of non-detachable parts which provide the necessary degree of protection against electric shock, moisture or contact with moving parts  |   | P       |
|                | Obvious locked position of snap-in devices used for fixing such parts   |   | N       |
|                | No deterioration of the fixing properties of snap-in devices used in parts which are likely to be removed during installation or servicing  |   | N       |
|                | Tests   |   | N       |
| 22.12          | Handles, knobs etc. fixed in a reliable manner  |   | N       |
|                | Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible  |   | N       |
|                | Axial force 15 N applied to parts, the shape of which being so that an axial pull is unlikely to be applied   |   | N       |
|                | Axial force 30 N applied to parts, the shape of which being so that an axial pull is likely to be applied   |   | P       |
| 22.13          | Unlikely that handles, when gripped as in normal use, make the operators hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only |   | N       |
| 22.14          | No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance   | No sharp edges. Corners are well rounded.   | P       |
|                | No exposed pointed ends of self tapping screws etc., liable to be touched by the user in normal use or during user maintenance  | Checked.  | P       |

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|----------------|---|--------------------------------------|---------|
| Clause         | Requirement - Test  | Result - Remark                      | Verdict |
| 22.15          | Storage hooks and the like for flexible cords smooth and well rounded   |                                      | N       |
| 22.16          | Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands, no undue wear of contacts       |                                      | N       |
|                | Cord reel tested with 6000 operations, as specified   |                                      | N       |
|                | Electric strength test of 16.3, voltage of 1000 V applied   |                                      | N       |
| 22.17          | Spacers not removable from the outside by hand or by means of a screwdriver or a spanner  |                                      | N       |
| 22.18          | Current-carrying parts and other metal parts resistant to corrosion under normal conditions of use  |                                      | P       |
| 22.19          | Driving belts not used as electrical insulation   |                                      | N       |
| 22.20          | Direct contact between live parts and thermal insulation effectively prevented, unless material used is non-corrosive, non-hygroscopic and non-combustible    |                                      | N       |
| 22.21          | Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material used as insulation, unless impregnated   | No such materials used as insulator. | P       |
| 22.22          | Asbestos not used in the construction of the appliance  |                                      | P       |
|                | Asbestos is used, but the liberation of dust of impregnated asbestos or of asbestos fibres into the surrounding air adequately prevented                      | No asbestos used.                    | N       |
| 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 60335-2-40:1995)                 |                                      | P       |
|                | Bare heating elements only used with metal enclosures (wood or composite enclosures not allowed) (IEC 60335-2-40:1995)  |                                      | P       |
| 22.25          | Sagging heating conductors cannot come into contact with accessible metal parts   |                                      | N       |
| 22.26          | The insulation between parts operating at safety extra-low voltage and other live parts complies with the requirements for double or reinforced insulation    | No SELV circuits employed            | N       |
| 22.27          | Parts connected by protective impedance separated by double or reinforced insulation  |                                      | N       |
| 22.28          | Metal parts of Class II appliances conductively connected to gas pipes or in contact with water: separated from live parts by double or reinforced insulation |                                      | N       |

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|----------------|--|--|---------|
| Clause         | Requirement - Test   | Result - Remark  | Verdict |
| 22.29          | Class II appliances permanently connected to fixed wiring so constructed that the required degree of protection against electric shock is maintained after installation            | Class I appliance.   | N       |
| 22.30          | Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or   | PCB cover is considered as supplementary insulation. Fixed with screw. Wiring in the indoor unit (thermistor sensor) applied as supplementary/ reinforced insulation. Reliable fixed | P       |
|                | so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete               |  | P       |
| 22.31          | Creepage distances and clearances over supplementary and reinforced insulation not reduced below values specified in 29.1 as a result of wear                                      |  | P       |
|                | Creepage distances and clearances over supplementary or reinforced insulation not reduced to less than 50% of values specified in 29.1 if wires, screws etc. becomes loose         |  | P       |
| 22.32          | Supplementary and reinforced insulation designed or protected against deposition of dirt or dust   |  | P       |
|                | Ceramic material not tightly sintered, similar material or beads alone not used as supplementary or reinforced insulation  |  | 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 29.1 |  | N       |
|                | Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature  |  | N       |
|                | See Note ("In case of doubt") (IEC 60335-1/A2:1999)  |  | N       |
| 22.33          | Conductive liquids which are or may become accessible in normal use are not in direct contact with live parts  |  | P       |
|                | Conductive liquids are not in direct contact with basic insulation or reinforced insulation in Class II constructions  | Condensing water cannot become in contact with basic or reinforced insulation  | P       |
|                | Conductive liquids in contact with live parts, not in direct contact with reinforced insulation in class II construction (IEC 60335-1/A2:1999)                                     |  | P       |
| 22.34          | Shafts of operating knobs, handles, levers etc. not live, unless the shaft is not accessible when the part is removed  |  | N       |

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|----------------|---|--------------------------------|---------|
| Clause         | Requirement - Test  | Result - Remark                | Verdict |
| 22.35          | Handles, levers and knobs, held or actuated in normal use, not becoming live in the event of an insulation fault  |                                | N       |
|                | Such parts being of metal, and their shafts or fixings are likely to become live in the event of an insulation fault, they are either adequately covered by insulation material, or their accessible parts are separated from their shafts or fixings by supplementary insulation |                                | N       |
|                | This requirement does not apply to handles, levers and knobs on stationary appliances other than those of electrical components, provided they are either reliably connected to an earthing terminal or earthing contact, or separated from live parts by earthed metal           |                                | N       |
| 22.36          | Handles continuously held in the hand in normal use are so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts, unless they are separated from live parts by double or reinforced insulation                                    |                                | N       |
| 22.37          | Capacitors in Class II appliances not connected to accessible metal parts, unless complying with 22.42  | Class I appliance.             | N       |
|                | Metal casings of capacitors in Class II appliances separated from accessible metal parts by supplementary insulation, unless complying with 22.42   |                                | N       |
| 22.38          | Capacitors not connected between the contacts of a thermal cut-out  |                                | P       |
| 22.39          | Lamp holders only used for the connection of lamps  | No lamp holder employed        | N       |
| 22.40          | Motor-operated appliances and combined appliances, intended to be moved while in operation, are fitted with a switch to control the motor   | Stationary appliance.          | N       |
| 22.41          | Mercury switches mounted according to the requirement   | Mercury switches not employed. | N       |
| 22.42          | Protective impedance consisting of at least two separate components   |                                | N       |
|                | Values specified in 8.1.4 not exceeded if any one of the components is short-circuited or open-circuited  |                                | N       |
| 22.43          | Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur   | Single supply voltage          | P       |
| 22.44          | Appliances shall not have an enclosure likely to be treated as a toy by children (IEC 60335-1/A2:1999 )   |                                | P       |
| 22.101         | Appliances intended to be fixed, securely fixed (IEC 60335-2-40:1995)   | Installation was explained     | P       |
| 22.102         | Double thermal cut-out in appliances with supplementary heating elements (the first one shall be a self-resetting and the other a non-self-resetting thermal cut-out) (IEC 60335-2-40:1995)   |                                | N       |

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|----------------|---|---|----------|
| Clause         | Requirement - Test  | Result - Remark   | Verdict  |
|                | Thermal cut-outs of the capillary type open in the event of leakage of the capillary tube (IEC 60335-2-40:1995)   |   | N        |
|                | Thermal cut-outs comply with 24.3 (switches) (IEC 60335-2-40:1995)  |   | N        |
|                | Thermal cut-outs operating in Cl. 19. shall be of the non-self-resetting type (IEC 60335-2-40:1995)   |   | N        |
| 22.103         | Non-self-resetting cut-outs independent of other control devices (IEC 60335-2-40:1995)  |   | N        |
| 22.104         | Containers of sanitary hot water heat pumps withstand twice the permissible pressure in closed containers or 0,15 MPa in open containers, without leakage or rupture (IEC 60335-2-40:1995)    |   | N        |
| 22.105         | Air or vapour cushion in closed containers not exceeding the 10% (IEC 60335-2-40:1995)  |   | N        |
| 22.106         | Pressure relief devices operating at 0,1 MPa over the permissible pressure (IEC 60335-2-40:1995)  |   | N        |
| 22.107         | Water outlet systems of open containers free from obstructions causing over-pressure (IEC 60335-2-40:1995)  |   | N        |
|                | Vented containers of sanitary hot water heat pumps always open to the atmosphere through appropriate aperture (IEC 60335-2-40:1995)   |   | N        |
| 22.108         | Not vented open containers are subjected to a test in accordance with 22.104 to a vacuum of 33 kPa for 15 min (IEC 60335-2-40:1995)   |   | N        |
| 22.109         | Replacement of non-self-resetting thermal cut-outs does not damage other connections (IEC 60335-2-40:1995)  |   | N        |
| 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 the enclosure (IEC 60335-2-40:1995) |   | N        |
|                | Test repeated five times without blowing a 3 A fuse which connects the appliance to earth (IEC 60335-2-40:1995)   |   | N        |
|                | Electric strength test as specified in 16.3 for supplementary heating elements (IEC 60335-2-40:1995)  |   | N        |
| 22.111         | Manual resetting of thermostats not necessary after power supply interruption (IEC 60335-2-40:1995)   |   | P        |
| <b>23</b>      | <b>INTERNAL WIRING</b>  |   | <b>P</b> |
| 23.1           | Wire ways smooth and free from sharp edges  | All wires are fixed together with cable ties and kept away from sharp edges | P        |

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| Clause         | Requirement - Test   | Result - Remark   | Verdict |
|                | Wires protected against contact with burrs, cooling fins etc.  | Wires to the fan are sufficiently protected by sleeving and fixed to metal parts, cannot come in contact with the blades of the fan   | P       |
|                | Wire holes in metal well rounded or provided with bushings   | Without wire hole in metal part   | N       |
|                | Wiring effectively prevented from coming into contact with moving parts  |   | P       |
| 23.2           | Beads etc. on live wires cannot change their position, and are not resting on sharp edges or corners                           |   | N       |
|                | Beads inside flexible metal conduits contained within an insulating sleeve   |   | N       |
| 23.3           | Electrical connections and internal conductors wiring movable relatively to each other not exposed to undue stress             |   | P       |
|                | Flexible metallic tubes not causing damage to insulation of conductors   |   | N       |
|                | Open-coil springs not used   |   | N       |
|                | Adequate insulating lining provided inside a coiled spring, the turns of which touch one another                               |   | N       |
|                | No damage after 10 000 flexings  |   | N       |
|                | Electric strength test, 1000 V between live parts and metal parts  |   | N       |
| 23.4           | Bare internal wiring sufficiently rigid and fixed  | No such bare internal wires except for PCB tracks and PCB-mounted components in indoor unit. All these components are adequately fixed. The applied insulation complies with international standards. | P       |
| 23.5           | The basic insulation of internal wiring withstanding the electrical stress likely to occur in normal use                       |   | P       |
|                | No breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation | Checked   | P       |
| 23.6           | Sleeving used as supplementary insulation on internal wiring retained in position by positive means                            |   | P       |
| 23.7           | Only the colour combination green/yellow used for earthing conductors  |   | P       |
| 23.8           | Aluminium wires not used for internal wiring   |   | P       |



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|----------------|--|---|---------|
| Clause         | Requirement - Test   | Result - Remark   | Verdict |
| 23.9           | No lead-tin soldering of stranded conductors where they are subject to contact pressure, unless  |   | P       |
|                | Clamping means so constructed that there is no risk of bad contact due to cold flow of the solder  |   | N       |
| <b>24</b>      | <b>COMPONENTS</b>  |   | P       |
| 24.1           | Components comply with safety requirements in relevant IEC standards   | Respective safety relevant components complying with international standards or equivalent national version. See appended table | P       |
|                | Motor-compressors not tested according to IEC 60335-2-34 (not necessary to meet all requirements of IEC 60335-2-34) (IEC 60335-2-40:1995)  |   | N       |
| 24.1.1         | Fixed capacitors for radio interference suppression, compliance with annex Q (IEC 60335-1/A2:1999)   |   | N       |
|                | Small lampholders: compliance with requirements for E10 lampholders  |   | N       |
|                | Isolating transformers and safety isolating transformers: compliance with IEC 61558-2-6 or comply with annex R (IEC 60335-1/A2:1999)   |   | N       |
|                | Appliance couplers for IPx0 appliances: compliance with IEC 60320  |   | N       |
|                | Other appliance couplers: compliance with IEC 309  |   | N       |
|                | Automatic controls: compliance with IEC 60730, unless tested with the appliance  | Thermal cut-outs are approved type  | P       |
|                | Switches: compliance with IEC 61058-1, unless tested with the appliance (IEC 60335-1/A2:1999)  |   | N       |
| 24.1.2         | Automatic controls complying with IEC 60730: additional tests according to this standard and 11.3.5 to 11.3.8 and Cl. 17 of IEC 60730 as type 1 controls (see number of cycles of operation IEC 60335-2-40:1995)                                 |   | N       |
| 24.1.3         | Switches tested under the conditions occurring in the appliance, comply with annex S (IEC 60335-1/A2:1999)   |   | N       |
|                | Switch tested separately according to IEC 61058-1 for 10 000 cycles of operation (IEC 60335-1/A2:1999)   |   | N       |
|                | Switches for no-load-operation and operable only with the aid of a tool, are not subjected to the tests of clauses of IEC 61058-1 This applies also to switches operated by hand, and with interlock for no-load-operation (IEC 60335-1/A2:1999) |   | N       |
|                | Switches without this interlock subjected to the test of Cl. 17.2.7 for 100 cycles of operation (IEC 60335-1/A2:1999)  |   | N       |

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|----------------|--|---|---------|
| Clause         | Requirement - Test   | Result - Remark   | Verdict |
| 24.1.4         | Components marked with their operating characteristics are used in the appliance in accordance with these markings   |   | P       |
|                | Component which have to comply with other standard is tested separately, according to the relevant standard  |   | P       |
|                | Component used within the limits of its marking, tested in accordance with conditions occurring in the appliance   |   | P       |
|                | Component not marked, or not used in accordance with its marking, or no IEC standard exists, tested under the conditions occurring in the appliance  |   | N       |
|                | Components not mentioned in table 3 tested as part of the appliance  |   | P       |
| 24.1.5         | 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   | All samples were tested with supplied voltage: 253V;<br>The maximum voltage across indoors fan capacitor: 323V; | P       |
|                | Capacitors for which 30.2.3. is applicable and permanently connected in series with a motor shall be class P1 or P2 of IEC 60252 (IEC 60335-1/A2:1999)   |   | P       |
|                | List of components   | (see appended table)  | P       |
| 24.2           | No switches or automatic controls in flexible cords  |   | P       |
|                | No devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance   |   | P       |
|                | No thermal cut-outs which can be reset by soldering  |   | P       |
| 24.3           | Switch intended for all-pole disconnection of stationary appliances is directly connected to the supply terminals, having a contact separation of at least 3 mm in each pole   |   | N       |
| 24.4           | Plugs and socket-outlets for heating elements and extra-low voltage circuits, not interchangeable with plugs and   |   | N       |
|                | socket-outlets or with connectors and appliance inlets complying with IEC 60083, IEC 60906-1 or IEC 60320, respectively  |   | N       |
| 24.5           | Plugs and socket-outlets etc. for interconnection cords, not interchangeable with plugs and socket-outlets or connectors and appliance inlets complying with IEC 60083 and IEC 60906-1 or IEC 60320, respectively, if direct supply from the mains could give rise to a hazard |   | N       |
| 24.6           | Motors connected to the supply mains and having inadequate basic insulation for the rated voltage of the appliance, comply with the requirements of Annex F  |   | N       |

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|----------------|---|---------------------|----------|
| Clause         | Requirement - Test  | Result - Remark     | Verdict  |
|                | The components are listed on an appended table  |                     | N        |
| 24.101         | Replaceable parts of thermal control devices identified by marking (IEC 60335-2-40:1995)  |                     | N        |
| <b>25</b>      | <b>SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS</b>  |                     | <b>P</b> |
| 25.1           | For connection to the supply, a supply cord fitted with a plug may be provided, if (IEC 60335-2-40:1995):   | Fixed wiring        | N        |
|                | - the appliance is only for indoor use (IEC 60335-2-40:1995)  |                     | N        |
|                | - it is marked with a rating of 25 A or less (IEC 60335-2-40:1995)  |                     | N        |
|                | - it complies with the code requirements of the country where it will be used (IEC 60335-2-40:1995)   |                     | N        |
|                | - pins for insertion into socket-outlets provided for connection to the supply (IEC 60335-2-40:1995)  |                     | N        |
|                | - appliance inlet not allowed (IEC 60335-2-40:1995)   |                     | N        |
| 25.2           | Appliance not provided with more than one means of connection to the supply   | Only one mean used. | P        |
|                | Stationary appliance for multiple supply may be provided with more than one means of connection, provided electric strength test of 1250 V for 1 min between each means of connection causes no breakdown |                     | N        |
| 25.3           | Connection of supply wires for appliance intended to be permanently connected to fixed wiring possible after the appliance has been fixed to its support  |                     | P        |
|                | Appliance provided with a set of terminals for the connection of cables or fixed wiring, cross-sectional areas specified in 26.3  |                     | P        |
|                | Appliance provided with a set of terminals allowing the connection of a flexible cord   |                     | P        |
|                | Appliance provided with a set of supply leads accommodated in a suitable compartment  |                     | N        |
|                | Appliance provided with a set of terminals and cable entries, conduit entries, knock-outs or glands, allowing connection of appropriate type of cable or conduit  |                     | N        |
| 25.4           | Cable and conduit entries, rated current of appliance not exceeding 16 A, dimension according to table 8  |                     | N        |
|                | Introduction of conduit or cable does not affect the protection against electric shock or reduce creepage distances and clearances below values specified in 29.1   |                     | N        |
| 25.5           | Method for assemble supply cord with the appliance:   |                     | N        |

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|----------------|---|--------------------|---------|
| Clause         | Requirement - Test  | Result - Remark    | Verdict |
|                | - type X attachment   | Fixed wiring       | N       |
|                | - type Y attachment   |                    | N       |
|                | - type Z attachment, if allowed in part 2   |                    | N       |
|                | Type X attachment: specially prepared cord  |                    | N       |
|                | Type X attachment not used for flat twin tinsel cord  |                    | N       |
| 25.6           | Plugs fitted with only one flexible cord  | Fixed wiring       | N       |
| 25.7           | Appliance supply cord not lighter than:   |                    | P       |
|                | - braided cord (245 IEC 51)   |                    | N       |
|                | - ordinary tough rubber sheathed cord (245 IEC 53)  |                    | N       |
|                | - flat twin tinsel cord (227 IEC 41)  |                    | N       |
|                | - light polyvinyl chloride sheathed cord (227 IEC 52),<br>appliance not exceeding 3 kg  |                    | N       |
|                | - ordinary polyvinyl chloride sheathed cord (227 IEC 53),<br>appliance exceeding 3 kg   | For power cord     | P       |
|                | Temperature rise of external metal parts exceeding<br>75 K, PVC cord not used   |                    | N       |
|                | PVC cord used: appliance so constructed that the<br>supply cord is not likely to touch external metal parts in<br>normal use              |                    | N       |
|                | PVC supply cord appropriate for higher temperatures,<br>type Y or type Z attachment used  |                    | N       |
|                | Supply cords for outdoor use not lighter than<br>polychloroprene sheathed flexible cord (design<br>245 IEC 57) (IEC 60335-2-40:1995)      |                    | N       |
| 25.8           | Nominal cross-sectional area of supply cords according<br>to table 9; rated current (A); cross-sectional area<br>(mm <sup>2</sup> ) ..... |                    | P       |
| 25.9           | Supply cord not in contact with sharp points or edges   |                    | P       |
| 25.10          | Green/yellow core for earthing purposes in Class I<br>appliance   |                    | P       |
| 25.11          | Conductors of supply cords not consolidated by lead-tin<br>soldering where they are subject to contact pressure,<br>unless                | No soldering used. | P       |
|                | Clamping means so constructed that there is no risk of<br>bad contacts due to cold flow of the solder                                     |                    | N       |
| 25.12          | Moulding the cord to part of the enclosure does not<br>damage the insulation of the supply cord   | No moulding used.  | N       |
| 25.13          | Inlet opening provided with a bushing, or is so<br>constructed, that there is no risk of damage to the<br>supply cord when introduced     |                    | N       |

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|----------------|--|----------------------|---------|
| Clause         | Requirement - Test   | Result - Remark      | Verdict |
| 25.13.1        | Inlet bushing so shaped as to prevent damage to the supply cord  |                      | N       |
|                | Inlet bushing not detachable   |                      | N       |
| 25.13.2        | At inlet openings, the insulation between the conductor of a supply cord and the enclosure of the appliance is consisting of the insulation of the conductor, and in addition: |                      | N       |
|                | - for Class 0 appliances: at least one separate insulation   |                      | N       |
|                | - for other appliances: at least two separate insulations  |                      | N       |
|                | Only one separate insulation is required if the enclosure at the inlet opening is of insulating material   |                      | N       |
|                | The separate insulation consists of:   |                      | N       |
|                | - the sheath of a supply cord at least equivalent to that of a cord complying with IEC 227 or 245  |                      | N       |
|                | - a lining or bushing of insulating material complying with the requirements of 29.2 for supplementary insulation  |                      | N       |
| 25.14          | Supply cords adequately protected against excessive flexing  | Stationary appliance | N       |
|                | Flexing test; applied force (N); number of flexings :  |                      | N       |
|                | The test does not result in:   |                      | N       |
|                | - short circuit between the conductors   |                      | N       |
|                | - breakage of more than 10% of the strands of any conductor  |                      | N       |
|                | - separation of the conductor from its terminal  |                      | N       |
|                | - loosening of any cord guard  |                      | N       |
|                | - damage, within the meaning of the standard, to the cord or the cord guard  |                      | N       |
|                | - broken strands piercing the insulation and becoming accessible   |                      | N       |
| 25.15          | Conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorages  |                      | 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 10: pull (N); torque (not on automatic cord reel) (Nm) ..... :  | 100N; 0,35Nm         | P       |
|                | Max. 2 mm displacement of the cord, and conductors not moved more than 1 mm in the terminals   |                      | P       |

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|----------------|---|-----------------|---------|
| Clause         | Requirement - Test  | Result - Remark | Verdict |
|                | Creepage distances and clearances not reduced below values specified in 29.1  |                 | P       |
| 25.16          | Cord anchorages for type X attachments so constructed and located that:   |                 | N       |
|                | - replacement of the cord is easily possible  |                 | N       |
|                | - it is clear how the relief from strain and the prevention of twisting are obtained  |                 | N       |
|                | - they are suitable for different types of cord   |                 | N       |
|                | - cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless separated from   |                 | N       |
|                | - accessible metal parts by supplementary insulation  |                 | N       |
|                | - the cord is not clamped by a metal screw which bears directly on the cord   |                 | N       |
|                | - at least one part of the cord anchorage securely fixed to the appliance, unless part of a specially prepared cord   |                 | N       |
|                | - screws which have to be operated when replacing the cord do not fix any other component, if applicable  |                 | N       |
|                | - if labyrinths can be bypassed the test of 25.15 is nevertheless withstood   |                 | N       |
|                | - for Class 0, 0I and I appliances: they are of insulating material or are provided with an insulating lining, unless a failure of the insulation of the cord does not make accessible metal parts live |                 | N       |
|                | - for Class II appliances: they are of insulating material, or if of metal, they are insulated from accessible metal parts by supplementary insulation  |                 | N       |
| 25.17          | Adequate cord anchorages for type Y and Z attachment  | Fixed wiring    | N       |
| 25.18          | Cord anchorages only accessible with the aid of a tool,   |                 | P       |
|                | or so constructed that the cord only can be fitted with the aid of a tool   |                 | P       |
| 25.19          | Type X attachment, glands not used as cord anchorage in portable appliances   |                 | N       |
|                | Tying the cord into a knot or tying the cord with string not used   |                 | N       |
| 25.20          | Conductors of the supply cord for type Y and Z attachment adequately additionally insulated   | Fixed wiring    | N       |

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|----------------|---|--|----------|
| Clause         | Requirement - Test  | Result - Remark                                  | Verdict  |
| 25.21          | Space for supply cable for fixed wiring or supply cord for type X attachment constructed to permit checking of conductors with respect to correct positioning and connection before fitting any cover, no risk of damage, no contact with accessible metal parts if a conductor becomes loose, etc. |  | P        |
|                | For portable appliances, the uninsulated end of a conductor prevented from any contact with accessible metal parts, unless the end of the cord is such that the conductors are unlikely to slip free  |  | N        |
| 25.22          | Appliance inlet:  |  | N        |
|                | - live parts not accessible during insertion or removal   |  | N        |
|                | - connector can be inserted without difficulty  |  | N        |
|                | - the appliance is not supported by the connector   |  | N        |
|                | - is not for cold conditions if temp. rise of external metal parts exceeds 75 K, unless the supply cord is not likely to touch such metal parts   |  | N        |
| 25.23          | Interconnection cords comply with the requirements for the supply cord, except as specified   |  | N        |
|                | If necessary, electric strength test of 16.3  |  | N        |
| 25.24          | Accessible metal parts not live when detachable interconnection cords are disconnected  |  | N        |
| 25.25          | Interconnection cords not detachable without the aid of a tool  |  | N        |
| <b>26</b>      | <b>TERMINALS FOR EXTERNAL CONDUCTORS</b>  |  | <b>P</b> |
| 26.1.1         | Appliances with type X attachment and appliances for connection to fixed wiring provided with terminals in which connection is made by means of screws, nuts or equally effective devices   | Screws used.                                     | P        |
|                | Screws and nuts serve only to clamp supply conductors, except   |  | P        |
|                | internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors   |  | N        |
| 26.1.2         | For type X attachment soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone  | No soldering method used for external conductors | N        |
|                | Soldering alone used, barriers provided, creepage distances and clearances satisfactory if the conductor becomes free   |  | N        |
|                | For type Y and Z attachment: soldered, welded, crimped and similar connections used   | Fixed wiring                                     | N        |

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| Clause         | Requirement - Test  | Result - Remark | Verdict |
|                | For Class II appliances: the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone   |                 | N       |
|                | For Class II appliances: soldering, welding or crimping alone used, barriers provided, creepage distances and clearances satisfactory if the conductor becomes free   |                 | N       |
| 26.2           | Terminals for type X attachment and for connection to fixed wiring suitable for connection of conductors with required cross-sectional area according to table 11; rated current (A); nominal cross-sectional area (mm <sup>2</sup> ):          |                 | P       |
|                | Terminals only suitable for a specially prepared cord   |                 | N       |
| 26.3           | Terminals for the supply cord suitable for their purpose  |                 | P       |
|                | Terminals with screw clamping and screwless terminals not used for flat twin tinsel cords, unless conductors ends fitted with a device suitable for screw terminals   |                 | P       |
|                | Pull test of 5 N to the connection  |                 | P       |
| 26.4           | Terminals for type X attachment and those for connection to fixed wiring so fixed that when tightening or loosening the clamping means:   |                 | P       |
|                | - the terminal does not loosen  |                 | P       |
|                | - internal wiring is not subjected to stress  |                 | P       |
|                | - creepage distances and clearances are not reduced below the values in 29.1  |                 | P       |
| 26.5           | Terminals for type X attachment and for connection to fixed wiring so constructed that the conductor is clamped between metal surfaces with sufficient contact pressure and without damaging the conductor                                      |                 | P       |
| 26.6           | Terminals for type X attachment, no special preparation of conductors required, and so constructed and placed that conductors prevented from slipping out, except those with a specially prepared cord and those for connection to fixed wiring |                 | N       |
| 26.7           | Terminals of the pillar type constructed and located as specified   |                 | N       |
| 26.8           | Terminals for the connection to fixed wiring located close to each other, including the earthing terminal   |                 | P       |
| 26.9           | Terminals for type X attachment accessible after removal of a cover or part of the enclosure  |                 | N       |
| 26.10          | Terminals not accessible without removal of a non-detachable part (IEC 60335-1/A2:1999)   |                 | P       |



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| Clause         | Requirement - Test   | Result - Remark  | Verdict  |
| 26.11          | Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection between live parts and accessible metal parts, |  | N        |
|                | and for Class II construction, between live parts and metal parts separated from accessible metal parts by supplementary insulation only   |  | N        |
|                | Stranded conductor test, 8 mm insulation removed   |  | N        |
| <b>27</b>      | <b>PROVISION FOR EARTHING</b>  |  | <b>P</b> |
| 27.1           | Accessible metal parts of Class 0I and I appliances, permanently and reliably connected to an earthing terminal  | Metal parts are reliable earthed, earthing wire is used for fan motor and evaporator                 | P        |
|                | Earthing terminals not connected to neutral terminal   |  | P        |
|                | Class 0, II and III appliance have no provision for earthing   |  | N        |
| 27.2           | Terminals used for the connection of external equipotential bonding conductors allow connection of conductors of 2,5 to 6 mm <sup>2</sup> , and  |  | N        |
|                | do not provide earthing continuity between different parts of the appliance  |  | N        |
|                | Conductors cannot be loosened without the aid of a tool  |  | N        |
|                | Clamping means adequately secured against accidental loosening   |  | N        |
| 27.3           | Earth connection "made before" and "separated after" current-carrying connections  | No detachable parts with earthing connection   | N        |
|                | 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 metal of earthing terminal and other metal   | All parts have adequate protection against corrosion (Annex J of IEC 60950 was taken for reference). | P        |
|                | Adequate resistance to corrosion of coated or uncoated parts providing earthing continuity, other than parts of a metal frame or enclosure   |  | P        |
|                | Parts of steel providing earthing continuity provided at the essential areas with an electroplated coating, 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 case of aluminium alloys precautions taken to avoid risk of corrosion   |  | P        |

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| Clause         | Requirement - Test  | Result - Remark   | Verdict |
| 27.5           | Low resistance of connection between earthing terminal and earthed metal parts  |   | P       |
|                | Resistance not exceeding 0,1 $\Omega$ at the specified low-resistance test  | Measured earthing resistance: 0,047 $\Omega$                  | P       |
| 27.6           | Printed conductors of printed circuit boards not used to provide earthing continuity in hand-held appliances or complying the requirements specified for other appliances (IEC 60335-1/A1:1999) |   | P       |
| <b>28</b>      | <b>SCREWS AND CONNECTIONS</b>   |   | P       |
| 28.1           | Fixings and electrical connections withstand mechanical stresses  |   | P       |
|                | Screws not of soft metal liable to creep, such as zinc or aluminium   |   | P       |
|                | Diameter of screws of insulating material min. 3 mm   |   | N       |
|                | Screws of insulating material not used for any electrical connection  |   | P       |
|                | Screws transmitting electrical or providing earthing continuity contact only screwing into metal (IEC 60335-1/A2:1999)  |   | P       |
|                | Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation   |   | P       |
|                | Type X attachment, screws to be removed for replacement of supply cord, or for users maintenance, not of insulating material if their replacement by a metal screw can impair basic insulation  |   | N       |
|                | Screws and nuts of the uses described subjected to torque test as specified, applying torque as shown in table 12 (IEC 60335-1/A2:1999)   | Earthing screw, screws of enclosure, screws of cord anchorage | P       |
| 28.2           | Contact pressure not transmitted through insulating material liable to shrink or distort, unless shrinkage or distortion compensated  |   | P       |
|                | The requirement is not applicable in circuits carrying current less than 0,5 A (IEC 60335-1/A2:1999)  |   | P       |
| 28.3           | Space-threaded (sheet metal) screws only used for the electrical connection if they clamp these parts directly in contact with each other(IEC 60335-1/A2:1999)                                  |   | N       |
|                | Thread-cutting (self-tapping) screws not used for electrical connections, unless generating a full form standard machine screw thread   |   | N       |
|                | Thread-cutting (self-tapping) screws not used if they are likely to be operated by the user or installer unless the thread is formed by a swaging action  |   | N       |

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| Clause         | Requirement - Test  | Result - Remark                       | Verdict |
|                | Use of thread-cutting and space-threaded screws for earthing continuity according to specification  | At least two self-tapping screws used | P       |
| 28.4           | Screws for current-carrying mechanical connection or screws providing earthing continuity secured against loosening   | Star washer used                      | P       |
|                | Rivets for electrical connections and for earthing continuity subject to torsion secured against loosening (IEC 60335-1/A2:1999)  | No rivet for electrical connection.   | N       |
| <b>29</b>      | <b>CREEPAGE DISTANCES, CLEARANCES AND DISTANCES THROUGH INSULATION</b>  |                                       | P       |
| 29.1           | Creepage distances and clearances not less than specified in table 13   | (See appended table)                  | P       |
|                | Values increased by 4 mm in case of reinforced insulation when resonance voltage  |                                       | N       |
|                | Creepage distances and clearances for circuits with voltages greater than 250 V r.m.s. (345 V peak) comply with table (IEC 60335-2-40:1995)   |                                       | P       |
|                | For motor-compressors with working voltages $\leq 250$ V, 29.1 of IEC 60335-2-34 applies (IEC 60335-2-40:1995)  |                                       | N       |
|                | Creepage distances and clearances for motor-compressors with working voltages $> 250$ V r.m.s. and $\leq 600$ V r.m.s. not less than stated in Table 101 (IEC 60335-2-40:1995)  |                                       | P       |
| 29.2           | Distances through insulation not less than 1,0 mm for supplementary insulation, and 2,0 mm for reinforced insulation. Interpretation of this requirement: see Interpretation Sheet I-SH 02, August, 1994                                  |                                       | N       |
| 29.2.1         | Supplementary insulation applied in thin sheet form, other than mica or similar scaly material, consists of at least two layers, each of the layers withstands the electric strength test of 16.3 for supplementary insulation            |                                       | N       |
|                | Reinforced insulation applied in thin sheet form, other than mica or similar scaly material, consists of at least three layers, and any two of the layers together withstand the electric strength test of 16.3 for reinforced insulation |                                       | N       |
| 29.2.2         | Supplementary or reinforced insulation inaccessible and does not exceed the maximum permissible temperature values  |                                       | N       |
|                | Supplementary or reinforced insulation, after conditioning as specified, withstands the electric strength test as specified in 16.3, both at the oven temperature and room temperature  |                                       | N       |
| <b>30</b>      | <b>RESISTANCE TO HEAT, FIRE AND TRACKING</b>  |                                       | P       |

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| Clause         | Requirement - Test   | Result - Remark                         | Verdict |
| 30.1           | See Annex H  |   | P       |
|                | Relevant external parts of non-metallic material   |   | P       |
|                | Parts supporting live parts and parts providing supplementary or reinforced insulation sufficiently resistant to heat  |   | P       |
|                | Ball-pressure test with a force of 20 N, diameter of impression not exceeding 2 mm .....   |   | P       |
|                | External parts: at 75 °C   | Enclosure                               | P       |
|                | Parts supporting live parts: at 125 °C   | PCB, terminal block, Transformer bobbin | P       |
|                | Parts providing supplementary or reinforced insulation: temperature (°C)..... :  |   | N       |
| 30.2           | Relevant parts of non-metallic material adequately resistant to ignition and spread of fire  |   | P       |
| 30.2.1         | Possible burning test of relevant parts according to Annex J   |   | N       |
|                | Glow-wire test of Annex K made at temperature 550 °C   | Enclosure                               | P       |
| 30.2.3         | Appliances operated while unattended, possible bad-connection test according to Annex L  |   | N       |
|                | Glow-wire test of Annex K made at 850 °C   | PCB, terminal block, Transformer bobbin | P       |
|                | Possible needle-flame test according to Annex M  |   | N       |
| 30.2.4         | Parts of non-metallic material within a distance of 50 mm from parts not withstanding the tests of 30.2.2 or 30.2.3, subjected to the needle-flame test of Annex M |   | N       |
| 30.3           | Relevant insulating material have adequate resistance to tracking  |   | P       |
|                | Tracking test at 175 V according to Annex N  | PCB, terminal block, Transformer bobbin | P       |
|                | Tracking test at 250 V according to Annex N  |   | N       |
|                | No hazard other than fire, tracking test at 175 V according to Annex N, and in addition needle-flame test of surrounding parts according to Annex M                |   | P       |
|                | Possible needle-flame test of non-metallic material  |   | N       |
| <b>31</b>      | <b>RESISTANCE TO RUSTING</b>   |   | P       |
|                | Relevant ferrous parts adequately protected against rusting  |   | P       |
| <b>A</b>       | <b>ANNEX A, NORMATIVE REFERENCES</b>   |   | P       |
|                | The annex contains a list of standards which are referred to, and thus become part of, this standard   |   | P       |

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|----------------|---|-----------------|---------|
| Clause         | Requirement - Test  | Result - Remark | Verdict |
| <b>C</b>       | <b>ANNEX C, AGEING TEST ON MOTORS</b>   |                 | N       |
|                | Test carried out when doubt with regard to the classification of the insulating system of a motor winding                             |                 | N       |
| <b>E</b>       | <b>ANNEX E, MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES</b>  |                 | P       |
|                | Methods of measuring creepage distances and clearances, specified in 29.1, indicated in 10 different cases                            |                 | P       |
| <b>G</b>       | <b>ANNEX G, CIRCUIT FOR MEASURING LEAKAGE CURRENTS</b>  |                 | P       |
|                | A suitable circuit for measuring leakage currents is shown  |                 | P       |
| <b>H</b>       | <b>ANNEX H, SELECTION AND SEQUENCE OF THE TESTS OF CLAUSE 30</b>  |                 | P       |
| <b>J</b>       | <b>ANNEX J, BURNING TEST</b>  |                 | N       |
|                | The burning test is made in accordance with IEC 707, and method FH is used  |                 | N       |
|                | Category FH3 applies, the maximum burning rate being 40 mm/min  |                 | N       |
| <b>K</b>       | <b>ANNEX K, GLOW-WIRE TEST</b>  |                 | P       |
|                | The glow-wire test is made in accordance with IEC 695-2-1 (clause numbers between parentheses refer to IEC 695-2-1)                   |                 | P       |
| (4)            | Description of test apparatus: the last paragraph before the note is replaced   |                 | P       |
| (5)            | Severities: the duration of application of the tip of the glow-wire to the specimen being $(30 \pm 1)$ s                              |                 | P       |
| (10)           | Observations and measurements: item c) does not apply   |                 | P       |
| <b>L</b>       | <b>ANNEX L, BAD-CONNECTION TEST WITH HEATERS</b>  |                 | N       |
|                | The bad-connection test with heaters is made in accordance with IEC 695-2-3 (clause numbers between parentheses refer to IEC 695-2-3) |                 | N       |
| (3)            | General description of the test: additions concerning crimped connections   |                 | N       |
| (4)            | Description of test apparatus: replacements of some of the test specifications and the first paragraph of the note                    |                 | N       |
| (6)            | Severities: the duration of application of the test power being $(30 \pm 1)$ min  |                 | N       |
| (8)            | Test procedure: subclause 8.6 replaced  |                 | N       |

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|----------------|--|-----------------|---------|
| Clause         | Requirement - Test   | Result - Remark | Verdict |
| (11)           | Information to be given in the relevant specification: item h), the first dashed paragraph, does not apply             |                 | N       |
| <b>M</b>       | <b>ANNEX M, NEEDLE-FLAME TEST</b>  |                 | N       |
|                | The needle-flame test is made in accordance with IEC 695-2-2 (clause numbers between parentheses refer to IEC 695-2-2) |                 | N       |
| (4)            | Description of the apparatus: the sixth paragraph is replaced  |                 | N       |
| (5)            | Severities: the duration of application of the test flame is $(30 \pm 1)$ s  |                 | N       |
| (8)            | Test procedure: some changes in the test specifications  |                 | N       |
| (10)           | Evaluation of the test results: addition in the test specification   |                 | N       |
| <b>N</b>       | <b>ANNEX N, PROOF TRACKING TEST</b>  |                 | P       |
|                | The proof tracking test is made in accordance with IEC 112 (clause numbers between parentheses refer to IEC 112)       |                 | P       |
| (3)            | Test specimen: the last sentence of the first paragraph does not apply   |                 | P       |
| (5)            | Test apparatus: some changes in the subclauses   |                 | P       |
| (6)            | Procedure: adjustments of the test specifications  |                 | P       |
| <b>P</b>       | <b>ANNEX P, SEVERITY OF DUTY CONDITIONS OF INSULATING MATERIAL WITH RESPECT TO THE RISK OF TRACKING</b>                |                 | P       |
|                | Recognition of different duty conditions with respect to the risk of tracking  |                 | P       |
| <b>Q</b>       | <b>ANNEX Q, CAPACITORS</b>   |                 | N       |
|                | <b>Section one – General</b>   |                 | N       |
| <b>1.5</b>     | <b>Terminology</b>   |                 | -       |
| 1.5.3          | Applicable   |                 | N       |
|                | Class X capacitors tested according to subclass X2   |                 | N       |
| 1.5.4          | Applicable   |                 | N       |
| <b>1.6</b>     | <b>Marking</b>   |                 | N       |
|                | Items a) and b) are applicable   |                 | N       |
|                | <b>Section three – Quality assessment procedures</b>   |                 | -       |
| 3.4.3.2        | <b>Tests</b>   |                 | N       |
|                | Table II is applicable as follows  |                 | N       |
|                | - Group 0: subclauses 4.1.,4.2.1 and 4.2.5   |                 | N       |

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|----------------|--|-----------------|---------|
| Clause         | Requirement - Test   | Result - Remark | Verdict |
|                | - Group 1 A: subclause 4.1.1   |                 | N       |
|                | - Group 2: subclause 4.12  |                 | N       |
|                | - Group 3: subclause 4.13 and 4.14   |                 | N       |
|                | - Group 6: subclause 4.17  |                 | N       |
|                | - Group 7: subclause 4.18  |                 | N       |
|                | <b>Section four – Test and measurement procedures</b>  |                 | -       |
| 4.1            | Visual examination and check the dimensions  |                 | N       |
| 4.2            | Electrical tests   |                 | N       |
| 4.2.1          | Applicable   |                 | N       |
| 4.2.5          | Applicable   |                 | N       |
| 4.2.5.2        | Only table IX is applicable  |                 | N       |
| 4.12           | Only insulation resistance and voltage proof are checked   |                 | N       |
| 4.13           | Applicable   |                 | N       |
| 4.14           | Applicable with subclauses 4.14.1, 4.14.3, 4.14.4 and 4.14.7   |                 | N       |
| 4.14.7         | Only insulation resistance and voltage proof are checked together with a visual examination to ensure that there is not visible damage |                 | N       |
| 4.17           | Applicable   |                 | N       |
| 4.18           | Applicable   |                 | N       |
| <b>R</b>       | <b>ANNEX R, SAFETY ISOLATING TRANSFORMER</b>   |                 | N       |
|                | Safety isolation transformer tested with the appliance comply with this standard and the following requirements:                       |                 | N       |
| R.7            | Marking and instruction  |                 | N       |
| R.7.1          | Transformer for specific use shall be marked with:   |                 | N       |
|                | - name, trade-mark or identification mark of the manufacturer or responsible vendor  |                 | N       |
|                | - model or type reference  |                 | N       |
| R.17           | <b>Overload protection of transformers and associated circuits</b>   |                 | N       |
|                | Fail-safe transformer shall comply with 15.5 of IEC 61558-1  |                 | N       |
| R.22           | Construction   |                 | N       |
|                | Subclauses 19.1. and 19.1.2. of IEC 61558-2-6 are applicable   |                 | N       |

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|----------------|--|-----------------|---------|
| Clause         | Requirement - Test   | Result - Remark | Verdict |
| R.29           | <b>Creepage distances, clearances and distances through insulation</b>   |                 | N       |
|                | The distances specified in items 2 a, 2 b, and 3 in table 13 of IEC 61558-1 apply  |                 | N       |
| <b>S</b>       | <b>ANNEX S – SWITCHES</b>  |                 | N       |
|                | Switches tested with the appliance comply with this standard and with the following clauses of IEC 61058-1:  |                 | N       |
|                | Test of EN 61058-1 carry out under the conditions occurring in the appliance   |                 | N       |
|                | Before the test, switches are operated 20 times without load   |                 | N       |
| <b>8</b>       | <b>Marking and documentation</b>   |                 | N       |
|                | Switches are not required to be marked, except that incorporated switches shall be marked  |                 | N       |
| <b>13</b>      | <b>Mechanism</b>   |                 | N       |
|                | This clause is applicable  |                 | N       |
| <b>15</b>      | <b>Insulation resistance and dielectric strength</b>   |                 | N       |
|                | 15.1 and 15.2 not applicable   |                 | N       |
|                | 15.3 is applicable for disconnection and micro-disconnection   |                 | N       |
| <b>17</b>      | <b>Endurance</b>   |                 | N       |
|                | Compliance is checked on three separate appliances or switches   |                 | N       |
|                | At the end of the tests, the temperature rise of terminals shall not have increased by more than 30 K above the temperature rise measured in clause 11 |                 | N       |
| <b>18</b>      | <b>Clearances, creepage and distances through insulation</b>   |                 | N       |
|                | Only applicable for live parts of different potential  |                 | N       |
|                | <b>DIFFERENCES EXISTING IN SOME COUNTRIES (IEC 60335-1)</b>  |                 | N       |
| 2.5.2          | U.S.A.: safety extra-low voltage not exceeding 30 V (42,2 V peak)  |                 | N       |
| 2.8.5          | AUSTRALIA, NEW ZEALAND: disconnection of supply not considered as a manual operation   |                 | N       |
| 3              | AUSTRALIA: the d.c. component in appliance neutral is limited  |                 | N       |
| 4.7            | CHINA, JAPAN AND U.S.A.: ambient testing temperature is 25 °C ± 10 °C  |                 | N       |



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|----------------|---|-----------------|---------|
| Clause         | Requirement - Test  | Result - Remark | Verdict |
| 4.14           | U.S.A.: accessible metal parts not liable to become energised do not need earthing; accessible non-metallic parts provide only basic insulation   |                 | N       |
| 6.1            | AUSTRALIA, AUSTRIA, CZECH REPUBLIC, FINLAND, FRANCE, GERMANY, HUNGARY, IRELAND, ITALY, NETHERLANDS, NEW ZEALAND, POLAND, SINGAPORE, SWEDEN, UNITED KINGDOM AND YUGOSLAVIA: Class 0 and Class I appliances not allowed |                 | P       |
| 6.2            | U.S.A.: methods for protection against harmful ingress of water different from IEC 529  |                 | N       |
| 7.1            | U.S.A.: IP number not required to be marked   |                 | N       |
| 7.6            | U.S.A.: some of these symbols not used  |                 | N       |
| 7.8            | U.S.A.: additional methods for identifying earthing terminals for neutral conductors  |                 | N       |
| 7.12.2         | AUSTRALIA, JAPAN, NEW ZEALAND AND U.S.A.: the 3 mm contact separation not applicable  |                 | N       |
| 7.14           | U.S.A.: different tests used  |                 | N       |
| 8.1.1          | U.S.A.: test not necessarily repeated with the 20 N force   |                 | N       |
|                | U.S.A.: protection against contact with live parts of the lamp cap not required   |                 | N       |
| 8.1.2          | U.S.A.: test pin and test probe not used  |                 | N       |
| 8.1.3          | U.S.A.: test pin and test probe not used  |                 | N       |
| 8.1.5          | U.S.A.: built-in and fixed appliances and appliances in separate units not to be protected by at least basic insulation before installation   |                 | N       |
| 9              | U.S.A.: motors required starting without blowing a quick-acting fuse  |                 | N       |
| 10.1           | U.S.A.: positive limits of 5% for heating appliances and 10% for motor-operated appliances required; no negative deviations   |                 | N       |
| 10.2           | U.S.A.: positive limits of 5% for heating appliances and 10% for motor-operated appliances required; no negative deviations   |                 | N       |
| 11.4           | U.S.A.: heating appliances and heater circuits operated at rated power input or rated voltage (the more severe); the rest at rated voltage  |                 | N       |
| 11.5           | U.S.A.: heating appliances and heater circuits operated at rated power input or rated voltage (the more severe); the rest at rated voltage  |                 | N       |
| 11.6           | U.S.A.: heating appliances and heater circuits operated at rated power input or rated voltage (the more severe); the rest at rated voltage  |                 | N       |

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|----------------|--|-----------------|---------|
| Clause         | Requirement - Test   | Result - Remark | Verdict |
| 11.8           | U.S.A.: temperature rise limits different for certain materials (Table 3)  |                 | N       |
| 13.2           | U.S.A.: test circuit and some leakage current limits different   |                 | N       |
| 13.3           | U.S.A.: certain test voltages different  |                 | N       |
|                | U.S.A.: a 500 VA test transformer used   |                 | N       |
| 15.1.1         | U.S.A.: IP system not used; tests different  |                 | N       |
| 15.1.2         | U.S.A.: IP system not used; tests different  |                 | N       |
| 15.3           | U.S.A.: relative humidity of $(88 \pm 2) \%$ and temperature of $32 \text{ }^\circ\text{C} \pm 2 \text{ }^\circ\text{C}$ during test |                 | N       |
| 16.2           | U.S.A.: test at nominal supply voltage; leakage current values different   |                 | N       |
| 16.3           | U.S.A.: some test voltages and methods different   |                 | N       |
| 19.1           | U.S.A.: circuit protection device permitted  |                 | N       |
| 19.2<br>19.4   | U.S.A.: tests normally at nominal supply voltage or rated power input  |                 | N       |
| 19.13          | U.S.A.: temperature rise limits of Table 7 not applicable  |                 | N       |
| 20.1           | U.S.A.: stability test at 15 degrees not conducted; test in overturned position judged under abnormal test criteria                  |                 | N       |
| 21             | U.S.A.: impact force applied with a falling steel ball   |                 | N       |
| 22.1           | U.S.A.: IP system not used; tests not the same as in IEC 529   |                 | N       |
| 22.2           | FRANCE AND NORWAY: single-phase Class I appliances with heating elements not complying because of the supply system                  |                 | N       |
|                | NORWAY: double-pole switches or protective devices required  |                 | N       |
|                | U.S.A.: set of terminals for connection of a flexible cord generally not permitted   |                 | N       |
|                | U.S.A.: disconnection of the neutral not necessary for all stationary appliances   |                 | N       |
|                | IRELAND AND UNITED KINGDOM.: plug not required in supply cord  |                 | N       |
| 22.6           | U.S.A.: test not conducted   |                 | N       |
| 22.11          | U.S.A.: different criteria for snap-on constructions required  |                 | N       |
| 22.12          | U.S.A.: positive forms of securement required  |                 | N       |
| 22.14          | U.S.A.: sharp edges testing device used to evaluate sharp edges  |                 | N       |

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|----------------|---|-----------------|---------|
| Clause         | Requirement - Test  | Result - Remark | Verdict |
| 22.35          | U.S.A.: double or reinforced insulation not required on metal parts                         |                 | N       |
| 22.36          | U.S.A.: double or reinforced insulation not required on metal parts                         |                 | N       |
| 23.5           | U.S.A.: different requirements for insulated internal wiring                                |                 | N       |
| 23.7           | NEW ZEALAND AND U.S.A.: green wiring used instead of green/yellow wiring                    |                 | N       |
|                | U.S.A.: requirement applies to accessible wiring during supply connections                  |                 | N       |
| 24.1.3         | U.S.A.: different number of cycles required; note 2 not applicable                          |                 | N       |
|                | U.S.A.: note not applicable   |                 | N       |
| 24.3           | U.S.A.: requirement for 3 mm contact separation not applicable                              |                 | N       |
| 25.1           | IRELAND AND UNITED KINGDOM: plug not required in supply cord                                |                 | N       |
| 25.3           | DENMARK, FINLAND, NETHERLANDS, NORWAY AND SWEDEN: set of supply leads not permitted         |                 | N       |
|                | U.S.A.: set of terminals for connection of a flexible cord generally not permitted          |                 | N       |
| 25.8           | AUSTRALIA, NEW ZEALAND AND U.S.A.: different conductor cross-sectional areas                |                 | N       |
|                | AUSTRALIA, NEW ZEALAND: 0,5 mm <sup>2</sup> supply cords not allowed for Class I appliances |                 | N       |
| 25.10          | U.S.A.: green insulation also permitted   |                 | N       |
| 25.14.2        | U.S.A.: only one separate insulation required   |                 | N       |
| 25.16          | AUSTRALIA: fully removable cord anchorages allowed  |                 | N       |
|                | U.S.A.: pull of 35 lbs applied; torque test not used  |                 | N       |
| 26.2           | U.S.A.: cross-sectional areas according to AWG  |                 | N       |
| 26.4           | U.S.A.: tests only apply to terminals for connection to fixed wiring                        |                 | P       |
| 26.5           | U.S.A.: tests only apply to terminals for connection to fixed wiring                        |                 | P       |
| 27.2           | U.S.A.: different requirements for screwless terminals (IEC 685-2-1 not used)               |                 | N       |
| 28.1           | U.S.A.: this type of tests not required   |                 | N       |
| 29.1           | U.S.A.: different creepage distances and clearances may be applicable                       |                 | N       |

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|----------------|---|-----------------|---------|
| Clause         | Requirement - Test  | Result - Remark | Verdict |
| 30.1           | U.S.A.: minimum value for ball-pressure test for parts retaining live parts is 95 °C or 40 K higher than Cl. 11 temperature rise; for enclosures, 75 °C is the minimum value or mould-stress test conducted at 10 K above Cl. 11 temperatures |                 | N       |
| 30.2.1         | U.S.A.: ignition test not used to assure a slow burning rate  |                 | N       |
| 30.2.4         | AUSTRALIA: printed circuit boards at mains voltage shall be FV-0 or FV-1 or meet needle-flame test  |                 | N       |
| B.7.12         | SWEDEN AND SWITZERLAND: appliances with non-replaceable batteries with a content of mercury or cadmium exceeding 0,025% by weight adequately marked   |                 | N       |
| B.21.101       | U.S.A.: different requirement   |                 | N       |
| F.1.1          | U.S.A.: annex applies to motors with a working voltage ≤ 30 V   |                 | N       |
|                | <b>DIFFERENCES EXISTING IN SOME COUNTRIES (IEC 60335-2-40)</b>  |                 | N       |
| 3              | AUSTRALIA: the D.C. component in appliance neutral is limited   |                 | N       |
| 6.1            | JAPAN: Class 0I appliances allowed  |                 | N       |
| 11.8           | SWEDEN: temperature of the wooden walls in test casing limited to 85 °C   |                 | N       |

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|----------------|--------------------|-----------------|---------|
| Clause         | Requirement - Test | Result - Remark | Verdict |

| 10.1    | TABLE: input power and current |   |                      |                      |                   | P                 |
|---------|--------------------------------|---|----------------------|----------------------|-------------------|-------------------|
|         | Operation mode .....           | Cooling mode: Indoor(DB/WB °C): 32/23<br>Heating mode: Indoor(DB/WB °C): 27/- |                      |                      |                   | P                 |
|         | Test voltage (V) .....         | 400V  |                      |                      |                   | —                 |
| Model   | Rated cooling (W)              | Rated heating (W)   | Measured cooling (W) | Measured heating (W) | Deviation cooling | Deviation heating |
| KN-36SH | 120                            | 3120  | 130                  | 3132                 | 8,3%              | 0,4%              |
| KN-45SH | 160                            | 3160  | 171                  | 3173                 | 6,9%              | 0,4%              |

| 11.8   | TABLE: TEMPERATURE RISE MEASUREMENTS |   | P                         |   |
|--|--------------------------------------|---|---------------------------|---|
| KN-36SH  | Operation mode .....                 | Cooling mode: Indoor: 32/23<br>Heating mode: Indoor: 27/- |                           | P |
|  | t1 (°C) .....                        | 21  |                           | — |
|  | t2 (°C) .....                        | See operation mode  |                           | — |
|  | Test wattage (W) .....               | 3000x1,15=3450W (425V)                                    |                           | — |
| Temperature T of part:   |                                      | Measured temperature (°C)                                 | Required Temperature (°C) |   |
| Power cord   |                                      | 30,7  | 75                        |   |
| PCB  |                                      | 49,1  | Material test             |   |
| Relay for Fan motor, compressor  |                                      | 55,4  | T70                       |   |
| Terminal block   |                                      | 31,5  | Material test             |   |
| Surface of transformer winding   |                                      | 35,5  | 90                        |   |
| Fan motor enclosure  |                                      | 45,2  | 150                       |   |
| Fan motor capacitor  |                                      | 39,2  | T70                       |   |
| Terminal on PCB  |                                      | 46,9  | Material test             |   |
| Remark 1: The test was performed at the high speed and low speed of fan motor, the highest value was listed. |                                      |   |                           |   |
| Remark 2: The test was performed on heating mode and cooling mode, the highest value was listed.             |                                      |   |                           |   |

| 11.8                   | TABLE: TEMPERATURE RISE MEASUREMENTS |   | P                         |   |
|------------------------|--------------------------------------|---|---------------------------|---|
| KN-45SH                | Operation mode .....                 | Cooling mode: Indoor: 32/23<br>Heating mode: Indoor: 27/- |                           | P |
|                        | t1 (°C) .....                        | 21  |                           | — |
|                        | t2 (°C) .....                        | See operation mode  |                           | — |
|                        | Test wattage (W) .....               | 3000x1,15=3450W (425V)                                    |                           | — |
| Temperature T of part: |                                      | Measured temperature (°C)                                 | Required Temperature (°C) |   |
| Power cord             |                                      | 31,4  | 75                        |   |

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|--|--|--------------------|-----------|-----------------|------------------|
| Clause   | Requirement - Test                     |                    |           | Result - Remark | Verdict          |
| PCB  |  |                    |           | 24,5            | Material test    |
| Relay for Fan motor, compressor  |  |                    |           | 33,0            | T70              |
| Terminal block   |  |                    |           | 27,6            | Material test    |
| Surface of transformer winding   |  |                    |           | 33,8            | 90               |
| Fan motor enclosure  |  |                    |           | 58,6            | 150              |
| Fan motor capacitor  |  |                    |           | 34,6            | T70              |
| Terminal on PCB  |  |                    |           | 32,8            | Material test    |
|  | winding temperature rise measurements: |                    |           | T1=28 °C        | P                |
|  | insulation class .....                 |                    |           | See below       | —                |
| temperature rise dT of winding:  | R <sub>1</sub> (Ω)                     | R <sub>2</sub> (Ω) | T (°C)    | Limit T (°C)    | insulation class |
| IU fan motor: YDK56-6N   | 94/104                                 | 117/130            | 92,2/93,6 | 115             | E                |
| IU fan motor: YDK56-6M   | 111/138                                | 127/154            | 65,8/58,4 | 115             | E                |
| Remark 1: The test was performed at the high speed and low speed of fan motor, the highest value was listed. |  |                    |           |                 |                  |
| Remark 2: The test was performed on heating mode and cooling mode, the highest value was listed.             |  |                    |           |                 |                  |

| 13.2   | TABLE: LEAKAGE CURRENT AT OPERATING TEMPERATURE |  |               |            | P |
|--|---|--|---------------|------------|---|
|  | At 1,15 times rated input (W) .....             |  |               | N/A        | - |
|  | At 1,06 times rated voltage (V) .....           |  |               | 424V       | - |
| Measured between:  |   |  | Measured (mA) | Limit (mA) |   |
| L/N to earthed metal parts   |   |  | 0,88          | 3,5        |   |
| L/N to outside enclosure (class II construction)                           |   |  | 0,051         | 0,25       |   |
| Remark: the test was performed on both models and higher value was listed. |   |  |               |            |   |

| 13.3  | TABLE: ELECTRICAL INSULATION AT OPERATING TEMPERATURE |                  |        | P |
|---|---|------------------|--------|---|
| Test voltage applied between:                       |   | Test voltage (V) | Result |   |
| L/N- GND  |   | 1000             | No     |   |
| L/N - enclosure of indoor unit (with aluminum foil) |   | 3750             | No     |   |
| Remark: the test was performed on both models.      |   |                  |        |   |

| 16.2   | TABLE: LEAKAGE CURRENT MEASUREMENTS                           |  |               | P          |
|--|---|--|---------------|------------|
|  | At 1.06 times rated voltage divided by $\sqrt{3}$ , (V) ..... |  |               | 244V       |
| Measured between:  |   |  | Measured (mA) | Limit (mA) |
| L/N -GND   |   |  | 0,54          | 3,5        |
| L/N – non-conductive enclosure   |   |  | 0,033         | 0,25       |
| Remark: the test was performed on both models and higher value was listed. |   |  |               |            |

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

| 16.3   | TABLE: ELECTRIC STRENGTH TESTS |                  |        | P |
|--|--------------------------------|------------------|--------|---|
| Test voltage applied between:  |                                | Test voltage (V) | Result |   |
| L/N – GND  |                                | 1250             | No     |   |
| L/N - enclosure of indoor unit (aluminium foil)                          |                                | 1250             | No     |   |
| Point where motor winding connected with capacitor-protective earth      |                                | 1900             | No     |   |
| Point where compressor winding connected with capacitor-protective earth |                                | 1900             | No     |   |
| Remark: the test was performed on both models.                           |                                |                  |        |   |

| 17.1  | TABLE: OVERLOAD PROTECTION |                           |                        | P      |
|---|----------------------------|---------------------------|------------------------|--------|
| at 1,06 - 0,94 times rated voltage (V).....:                    |                            | 244V                      |                        | -      |
| Test model::  |                            | DB-EI57-1798              |                        | -      |
| Short-circuit of:   |                            | Measured temperature (°C) | Limit temperature (°C) | Result |
| SC secondary winding  |                            | 120/116                   | 225                    | P      |
| Remark: the overload protector was operated on 3 minutes later. |                            |                           |                        |        |

| 19.2                     | TABLE: lock motor test, temperature rise measurements |                            |   |                              | P                    |
|--------------------------|---|----------------------------|---|------------------------------|----------------------|
| Test procedure           | Supplied with rated voltage (230V)                    |                            |   |                              | -                    |
| Duration                 | 15 days, after 3 days HV test performed               |                            |   |                              | P                    |
| Ambient temperature [°C] | 25  |                            |   |                              | -                    |
| Measured samples         | Insulation class                                      | Enclosure temperature [°C] | Winding temperature [°C]                | HV test performed with 1250V | Leakage current [mA] |
| YDK56-6N                 | E   | 118,8                      | 138,0<br>(protector operated after 1 h) | P                            | 0,054                |
| YDK56-6M                 | E   | 107,8                      | 120,0<br>(protector operated after 1 h) | P                            | 0,018                |

| 19.11.2                        | TABLE: fault condition tests |                                       |  | P      |
|--------------------------------|------------------------------|---------------------------------------|--|--------|
| Ambient temperature (°C) ..... |                              | Cooling:32/23(IU)<br>Heating:27/-(IU) |  | -      |
| Test voltage (V) .....         |                              | 230V                                  |  | -      |
| Fault condition                |                              | Phenomenon                            |  | Hazard |

| IEC 60335-2-40  |  |                 |         |
|---|--|-----------------|---------|
| Clause  | Requirement - Test   | Result - Remark | Verdict |
| 1. SC indoor fan motor capacitor (cooling)                                | The indoor fan motor stopped. a few minutes later, appliance stopped.            |                 | No      |
| 2. SC indoor fan motor capacitor (heating)                                | The appliance stopped.   |                 | No      |
| 3. OC indoor fan motor capacitor (cooling)                                | The indoor fan motor keeps running. The power input increased for the appliance. |                 | No      |
| 4. OC indoor fan motor capacitor (heating)                                | The fan operated slowly. The appliance worked normally with input increased.     |                 | No      |
| Remark 1: the "SC" means "short-circuited" , "OC" means " open-circuited" |  |                 |         |
| Remark 2: the test was performed on all samples.                          |  |                 |         |

| 24.1   | TABLE: COMPONENTS          |              |  |                |                          | P |
|--|----------------------------|--------------|--|----------------|--------------------------|---|
| Object/part No.  | Manufacturer/<br>trademark | Type/model   | Technical data                                       | Standard       | Mark(s) of<br>conformity |   |
| Remark 1: For thermal cut-outs, thermal links of fan motors and transformers which have been approved according to relevant IEC standards, the manufacturer, types and characters not listed in the CDF but should be in this scope authorized by original certification bodies. |                            |              |  |                |                          |   |
| Remark 2: *means Blank or R407C  |                            |              |  |                |                          |   |
| <b>Built-in components with windings: (motors, transformers, magnetic coils etc.)</b>  |                            |              |  |                |                          |   |
| IU fan motor for KN-36SH*  | Shunde Welling             | YDK-56-6N    | Main:115±10% Ω<br>Aux.:103±10% Ω<br>Class E          | IEC 60335-2-40 | Tested with appliance    |   |
| IU fan motor for KN-45SH*  | Shunde Welling             | YDK-56-6M    | Main:96±10% Ω<br>Aux.:150±10% Ω<br>Class E           | IEC 60335-2-40 | Tested with appliance    |   |
| Swing motor  | Xiang Da                   | MP35H        | 200±7%Ω<br>16VDC                                     | IEC 60335-2-40 | Tested with appliance    |   |
| Alternate  | Jiangsu Huayang            | MP35H        | 200±7%Ω<br>16VDC                                     | IEC 60335-2-40 | Tested with appliance    |   |
| Alternative  | Changzhou Oukai            | MP35H        | 200±7%Ω<br>16VDC                                     | IEC 60335-2-40 | Tested with appliance    |   |
| Transformer  | JINQUANHUA                 | DB-EI57-1798 | Pri.: 230V, 50/60Hz<br>Sec.: 12,4V 500mA<br>Class: B | IEC 60335-2-40 | Tested with appliance    |   |
| <b>Built-in components : (switches, thermostats, heater, plugs, wires, capacitors, sockets, RFI-filters etc.)</b>  |                            |              |  |                |                          |   |
| Electric heater  | Zhenjiang Huanqiu          | KFR          | 400V 3000W   | IEC60335-2-40  | Tested with appliance    |   |
| Self reset thermal cut out for electric heater   | Jiangsu Changheng          | KSD          | 250V16A<br>Operated temp.:<br>55° C                  | IEC 60730-1    | VDE 40004742             |   |



| IEC 60335-2-40                                    |                                 |             |   |                   |                          |
|---|---------------------------------|-------------|---|-------------------|--------------------------|
| Clause  | Requirement - Test              |             |   | Result - Remark   | Verdict                  |
| Non self reset thermal cut out of electric heater | Therm-O-Disc Europe B.V.        | G4A01       | 230V/15A,<br>Operated temp.:<br>87° C     | IEC 60730-1       | VDE<br>093820            |
| Thermal cut out in IU fan motor                   | Jiangsu Changheng               | BW series   | 250VAC 16A<br>Operated temp.:<br>130±5° C | IEC 60730-1       | VDE<br>40002499          |
| Alternative                                       | Desheng                         | BR-A1D      | 250VAC 16A<br>Operated temp.:<br>130±5° C | IEC 60730-1       | VDE<br>132813            |
| Alternative                                       | Deyi                            | 8CM033A5    | 250VAC 16A<br>Operated temp.:<br>130±5° C | IEC 60730-1       | ENEC<br>014531.02        |
| Thermal link in transformer                       | Aupo Electronics Ltd.           | A3          | 250V 2A<br>Operated temp.:<br>125°C       | IEC 60691         | VDE<br>40005586          |
| Water pump  | Zhejiang Sanhua                 | PSB-12      | 220-240V<br>50/60Hz                       | IEC<br>60335-2-40 | Tested with<br>appliance |
| Alternative                                       | Jiangsu Lepu                    | PLD-12      | 220-240V<br>50/60Hz                       | IEC<br>60335-2-40 | Tested with<br>appliance |
| Terminal block                                    | Huangzhong Electrical equipment | TC1-2-B6-1  | 450V/4,0mm <sup>2</sup>                   | IEC 60335-1       | Tested with<br>appliance |
| Terminal block                                    | Huangzhong Electrical equipment | TC1-2-B6-2  | 450V/4,0mm <sup>2</sup>                   | IEC 60335-1       | Tested with<br>appliance |
| Controller  | H&T                             | MKS         | --  | IEC<br>60335-2-40 | Tested with<br>appliance |
| Alternate   | EHK / EDG                       | MKS         | --  | IEC<br>60335-2-40 | Tested with<br>appliance |
| Fuse in controller                                | Optional                        | T type      | 3,15A/250VAC                              | IEC 60127         | TUV or any<br>CENELEC    |
| Varistor  | Thinking Electronic Industrial  | TVR14561    | AC350V T85°C                              | CECC42000         | VDE<br>005499            |
| Alternate   | JOYIN                           | JVR-14N561K | AC350V T85°C                              | CECC42000         | VDE<br>005937            |
| Alternate   | CNR                             | CNR14D561K  | AC350V T85°C                              | CECC42000         | VDE<br>127092            |
| Alternate   | ZOV                             | ZOV14D561K  | AC350V T85°C                              | CECC42000         | VDE<br>40005858          |
| Alternate   | Nippon Chemi-con                | TNR14V561K  | AC350V T85°C                              | CECC42000         | VDE<br>118623            |

| IEC 60335-2-40                 |                    |                       |                                      |                 |                    |
|--------------------------------|--------------------|-----------------------|--------------------------------------|-----------------|--------------------|
| Clause                         | Requirement - Test |                       |                                      | Result - Remark | Verdict            |
| Capacitor for indoor fan motor | Optional           | Optional              | 3,5uF/450VAC<br>T mark:70°C or above | IEC 60252-1     | TUV or any CENELEC |
| Relay for heater               | Xiamen Hongfa      | JQX-54FF              | 250VAC/30VDC,<br>20A T55 or above    | IEC 60255-23    | VDE<br>40014655    |
| Relay for indoor fan motor     | Matsushita         | ALD112                | 250VAC 3A<br>Temp 55°C or above      | IEC 60255-23    | VDE<br>40003429    |
| Alternate                      | HongFa             | JZC-43F/012HS         | 250VAC 3A<br>Temp 55°C or above      | IEC 60255-23    | VDE<br>40002220    |
| Alternate                      | Ormon              | G5NB-1A-12VDC         | 250VAC 3A<br>Temp 55°C or above      | IEC 60255-23    | VDE<br>137575      |
| Alternate                      | Ormon              | G5NB-1A-E-12VDC       | 250VAC 5A<br>Temp 55°C or above      | IEC 60255-23    | VDE<br>137575      |
| Relay for outdoor fan motor    | Matsushita         | JQ1AP-12V             | 250VAC 10A<br>Temp 55°C or above     | IEC 60255-23    | VDE<br>40011435    |
| Alternate                      | HongFa             | JZC-33F/012HS         | 250VAC 10A<br>Temp 55°C or above     | IEC 60255-23    | VDE<br>125661      |
| Alternate                      | HongFa             | JZC-32F/012HS         | 250VAC 10A<br>Temp 55°C or above     | IEC 60255-23    | VDE<br>40012204    |
| Alternate                      | Ormon              | G5Q-1A-12VDC          | 250VAC 10A<br>Temp 55°C or above     | IEC 60255-23    | VDE<br>40009467    |
| Alternate                      | HKE                | HRS3T-S-DC12V-A       | 250VAC 5A<br>Temp 55°C or above      | IEC 60255-23    | TUV<br>R2033402    |
| Alternate                      | Matsushita         | JQ1A-12V              | 250VAC 10A<br>Temp 55°C or above     | IEC 60255-23    | VDE<br>40011435    |
| Alternate                      | OEG                | OJE-SH-112HM          | 250VAC 10A<br>Temp 55°C or above     | IEC 60255-23    | VDE<br>40010080    |
| Relay for Compressor           | HONGFA             | JQX-116F-2            | 277VAC 30A<br>Temp 55°C or above     | IEC 60255-23    | VDE<br>40010480    |
| PCB                            | Shengyi            | S1155                 | 94V0                                 | --              | UL<br>E109769      |
| Alternate                      | KINGBROAD          | KB-5150 / 6150 / 7150 | 94V0                                 | --              | UL<br>E123995      |

| IEC 60335-2-40 |                    |             |                 |                     |
|----------------|--------------------|-------------|-----------------|---------------------|
| Clause         | Requirement - Test |             | Result - Remark | Verdict             |
| Alternate      | FARTAL             | FR-4        | 94V0            | --<br>UL<br>E203640 |
| Alternate      | KIN WONG           | CEM1 / FR-4 | 94V0            | --<br>UL<br>E158063 |
| Alternate      | JUN DA             | CEM1 / FR-4 | 94V0            | --<br>UL<br>E173873 |

| 29.1   | TABLE: MINIMUM CREEPAGE DISTANCES AND CLEARANCES |     |                                    |     |            |            |            |            | P      |
|--|--|-----|------------------------------------|-----|------------|------------|------------|------------|--------|
| creepage (cr) and clearance (cl) distance (mm):  | Class III appliances                             |     | Other appliances, working voltage: |     |            |            |            |            | remark |
|  |  |     | < 130 V                            |     | 130-250 V  |            | 250-440 V  |            |        |
|  | cr   | cl  | cr                                 | cl  | cr         | cl         | cr         | cl         |        |
| Between live parts of different potential  |  |     |                                    |     |            |            |            |            |        |
| - if protected against deposition of dirt  | 1,0  | 1,0 | 1,0                                | 1,0 | <u>3,0</u> | <u>3,0</u> | 2,0        | 2,0        | P      |
| - if not protected against deposition of dirt  | 2,0  | 1,5 | 2,0                                | 1,5 | <u>4,0</u> | <u>4,0</u> | <u>4,0</u> | <u>3,0</u> | P      |
| - if lacquered or enameled windings  | 1,0  | 1,0 | 1,5                                | 1,5 | <u>4,0</u> | <u>4,0</u> | 3,0        | 3,0        | P      |
| - for positive temperature coefficient (PTC) resistors including their connecting wires, if protected against deposition of moisture or dirt | —  | —   | 1,0                                | 1,0 | 1,0        | 1,0        | —          | —          | N      |
| <b>Cl and Cr measured between:</b>   |  |     |                                    |     |            |            |            |            |        |
| 1. L and N on PCB;   |  |     |                                    |     |            |            |            |            |        |
| 2. L and N on terminal block;  |  |     |                                    |     |            |            |            |            |        |
| 3. Input of transformer  |  |     |                                    |     |            |            |            |            |        |
| 4. Winding of fan motor.   |  |     |                                    |     |            |            |            |            |        |
| <b>The shortest value is considered.</b>   |  |     |                                    |     |            |            |            |            |        |
| Between live parts and other metal parts over basic insulation:  |  |     |                                    |     |            |            |            |            |        |
| - if protected against deposition of dirt:   |  |     |                                    |     |            |            |            |            | N      |
| - if of ceramic material, pure mica and similar material   | 1,0  | 1,0 | 1,0                                | 1,0 | 2,5        | 2,5        | —          | —          | N      |
| - if of other material   | 1,5  | 1,0 | 1,5                                | 1,0 | 3,0        | 2,5        | —          | —          | N      |
| - if not protected against deposition of dirt  | 2,0  | 1,5 | 2,0                                | 1,5 | <u>4,0</u> | <u>4,0</u> | —          | —          | P      |
| - if the live parts are lacquered or enamelled windings  | 1,0  | 1,0 | 1,5                                | 1,5 | <u>4,0</u> | <u>4,0</u> | —          | —          | P      |
| - at the end of tubular sheathed-type heating elements   | —  | —   | 1,0                                | 1,0 | 1,0        | 1,0        | —          | —          | N      |

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| Clause | Requirement - Test | Result - Remark | Verdict |
|--------|--------------------|-----------------|---------|
|--------|--------------------|-----------------|---------|

**CI and Cr measured between:**

1. **Live part on PCB and earthing metal part;**
  2. **Live part on terminal and earthing metal part;**
  3. **Winding of transformer/fan motor and enclosure/body;**
  4. **Live part on PCB and lower voltage parts;**
- The shortest value is considered.**

Between live parts and other metal parts over reinforced insulation

|   |   |   |     |     |             |             |   |   |   |
|---|---|---|-----|-----|-------------|-------------|---|---|---|
| - if the live parts are lacquered or enamelled windings | — | — | 6,0 | 6,0 | 6,0         | 6,0         | — | — | N |
| - for other live parts                                  | — | — | 8,0 | 8,0 | <b>10,0</b> | <b>10,0</b> | — | — | P |

**CI and Cr measured between:**

1. **Test finger and internal live part through the gap of enclosure.**
- The shortest value is considered.**

|   |     |     |     |     |     |     |   |   |   |
|---|-----|-----|-----|-----|-----|-----|---|---|---|
| between metal parts separated by supplementary insulation   | —   | —   | 4,0 | 4,0 | 4,0 | 4,0 | — | — | N |
| between live parts in recesses in the mounting face of the appliance and the surface to which it is fixed | 2,0 | 2,0 | 6,0 | 6,0 | 6,0 | 6,0 | — | — | N |

| 30                 | TABLE: material test |               |                |                 | P                 |
|--------------------|----------------------|---------------|----------------|-----------------|-------------------|
| Part               | Ball-pressure test   |               | Glow-wire test |                 | Tracking test (V) |
|                    | Temp.( °C)           | Diameter (mm) | Temp. (°C)     | Burning time(s) |                   |
| PCB                | 125                  | 0,6           | 850            | 0               | 175V              |
| Terminal block     | 125                  | 0,6           | 850            | 0               | 175V              |
| Transformer bobbin | 125                  | 1,0           | 850            | 0               | 175V              |
| Enclosure          | 75                   | 0,8           | 550            | 0               | -                 |

Remark: the test was performed on all terminal blocks, transformer bobbins, PCBs and highest value was listed.

--End of report--

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Model: KN-36SH, KN-45SH  
KN-36SH R407C, KN-45SH R407C



Picture 1



Picture 2

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Picture 3



Picture 4

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KN-36SH R407C, KN-45SH R407C



Picture 5



Picture 6

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KN-36SH R407C, KN-45SH R407C



Picture 7

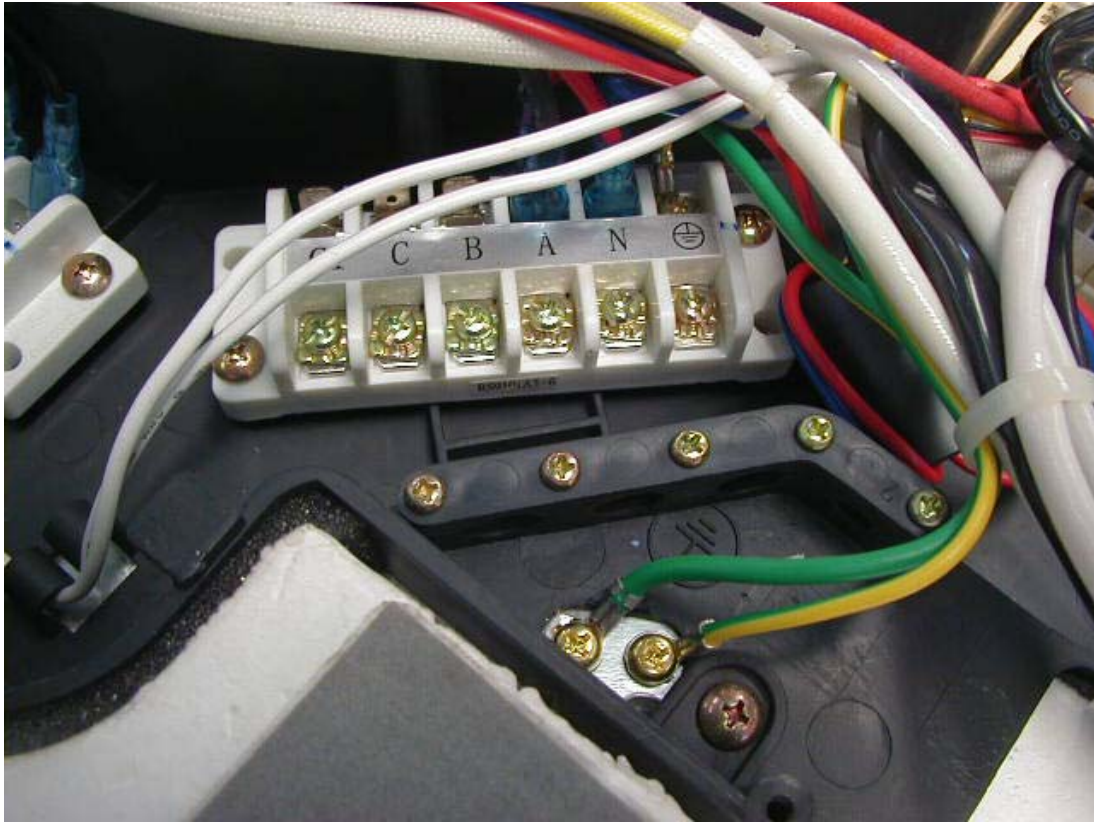


Picture 8

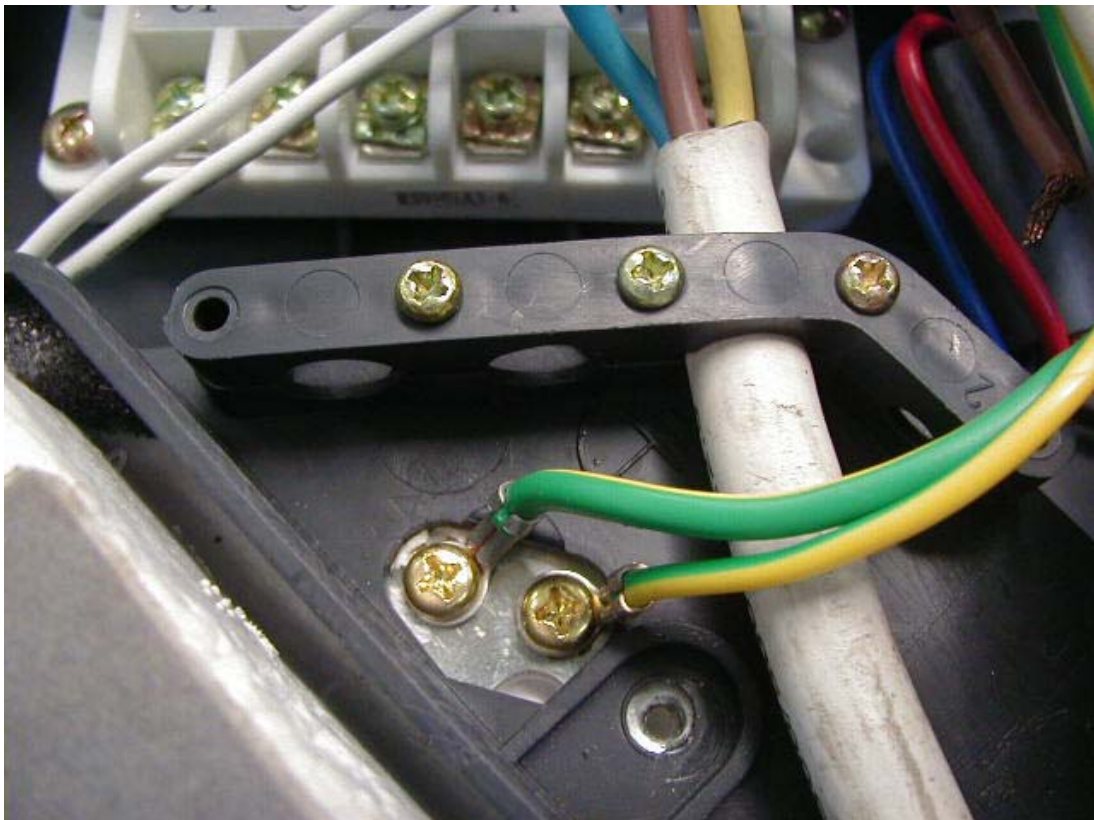


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KN-36SH R407C, KN-45SH R407C



Picture 9



Picture 10

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KN-36SH R407C, KN-45SH R407C



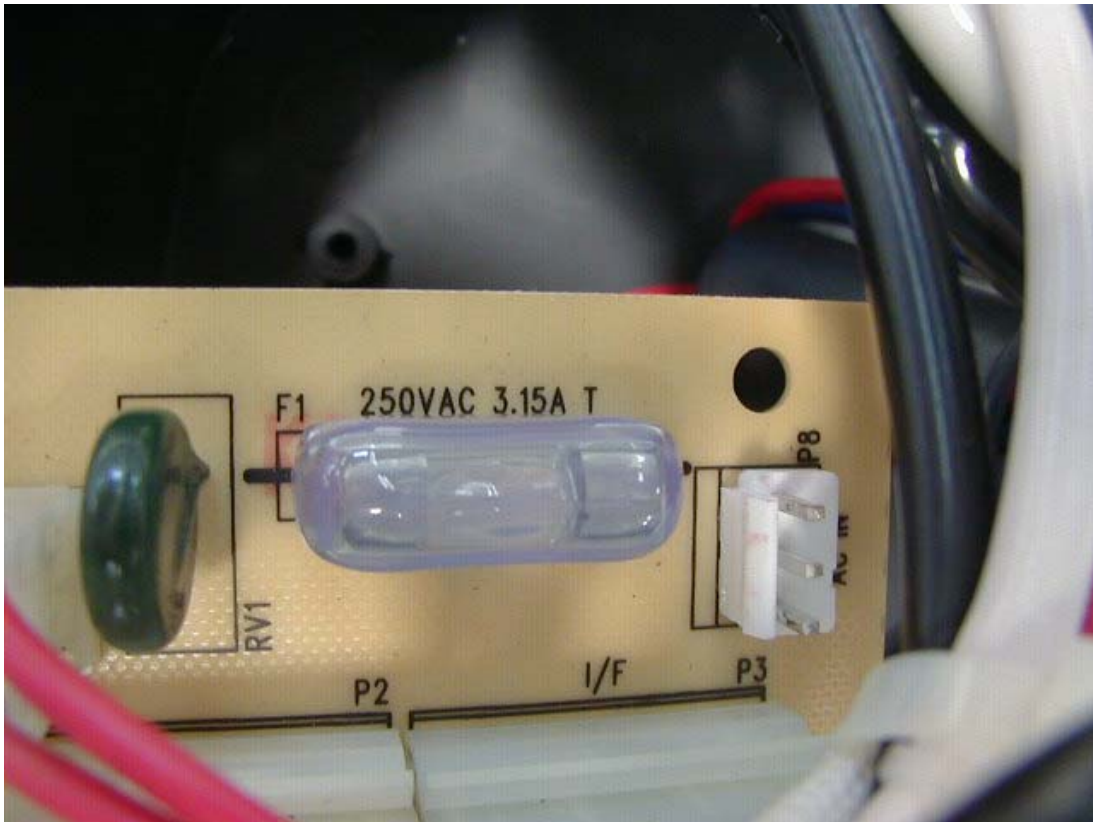
Picture 11



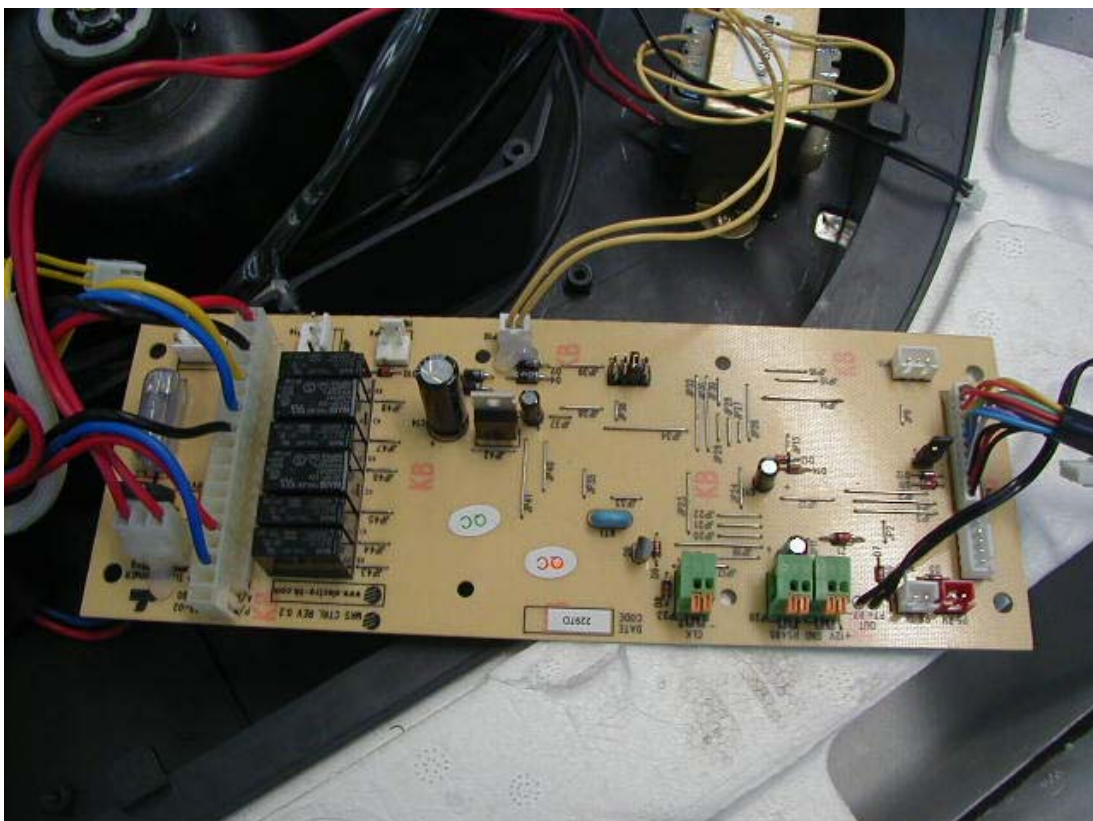
Picture 12

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Model: KN-36SH, KN-45SH  
KN-36SH R407C, KN-45SH R407C



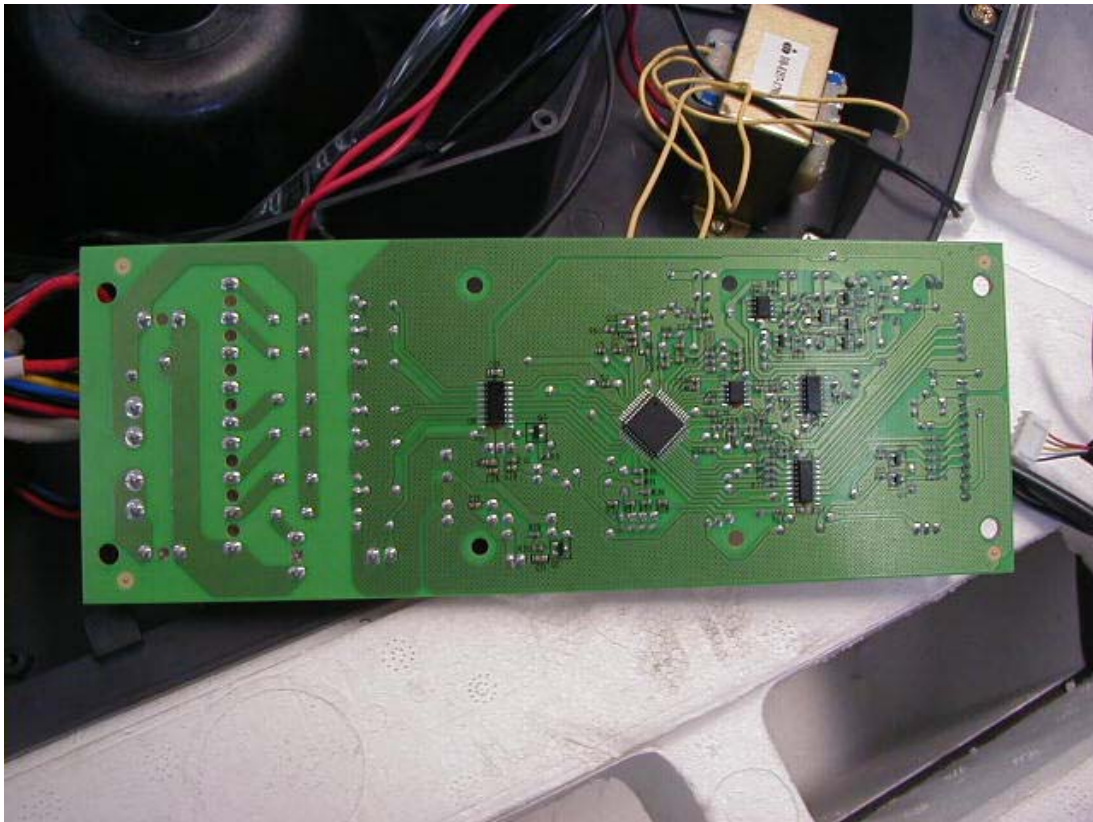
Picture 13



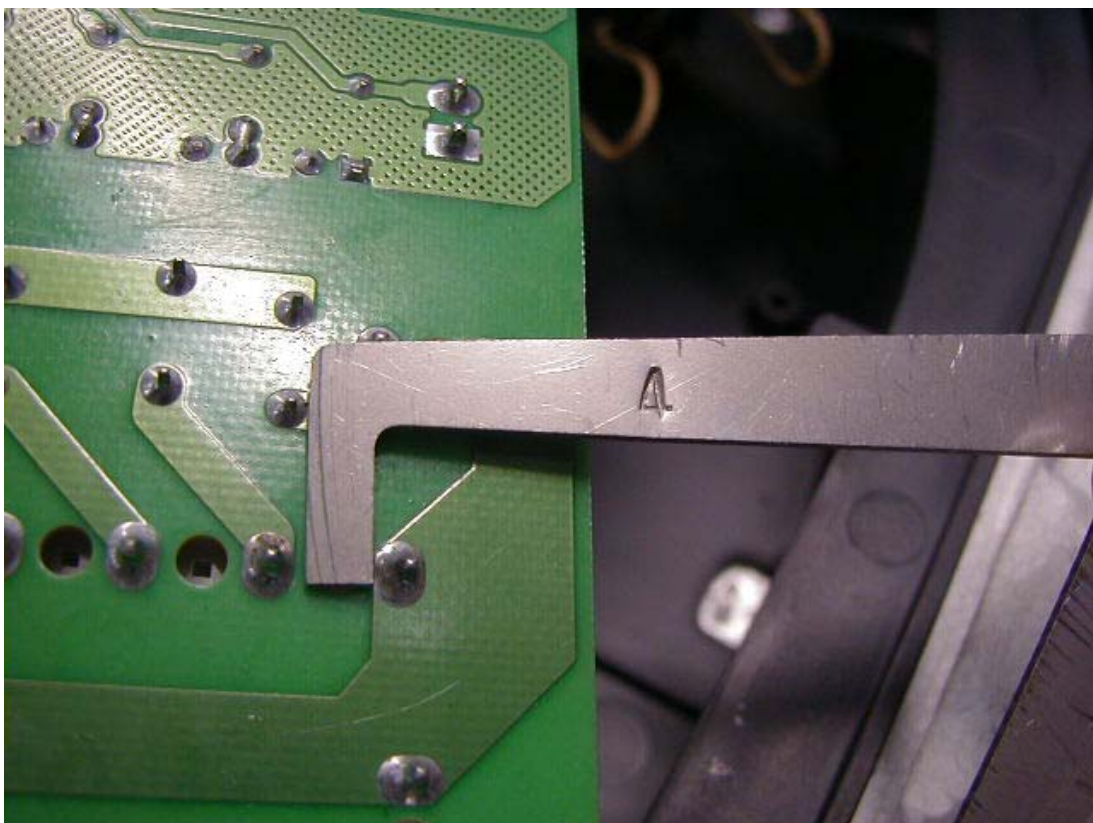
Picture 14

Report Number: 12011921 001

Model: KN-36SH, KN-45SH  
KN-36SH R407C, KN-45SH R407C



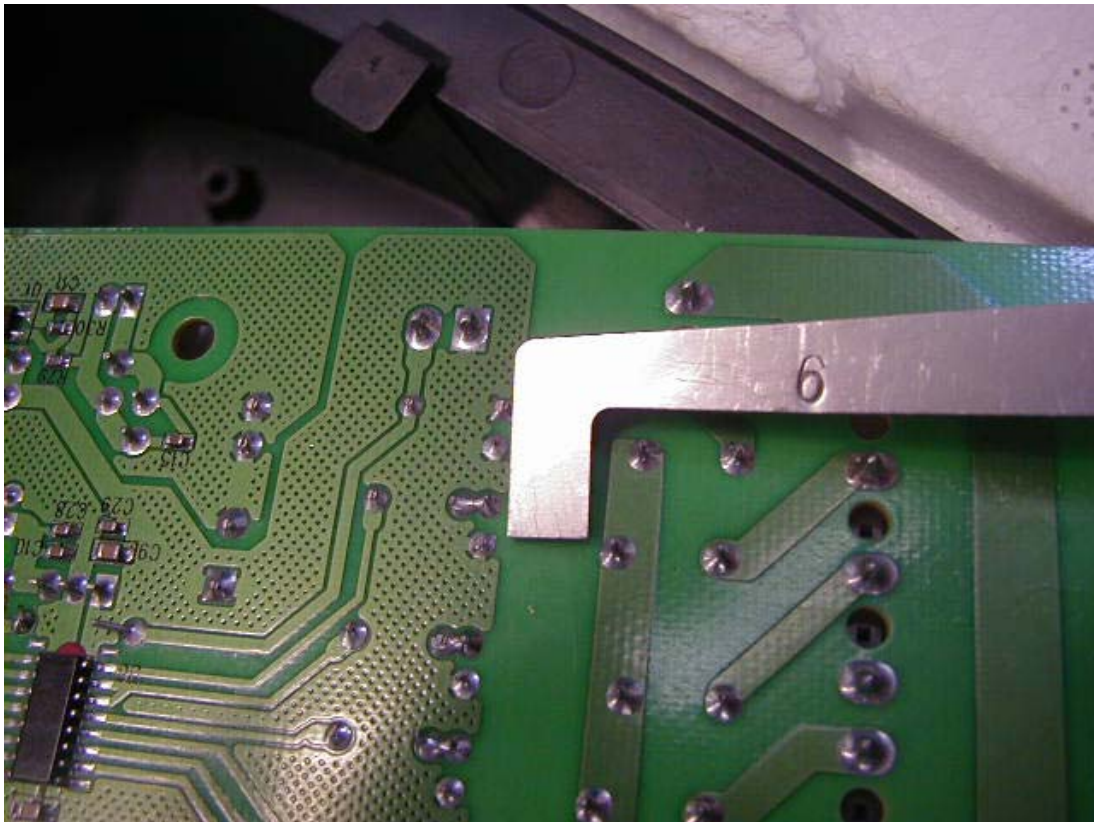
Picture 15



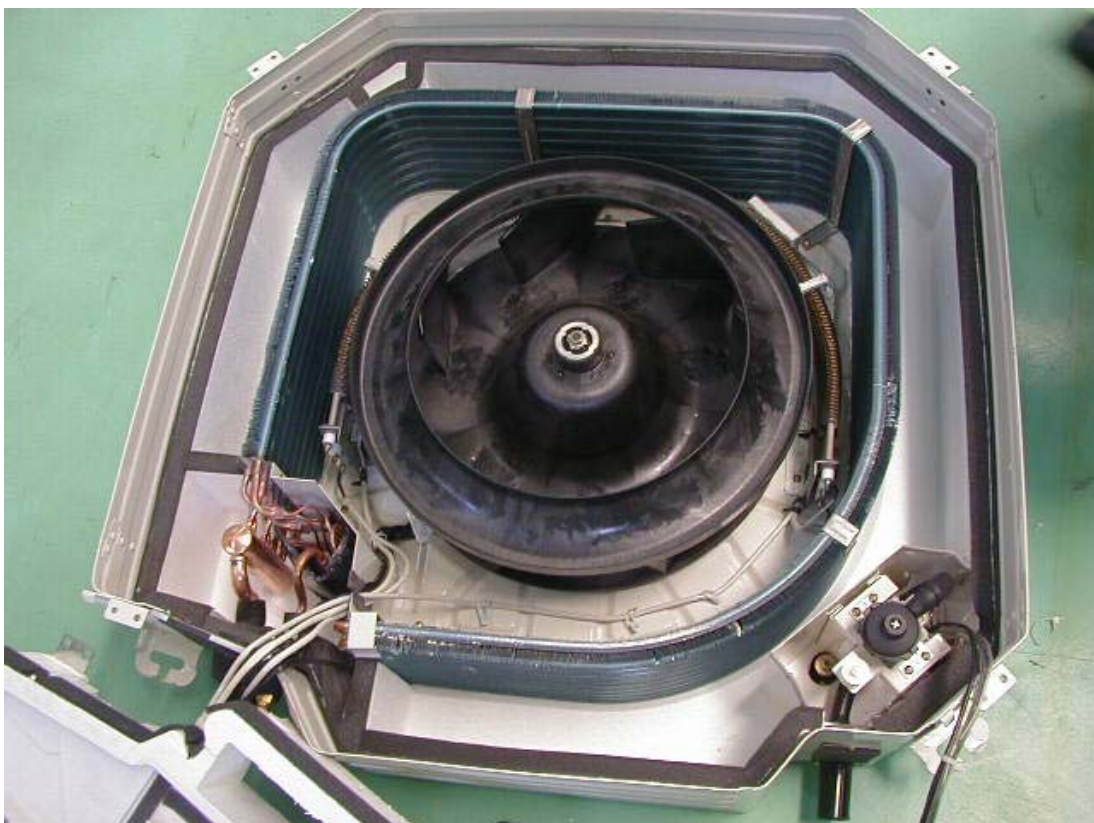
Picture 16

Report Number: 12011921 001

Model: KN-36SH, KN-45SH  
KN-36SH R407C, KN-45SH R407C



Picture 17



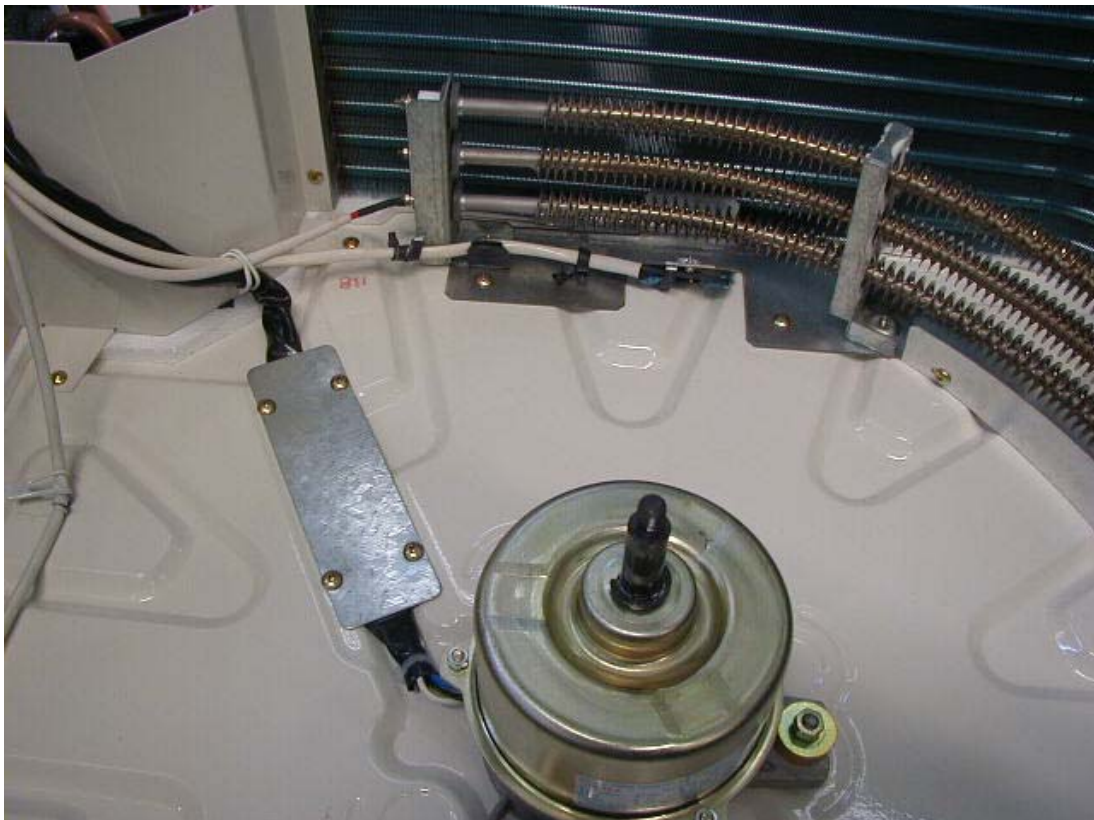
Picture 18

Report Number: 12011921 001

Model: KN-36SH, KN-45SH  
KN-36SH R407C, KN-45SH R407C



Picture 19



Picture 20

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**Model:** KN-36SH, KN-45SH  
KN-36SH R407C, KN-45SH R407C



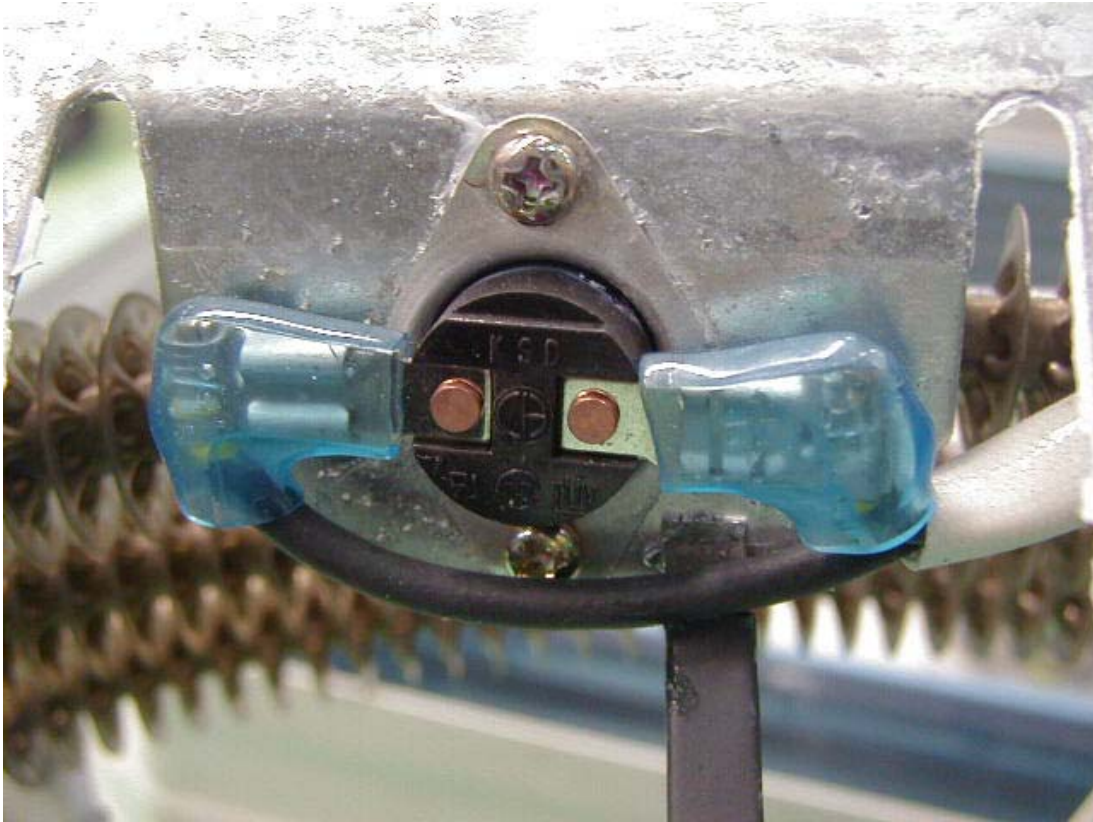
Picture 21



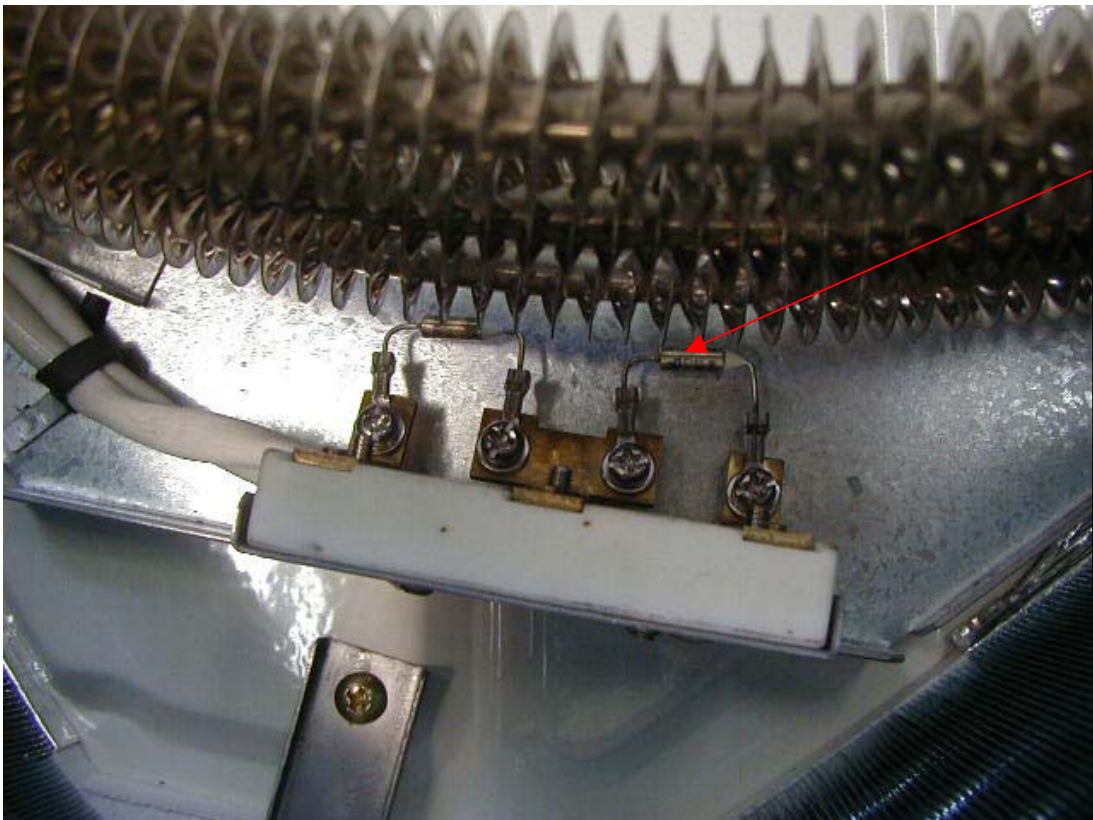
Picture 22

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Model: KN-36SH, KN-45SH  
KN-36SH R407C, KN-45SH R407C



Picture 23



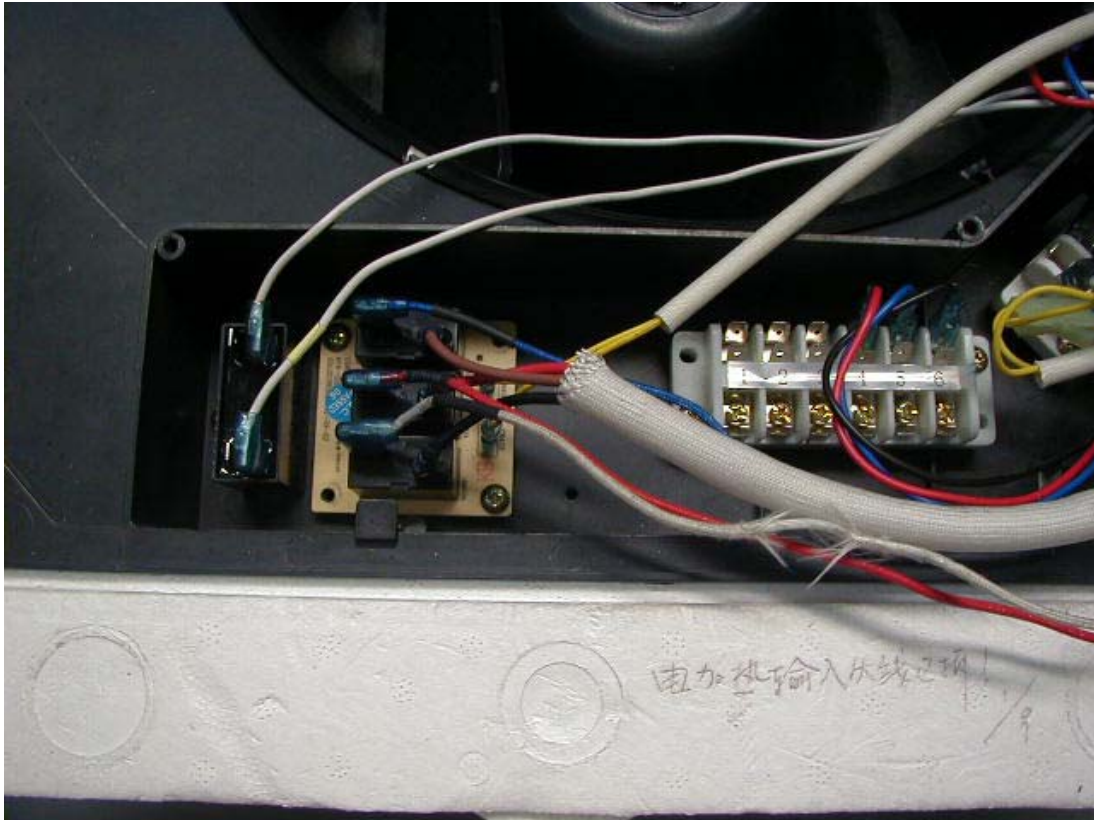
CI &Cr  
between  
live parts  
on  
thermal  
cutouts  
and  
earthing  
metal not  
less than  
4mm.

Picture 24

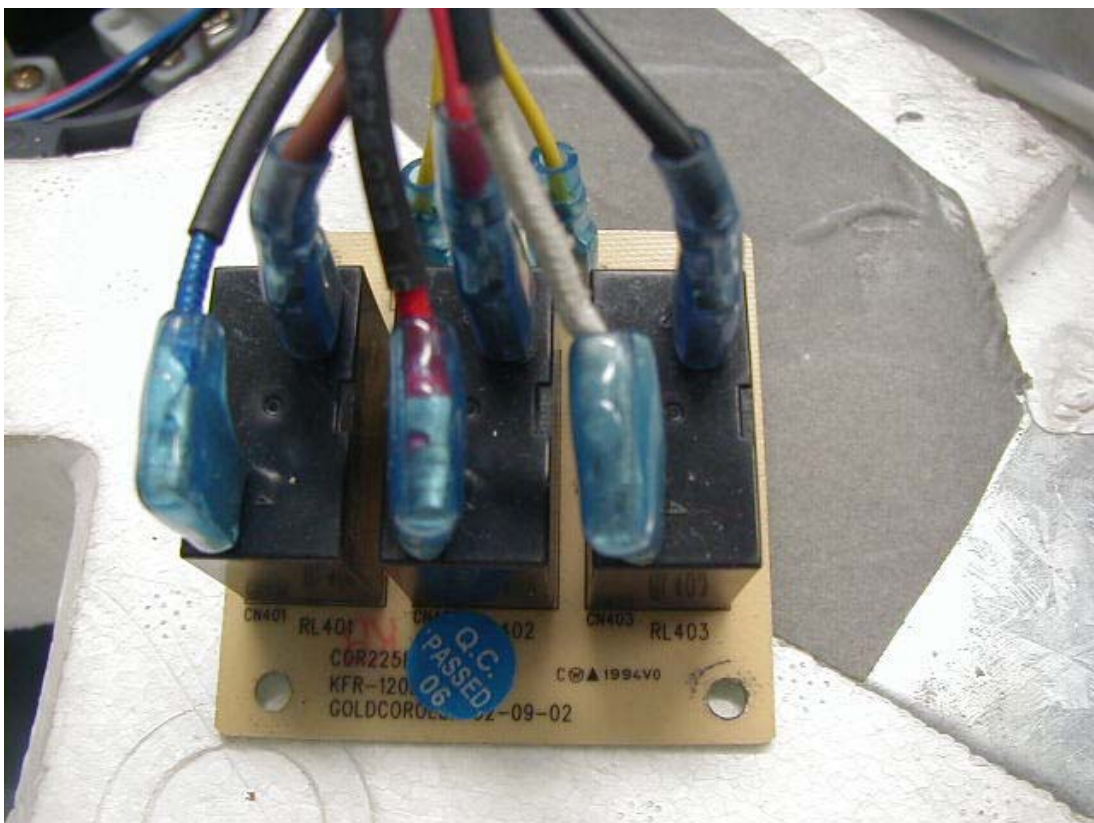


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Model: KN-36SH, KN-45SH  
KN-36SH R407C, KN-45SH R407C



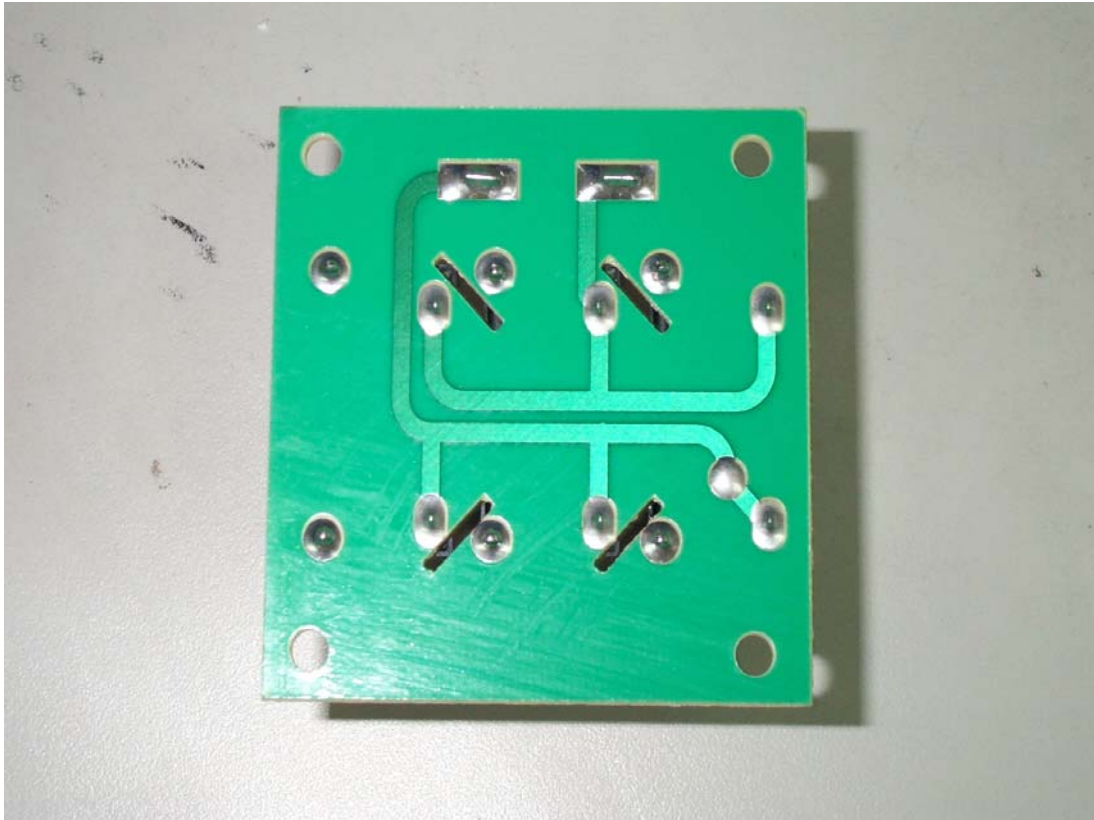
Picture 25



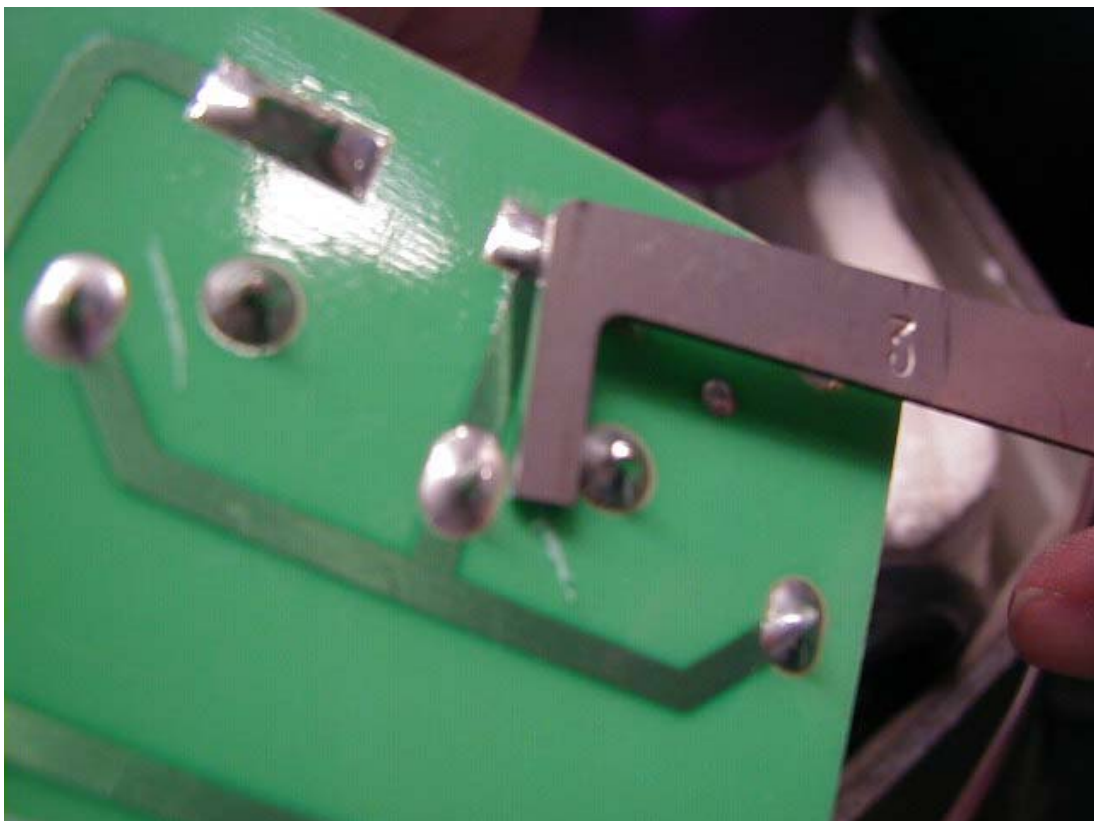
Picture 26

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KN-36SH R407C, KN-45SH R407C



Picture 27



Picture 28