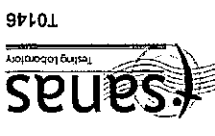




WCT (PTY) LTD T/A T.E.S.T. Africa
reg #: 2000/024600/07
vat reg #: 4620192684

Tel.: (+27 12) 349 1145
Fax.: (+27 12) 3491249
E-mail: info@testafrica.co.za
Internet : <http://www.testafrica.co.za>



T0146



Room S166, Building 33
CSIR Grounds
Brummeria
Pretoria
PO Box 36335
Menlopark
Pretoria, 0102
South Africa

Test Report

IEC 60335-2-48

Safety of household and similar electrical appliances

Part 2: Particular requirement for commercial electric grillers and toasters

REPORT # : WCT 12/0004

CLIENT:

Scientific Engineering PTY Ltd
PO Box 43330
Industria
2042

Attention: Marco Wynaadt

Order #: Application Forms

Date of Order: 2012-01-12

CHICKEN GRILLER

SANS 60335-2-48:2009 Ed 4.1 & IEC 60335-2-48:2008 Ed 4.1

SANS 60335-1:2007 Ed 4.2 & IEC 60335-1:2006 Ed 2.1

SUMMARY OF RESULTS:

Complied

DATE STARTED:

2012-01-12

DATE COMPLETED:

2012-02-09

DATE OF ISSUE:

2012-02-09

TESTED:

APPROVED:

JP OLIVIER (Technical signatory)

AHJ DE WINNAAR (Technical signatory)

NOTE:

"The South African National Accreditation System (SANAS) is a member of the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA). This Arrangement allows for the mutual recognition of technical test and calibration data by the member accreditation bodies worldwide. For more information on the Arrangement please consult www.ilac.org.

1. DESCRIPTION OF SAMPLE

Manufacturer: SCIENTIFIC ENGINEERING
 Model: CGA0028
 CGA0008
 CGA0016
 Trade Name: ANVIL
 SOUTH AFRICA
 Country of Origin: SOUTH AFRICA
 Rated Input: CGA0028 – 9000W
 CGA0008 – 3000W
 CGA0016 – 5000W
 Rated Voltage: CGA0028 – 400V~50Hz
 CGA0008 – 230V~50Hz
 CGA0016 – 230V~50Hz

2. ABBREVIATIONS

TEST DOES NOT APPLY: N/A
 SAMPLE MEET REQUIREMENTS (COMPLY): C
 SAMPLE DOES NOT MEET REQUIREMENTS (FAIL): F
 NOT TESTED: N/T

3. SYMBOLS

- Tests are not included in the SANAS Accreditation Schedule for our laboratory.
- ▲ Results from sub-contracted tests
- ◆ Opinions and interpretations expressed herein are outside the scope of SANAS accreditation

4. GENERAL REMARKS

- * Only a brief description of the requirements, measurements, etc. is given to indicate the nature of these. Consult the specification for details.
- * The sections and subsections refer to in this report, are numbered as the test specification.
- * This document shall not be reproduced in full unless approved by T.E.S.T. Africa.
- * For sample identification, please see Appendix I.

5. TEST CONDITIONS

Climatic conditions that prevailed during tests:

| | | | |
|---------------------|---------|---------|------------|
| | Maximum | Minimum | Limits |
| Ambient temperature | 24°C | 23°C | 20°C ± 5°C |
| Relative humidity | % | % | None |

6. COMMENTS

Complete unit submitted
 Model received CGA0028,CGA0008,CGA0016

"The South African National Accreditation System (SANAS) is a member of the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA). This Arrangement allows for the mutual recognition of technical test and calibration data by the member accreditation bodies worldwide. For more information on the Arrangement please consult www.ilac.org."

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

| | | | |
|-------|--|---|-----|
| 5 | GENERAL CONDITIONS FOR THE TESTS | | |
| | Tests performed according to cl. 5, e.g. nature of supply, sequence of testing, etc. | | C |
| 5.10 | Appliances intended for installation in a bank or other installation wall are enclosed to obtain protection against electric shock and harmful ingress of water equivalent to that obtained when installed in accordance with the instructions provided with the appliance | | N/A |
| 5.101 | Appliances are tested as heating appliances even if they incorporate a motor | | C |
| 5.102 | Appliances, when assembled in combination with or incorporating other appliances, are tested in accordance with the requirement of this standard. The other appliances are operated simultaneously in accordance with the requirements of the relevant standards (IEC 60335-2-48:2002) | | N/A |
| 6 | CLASSIFICATION | | |
| 6.1 | Protection against electric shock: Class 0, I, II, III | Class I | C |
| | Appliances shall be class I with respect to protection against electric shock (IEC 60335-2-48:2002) | | C |
| | Compliance is checked by inspection and by the relevant tests (IEC 60335-2-48:2002) | | C |
| 6.2 | Protection against harmful ingress of water | | C |
| | Appliances normally used on a table shall be at least IPX3. Other appliances shall be at least IPX4 (IEC 60335-2-48/A1:2008) | IPX4 | C |
| 7 | MARKING AND INSTRUCTIONS | | |
| 7.1 | Rated voltage or voltage range (V) | 230V (CGA 0016, CGA0008) 400V@ CGA 0028 | C |
| | Nature of supply | ~ | C |
| | Rated frequency (Hz) | 50Hz | C |
| | Rated power input (W) | CGA0028 – 9000W CGA0008 – 3000W CGA0016 – 5000W | C |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

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

IEC 60335-2-48

| | | | |
|-----|--|-------------------------------|-----|
| | Rated current (A) | | N/A |
| | Manufacturer's or responsible vendor's name, trademark or identification mark | ANVIL | C |
| | Model or type reference | CGA0028 CGA0008 CGA0016 | C |
| | Symbol 5172 of IEC 60417, for Class II appliances | | N/A |
| | IP number, other than IPX0 | IPX4 | C |
| | Symbol IEC 60417-5036, for the enclosure of electrically-operated water valves in external hose-sets for connection of an appliance to the water mains | | N/A |
| | In addition, appliances shall be marked with the water pressure or range of pressures, in kilopascals(kPa), for appliance intended to be connected to a water supply, unless this is indicated in the instructions (IEC 60335-2-48:2002) | | N/A |
| 7.2 | Warning for stationary appliances for multiple supply | | N/A |
| | Warning placed in vicinity of terminal cover | | N/A |
| 7.3 | Range of rated values marked with the lower and upper limits separated by a hyphen | Single voltage only | N/A |
| | Different rated values marked with the values separated by an oblique stroke | | N/A |
| 7.4 | Appliances adjustable for different rated voltages, the voltage setting is clearly discernible | | N/A |
| 7.5 | Appliances with more than one rated voltage or one or more rated voltage ranges, marked with rated input or rated current for each rated voltage or range, unless | | N/A |
| | the power input is related to the mean value of the rated voltage range | | N/A |
| | Relation between marking for upper and lower limits of rated power input or rated current and voltage is clear | | N/A |
| | If the difference between the limits of a rated voltage range does not exceed 10% of the arithmetic mean value of the range, the marking for rated power input or rated current may be related to the arithmetic mean value of the range | | N/A |
| 7.6 | Correct symbols used | | C |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| IEC 60335-2-48 | | | |
|----------------|--------------------|-----------------|---------|
| Clause | Requirement - Test | Result - Remark | Verdict |

| | | | |
|--------|--|--------------------------|-----|
| 7.7 | Connection diagram fixed to appliances to be connected to more than two supply conductors and appliances for multiple supply | | N/A |
| 7.8 | Except for type Z attachment, terminals for connection to the supply mains indicated as follows: | | |
| | - marking of terminals exclusively for the neutral conductor (N) | | C |
| | - marking of protective earthing terminals (symbol 5019 of IEC 60417) | | C |
| | - marking not placed on removable parts | | C |
| 7.9 | Marking or placing of switches which may cause a hazard | | N/A |
| 7.10 | Indications of switches on stationary appliances and controls on all appliances by use of figures, letters or other visual means | Visual means and numbers | C |
| | The figure 0 indicates only OFF position, unless no confusion with the OFF position | | C |
| 7.11 | Indication for direction of adjustment of controls | Electronic pad controls | N/A |
| 7.12 | Instructions for safe use provided | | C |
| | This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety | | N/A |
| | Children should be supervised to ensure that they do not play with the appliance | | N/A |
| | If symbols IEC 60417-5021 (2002-10), are marked on the appliance, their meaning shall be explained (IEC 60335-2-48:2002) | | N/A |
| | The instructions concerning persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge is not applicable (IEC 60335-2-48/A1:2008) | | N/A |
| 7.12.1 | Sufficient details for installation supplied | | C |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

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

IEC 60335-2-48

| | | | |
|--------|--|--|-----|
| N/A | For appliances intended for installation in a bank or other appliances and appliances intended to be fixed to an installation wall, details of how to ensure appropriate protection against electric shock and harmful ingress of water shall be supplied (IEC 60335-2-48:2002) | | |
| N/A | If the controls of more than one appliance are combined in a separate enclosure, detailed installation instruction shall be supplied (IEC 60335-2-48:2002) | | |
| C | Instructions for user maintenance, for example cleaning, shall also be given. The shall include the statement that the appliance is not to be cleaned with a water jet (IEC 60335-2-48:2002) | | |
| C | For appliances that are permanently connected to fixed wiring and for which leakage currents may exceed 10 mA, particularly if disconnected or not used for long periods, or during initial installation, the instruction sheet shall five recommendations regarding the rating of protective devices, such as earth leakage relays, to be installed (IEC 60335-2-48:2002) | | |
| C | Stationary appliances not fitted with means for disconnection from the supply mains having a contact separation in all poles that provide full disconnection under overvoltage category III, the instructions state that means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules | | |
| N/A | Insulation of the fixed wiring in contact with parts exceeding 50 K during clause 11; instructions stating that the fixed wiring must be protected | | |
| 7.12.4 | Instructions for built-in appliances: | | |
| | - dimensions of space | | N/A |
| | - dimensions and position of supporting means | | N/A |
| | - distances between parts and surrounding structure | | N/A |
| | - dimensions of ventilation openings and arrangement | | N/A |
| | - connection to supply mains and interconnection of separate components | | N/A |
| | - allow disconnection of the appliance after installation, by accessible plug or a switch in the fixed wiring, unless | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| Clause | Requirement - Test | Result - Remark | Verdict |
|----------------|--------------------|-----------------|---------|
| IEC 60335-2-48 | | | |

| | | | |
|--------|---|-------------------------|-----|
| 7.12.5 | <p>The instructions for built-in appliances having a separate control panel for several appliances shall state that the control panel is only to be connected to the specified appliance in order to avoid a possible hazard (IEC 60335-2-48:2002)</p> | CGA 0016 | C |
| | Replacement cord instructions, type X attachment with a specially prepared cord | CGA 0028 | C |
| | Replacement cord instructions, type Y attachment | CGA 0008 | C |
| | Replacement cord instructions, type Z attachment | | N/A |
| 7.12.6 | Caution in the instructions for heating appliances with a non-self-resetting thermal cut-out | | N/A |
| 7.12.7 | <p>The instruction for heating appliances incorporating a non-self-resetting thermal cut-out that is reset by disconnection of the supply mains shall contain the substance of the following:</p> <p>CAUTION: In order to avoid a hazard due to inadvertent resetting of the normal cutout, this appliance must not be supplied through an external switching device, such as a timer, or connected to a circuit that is regularly switched on and off by the utility</p> | | N/A |
| | Instructions for fixed appliances stating how the appliance is to be fixed | | N/A |
| | The instructions for fixed appliances shall state how the appliance is to be fixed to its support | | N/A |
| 7.12.8 | Instructions for appliances connected to the water mains: | | |
| | - max. inlet water pressure (Pa)..... | | N/A |
| | - min. inlet water pressure, if necessary (Pa) | | N/A |
| | Instructions concerning new and old hose-sets for appliances connected to the water mains by detachable hose-sets | | N/A |
| | The instructions for appliances connected to the water mains by detachable hose-sets shall state that the new hose-sets supplied with the appliance are to be used that old hose-sets should not be reused | | N/A |
| 7.13 | Instructions and other texts in an official language | English version checked | C |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| Clause | Requirement - Test | Result - Remark | Verdict |
|----------------|--------------------|-----------------|---------|
| IEC 60335-2-48 | | | |

| | | | |
|------|--|---------------------|-----|
| 17 | OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS | | C |
| | No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use | | |
| | 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 | | |
| | 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 | | |
| | Temperature of the winding not exceeding the value specified in table 8, | | |
| | however limits do not apply to fail-safe transformers complying with sub-clause 15.5 of IEC 61558-1 | | |
| | ENDURANCE | | |
| | Requirements and tests are specified in part 2 when necessary | | |
| | ABNORMAL OPERATION | | |
| | 19 | | |
| 19.1 | The risk of fire or mechanical damage under abnormal or careless operation obviated | | C |
| | Electronic circuits so designed and applied that a fault will not render the appliance unsafe with regards to electric shock, fire hazard mechanical hazard or dangerous malfunction | | C |
| | A control or switching device that is intended for different settings corresponding to different functions covered by different standards is, in addition, set in the most severe setting irrespective of the manufacturers instructions | | N/A |
| 19.2 | Test of appliance with heating elements with restricted heat dissipation; test voltage (V): power input of 0,85 times rated power input | 2550W@ 211V / Phase | C |
| | Doors and lids are open or closed, whichever is the more unfavourable | Closed doors | C |
| | Detachable reflectors and similar detachable parts are places in any position or removed, whichever is the more unfavourable | | N/A |
| | (IEC 60335-2-48:2002) | | |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| IEC 60335-2-48 | | | |
|----------------|--------------------|-----------------|---------|
| Clause | Requirement - Test | Result - Remark | Verdict |

| | | | |
|------|--|----------------------|-----|
| 19.3 | Test of 19.2 repeated; test voltage (V): power input of 1,24 times rated power input..... | 3720W @ 246V | C |
| 19.4 | Test conditions as in cl. 11, any control limiting the temperature during tests of cl. 11 short-circuited | | C |
| 19.5 | Test of 19.4 repeated on Class 01 and I appliances with tubular sheathed or embedded heating elements. No short-circuiting, but one end of the element connected to the elements sheath | CGA 0008 | C |
| | The test repeated with reversed polarity and the other end of the heating element connected to the sheath | | C |
| | The test is not carried out on appliances intended to be permanently connected to fixed wiring and on appliances where an all-pole disconnection occurs during the test of 19.4 | | N/A |
| 19.6 | Appliances with PTC heating elements tested at rated voltage, establishing steady conditions | | N/A |
| | The working voltage of the PTC heating element is increased by 5% and the appliance is operated until steady conditions are re-established. The voltage is then increased in similar steps until 1,5 times working voltage or until the PTC heating element ruptures | | N/A |
| 19.7 | Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque or locking moving parts of other appliances | | C |
| | Locked rotor, motor capacitors open-circuited or short-circuited, if required | | C |
| | Locked rotor, capacitors open-circuited one at a time | | N/A |
| | Test repeated with capacitors short-circuited one at a time, if required | | N/A |
| | Appliances with timer or programmer supplied with rated voltage for each of the tests, for a period equal to the maximum period allowed | | C |
| | Other appliances supplied with rated voltage for a period as specified | | C |
| | Winding temperatures not exceeding values specified in table 8 | (see appended table) | C |
| 19.8 | Three-phase motors operated at rated voltage with one phase disconnected | | C |
| 19.9 | Running overload test on appliances incorporating motors intended to be remotely or automatically controlled or liable to be operated continuously | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| | | | |
|----------------|--------------------|-----------------|---------|
| IBC 60335-2-48 | | | |
| Clause | Requirement - Test | Result - Remark | Verdict |

| | | | |
|---------|--|--|-----|
| 19.10 | Series motor operated at 1,3 times rated voltage for 1 min. | | N/A |
| | During the test, parts not being ejected from the appliance | | N/A |
| 19.11 | Electronic circuits, compliance checked by evaluation of the fault conditions specified in 19.11.2 for all circuits or parts of circuits, unless they comply with the conditions specified in 19.11.1 | | N/A |
| | Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.3 and 19.11.4 | | N/A |
| | Appliances having a switch with an off position obtained by electronic disconnection, or a switch placing the appliance in a stand-by mode, subjected to the tests of 19.11.4 | | N/A |
| 19.11.1 | Before applying the fault conditions a) to f) in 19.11.2, it is checked if circuits or parts of circuit meet both of the following conditions: - the electronic circuit is a low-power circuit, that is, the maximum power at low-power points does not exceed 15 W according to the tests specified - 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/A |
| 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: a) short circuit of functional insulation if clearances or creepage distances are less than the values specified in 29 b) open circuit at the terminals of any component c) short circuit of capacitors, unless they comply with IEC 60384-14 d) short-circuit of any two terminals of an electronic component, other than integrated circuits. This fault condition is not applied between the two circuits of an optocoupler e) failure of triacs in the diode mode f) failure of an integrated circuit g) failure of and electronic power switching device in a partial turn-on mode with loss of gate (base) control. During this test, windings temperatures shall not exceed the values given in 19.7 | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

IEC 60335-2-48

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

| | | | |
|-----------|--|--|-----|
| 19.11.3 | If the appliance incorporates a protective electronic circuit which operates to ensure compliance with clause 19, the relevant test is repeated with a single fault simulated, as indicated in a) to f) of 19.11.2 | | N/A |
| | During and after each test the following is checked: | | |
| | - the temperature rise of the windings do not exceed the values specified in table 8 | | N/A |
| | - the appliance complies with the conditions specified in 19.13 | | N/A |
| | - any current flowing through protective impedance not exceeding the limits specified in 8.1.4 | | N/A |
| | If a conductor of a printed board becomes open-circuited, the appliance is considered to have withstood the particular test, provided all three of the following conditions are met: | | |
| | - the material of the printed circuit board withstands the burning test of annex E | | N/A |
| | - any loosened conductor does not reduce the clearances or creepage distances between live parts and accessible metal parts below the values specified in cl. 29 | | N/A |
| | - the appliance withstands the tests of 19.11.2 with open-circuited conductor bridged | | N/A |
| 19.11.4 | Appliances having a switch with an off position obtained by electronic disconnection, or a switch that can be placed in the stand-by mode, subjected to the tests of 19.11.4.1 to 19.11.4.7 | | N/A |
| | Appliances incorporating a protective electronic circuit subjected to the tests of 19.11.4.1 to 19.11.4.7, except that | | N/A |
| | appliances operated for 30 s or 5 min during the test of 19.7 are not subjected to the tests for electromagnetic phenomena. | | N/A |
| 19.11.4.1 | The appliance is subjected to electrostatic discharges in accordance with IEC 61000-4-2, test level 4 | | N/A |
| 19.11.4.2 | The appliance is subjected to radiated fields in accordance with IEC 61000-4-3, test level 3 | | N/A |
| 19.11.4.3 | The appliance is subjected to fast transient bursts in accordance with IEC 61000-4-4, test level 3 or 4 as specified | | N/A |
| 19.11.4.4 | The power supply terminals of the appliance subjected to voltage surges in accordance with IEC 61000-4-5, test level 3 or 4 as specified | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

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

IEC 60335-2-48

| | | | |
|-----------|---|----------------------|-----|
| 19.11.4.5 | The appliance is subjected to injected currents in accordance with IEC 61000-4-6, test level 3 | | N/A |
| 19.11.4.6 | The appliance is subjected to voltage dips and interruptions in accordance with IEC 61000-4-11 | | N/A |
| 19.11.4.7 | The appliance is subjected to mains signals in accordance with IEC 61000-4-13, test level class 2 | | N/A |
| 19.12 | If the safety of the appliance for any of the fault conditions specified in 19.11.2 depends on the operation of a miniature fuse-link complying with IEC 60127, the test is repeated, measuring the current flowing through the fuse-link; measured current (A); rated current of the fuse-link (A) | | N/A |
| 19.13 | During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts | | C |
| | Temperature rises not exceeding the values shown in table 9 | (see appended table) | C |
| | Enclosures not deformed to such an extent that compliance with cl. 8 is impaired | | N/A |
| | If the appliance can still be operated it complies with 20.2 | | N/A |
| | Insulation, other than of class III appliance, withstand the electric strength test of 16.3, the test voltage specified in table 4: | | |
| | - basic insulation | 1250V | C |
| | - supplementary insulation | 1750V | C |
| | - reinforced insulation | 3000V | C |
| | The appliance does not undergo a dangerous malfunction, and | | N/A |
| | no failure of protective electronic circuits, if the appliance is still operable | | N/A |
| | Appliances tested with an electronic switch in the off position or in the stand-by mode, do not become operational | | N/A |
| | If the temperature rise of the floor or the walls above and below the level of the top of stationary appliances exceeds 125K, the requirements of 7.101 apply | | N/A |
| 20 | STABILITY AND MECHANICAL HAZARDS | | |
| 20.1 | Adequate stability | | C |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| | | | |
|----------------|--------------------|-----------------|---------|
| IEC 60335-2-48 | | | |
| Clause | Requirement - Test | Result - Remark | Verdict |

| | | | | | |
|--------|---|---|--|--|-----|
| | ? | Tilting test through an angle of 10° (appliance placed on an inclined plane/horizontal plane); appliance does not overturn | | | C |
| | | Tilting test repeated on appliances with heating elements, angle of inclination increased to 15° | | | C |
| | ? | Possible heating test in overturned position; temperature rise does not exceed values shown in table 9 | | | N/A |
| | | Covers, lids and accessories are placed in the most unfavourable position | | | C |
| | ? | Appliances that can be mounted on stands supplied by the manufacturer are tested with the stands used in accordance with the manufacturers instructions (IEC 60335-2-48:2002) | | | N/A |
| 20.2 | | Moving parts adequately arranged or enclosed as to provide protection against personal injury | | | C |
| | ? | Protective enclosures, guards and similar parts are non-detachable | | | C |
| | | Adequate mechanical strength and fixing of protective enclosures | | | C |
| | ? | Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard, by unexpected reclosure | | | N/A |
| | | Not possible to touch dangerous moving parts with test probe | | | C |
| 20.101 | ? | Parts that move the food inside the appliance shall be secured against unexpected movements if this could result in a hazard | | | C |
| 21 | | MECHANICAL STRENGTH | | | |
| 21.1 | ? | Appliance has adequate mechanical strength and is constructed as to withstand rough handling | | | C |
| | | Checked by applying blows to the appliance in accordance with test Ehb of IEC 60068-2-75, spring hammer test, impact energy 0,5 J | | | C |
| | ? | If necessary, supplementary or reinforced insulation subjected to the electric strength test of 16.3 | | | C |
| | | If necessary, repetition of groups of three blows on a new sample | | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| | | | |
|----------------|--------------------|-----------------|---------|
| Clause | Requirement - Test | Result - Remark | Verdict |
| IEC 60335-2-48 | | | |

| | | | | |
|------|--|--------------------|--|-----|
| N/A | | | If the appliance incorporates visibly glowing heating elements enclosed in glass tubes, the blows are applied to the tubes as mounted in the appliance if they are (IEC 60335-2-48:2002) | |
| N/A | | | - Located at the top of the appliance and accessible to test probe 41 of IEC 61032 | N/A |
| N/A | | | - Located elsewhere in the appliance accessible to test probe B of IEC 61032 | N/A |
| 21.2 | Accessible parts of solid insulation having strength to prevent penetration by sharp implements | C | | |
| | The insulation is tested as specified, unless | N/A | | |
| | the thickness of supplementary insulation is at least 1 mm and reinforced insulation is at least | C | | |
| 22 | CONSTRUCTION | | | |
| 22.1 | Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60529 are fulfilled | N/A | | |
| 22.2 | Stationary appliance: means to provide all-pole disconnection from the supply provided, the following means being available: | | | |
| | - a supply cord fitted with a plug | CGA0008 | C | |
| | - a switch complying with 24.3 | | N/A | |
| | - a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided | CGA0028 CGA0016 | C | |
| | - an appliance inlet | | N/A | |
| | Single-pole switches and single-pole protective devices for the disconnection of heating elements in single-phase permanently connected class I appliances, connected in the phase conductor | | N/A | |
| 22.3 | Appliance provided with pins: no undue strain on socket-outlets | | N/A | |
| | Applied torque not exceeding 0,25 Nm | | N/A | |
| | Pull force of 50N to each pin after the appliance has been placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1mm | | N/A | |
| | Each pin subjected to a torque of 0,4Nm; the pins are not rotating unless rotating does not impair compliance with the standard | | N/A | |
| 22.4 | Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets | | N/A | |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| | | | |
|----------------|--------------------|-----------------|---------|
| IEC 60335-2-48 | | | |
| Clause | Requirement - Test | Result - Remark | Verdict |

| | | | |
|-------|--|-----|---|
| 22.5 | No risk of electric shock when touching the pins of the plug, the appliance being disconnected from the supply at the instant of voltage peak. | N/A | |
| | Appliances intended to be connected to the supply mains by means of a plug shall be constructed so that in normal use there is no risk of electrical shock from charged capacitors having a rated capacitance exceeding 0.1µF, when the pins of the plug are touched | N/A | |
| 22.6 | Electrical insulation not affected by condensing water or leaking liquid | N/A | |
| | Electrical insulation of Class II appliances not affected in case of a hose rupture or seal leak | N/A | |
| 22.7 | Adequate safeguards against the risk of excessive pressure in appliances provided with steam-producing devices | N/A | |
| 22.8 | Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and that are likely to be cleaned in normal use | N/A | |
| 22.9 | Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances | N/A | |
| | Adequate insulating properties of oil or grease to which insulation is exposed | N/A | |
| 22.10 | Not possible to reset voltage-maintained non-self-resetting thermal cut-outs by the operation of an automatic switching device incorporated within the appliance | N/A | |
| | Non-self resetting thermal motor protectors have a trip-free action, unless | N/A | |
| | they are voltage maintained | N/A | |
| | Location or protection of reset buttons of non-self-resetting controls is so that accidental resetting is unlikely | N/A | |
| 22.11 | Reliable fixing of non-detachable parts that provide the necessary degree of protection against electric shock, moisture or contact with moving parts | C | |
| | Obvious locked position of snap-in devices used for fixing such parts | N/A | |
| | No deterioration of the fixing properties of snap-in devices used in parts that are likely to be removed during installation or servicing | N/A | |
| | Tests as described | | C |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

IEC 60335-2-48

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

| | | | |
|-------|---|----------|-----|
| 22.12 | Handles, knobs etc. fixed in a reliable manner | | C |
| | Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible | | N/A |
| | Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied | | C |
| | Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied | | N/A |
| 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/A |
| 22.14 | No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance | | C |
| | No exposed pointed ends of self tapping screws etc., liable to be touched by the user in normal use or during user maintenance | | C |
| 22.15 | Storage hooks and the like for flexible cords smooth and well rounded | | N/A |
| 22.16 | Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands, no undue wear of contacts | | N/A |
| | Cord reel tested with 6000 operations, as specified | | N/A |
| | Electric strength test of 16.3, voltage of 1000 V applied | | N/A |
| 22.17 | Spacers not removable from the outside by hand or by means of a screwdriver or a spanner | | N/A |
| 22.18 | Current-carrying parts and other metal parts resistant to corrosion under normal conditions of use | | C |
| 22.19 | Driving belts not used as electrical insulation | | N/A |
| 22.20 | Direct contact between live parts and thermal insulation effectively prevented, unless material used is non-corrosive, non-hygrosopic and non-combustible | | N/A |
| | Compliance is checked by inspection and, if necessary, by appropriate test | | N/A |
| 22.21 | Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless impregnated. This requirement does not apply to magnesium oxide and mineral ceramic fibres used for the electrical insulation to heating elements | Not used | C |
| 22.22 | Appliances not containing asbestos | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

IEC 60335-2-48

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

| | | | |
|-------|---|----------|-----|
| 22.23 | Oil containing polychlorinated biphenyl (PCB) not used | Not used | C |
| 22.24 | Bare heating elements adequately supported | | N/A |
| | In case of rupture, the heating conductor is unlikely to come in contact with accessible metal parts | | N/A |
| 22.25 | Sagging heating conductors cannot come into contact with accessible metal parts | | C |
| 22.26 | Appliances having parts of class III construction shall be constructed so that the insulation between parts operating at safety extra-low voltage and other live parts complies with the requirements for double or reinforced insulation | | N/A |
| 22.27 | Parts connected by protective impedance separated by double or reinforced insulation | | N/A |
| 22.28 | Metal parts of Class II appliances conductively connected to gas pipes or in contact with water: separated from live parts by double or reinforced insulation | | N/A |
| 22.29 | Class II appliances permanently connected to fixed wiring so constructed that the required degree of access to live parts is maintained after installation | | N/A |
| 22.30 | Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or | | C |
| | 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 | | C |
| 22.31 | Clearances and creepage distances over supplementary and reinforced insulation not reduced below values specified in clause 29 as a result of wear | | C |
| | Clearances and creepage distances between live parts and accessible parts not reduced below values for supplementary insulation, if wires, screws etc. become loose | | C |
| 22.32 | Supplementary and reinforced insulation designed or protected against deposition of dirt or dust | | C |
| | Supplementary insulation of natural or synthetic rubber resistant to ageing, or arranged and dimensioned so that creepage distances are not reduced below values specified in 29.2 | | N/A |
| | Ceramic material not tightly sintered, similar material or beads alone not used as supplementary or reinforced insulation | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| IBC 60335-2-48 | | | |
|----------------|--------------------|-----------------|---------|
| Clause | Requirement - Test | Result - Remark | Verdict |

| | | | |
|-------|---|--|-----|
| | Insulating material in which heating conductors are embedded is considered to be basic insulation and not reinforced insulation | | N/A |
| | Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature | | N/A |
| 22.33 | Conductive liquids that are or may become accessible in normal use are not in direct contact with live parts | | N/A |
| | Electrodes not used for heating liquids | | N/A |
| | For class II constructions, conductive liquids that are or may become accessible in normal use, not in direct contact with basic or reinforced insulation | | N/A |
| | For class II constructions, conductive liquids which are in contact with live parts, not in direct contact with reinforced insulation | | N/A |
| 22.34 | Shafts of operating knobs, handles, levers etc. not live, unless the shaft is not accessible when the part is removed | | C |
| 22.35 | Handles, levers and knobs, held or actuated in normal use, not becoming live in the event of an insulation fault | | C |
| | 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/A |
| | 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/A |
| 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/A |
| 22.37 | Capacitors in Class II appliances not connected to accessible metal parts, unless complying with 22.42 | | N/A |
| | Metal casings of capacitors in Class II appliances separated from accessible metal parts by supplementary insulation, unless complying with 22.42 | | N/A |
| 22.38 | Capacitors not connected between the contacts of a thermal cut-out | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

IEC 60335-2-48

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

| | | | |
|-------|---|--|-----|
| 22.39 | Lamp holders used only for the connection of lamps | | N/A |
| 22.40 | Motor-operated appliances and combined appliances intended to be moved while in operation, or having accessible moving parts, fitted with a switch to control the motor. The actuating member of the switch being easily visible and accessible | | N/A |
| 22.41 | No components, other than lamps, containing mercury | | C |
| 22.42 | Protective impedance consisting of at least two separate components | | N/A |
| 22.43 | Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited | | N/A |
| 22.44 | Appliances are not allowed to have an enclosure that is shaped and decorated so that the appliance is likely to be treated as a toy by children | | C |
| 22.45 | When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.4 due to deformation as a result of an external force applied to the enclosure | | N/A |
| 22.46 | Software used in protective electronic circuits is software class B or C | | N/A |
| 22.47 | Appliances connected to the water mains withstand the water pressure expected in normal use | | N/A |
| 22.48 | No leakage from any part, including any inlet water hose | | N/A |
| 22.49 | Appliances connected to the water mains constructed to prevent back-siphonage of non-potable water | | N/A |
| 22.50 | For remote operation, the duration of operation shall be set before the appliance can be started unless the appliance switches off automatically at the end of a cycle or it can operate continuously without giving rise to a hazard | | N/A |
| 22.50 | Controls incorporated in the appliance, if any, shall take priority over controls actuated by remote operation | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

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

IEC 60335-2-48

| | | | |
|--------|--|----------------------|-----|
| 22.51 | A control on the appliance shall be manually adjusted to the setting for remote operation before the appliance can be operated in this mode. There shall be a visual indication on the appliance showing that the appliance is adjusted for remote operation. The manual setting and the visual indication to the remote mode are not necessary on appliances that can | | |
| | - operate continuously, or | | N/A |
| | - operate automatically, or | | N/A |
| | - be operated remotely, | | N/A |
| 22.52 | Socket-outlets on appliances accessible to the user shall be in accordance with the socket-outlet system used in the country in which the appliance is sold | | N/A |
| 22.101 | For three-phase appliances, thermal cut-outs protecting circuits with heating elements, and those for motors of which the unexpected starting may cause a hazard, shall be of the non-self-resetting and trip free type, and shall provide all-pole disconnection from rated supply circuits (IEC 60335-2-49/A1:2008) | CGA 0028 CGA 0016 | C |
| | For single-phase appliances and for single-phase heating elements and/or motors connected between on phase and neutral or between phase and phase, thermal cut-outs protecting circuits with heating elements, and those for motors of which the unexpected starting may cause a hazard, shall be on the non-self-resetting and trip-free type and shall provide at least on-pole disconnection (IEC 60335-2-49/A1:2008) | CGA 0008 | C |
| | If the non-self-resetting thermal cut-out is only accessible after removing parts with the aid of a tool, the trip-free type is not required (IEC 60335-2-49/A1:2008) | | N/A |
| | Thermal cut-outs of the bulb and capillary type that operate during the tests of Clause 19 shall be such that rupture of the capillary tube shall not impair compliance with the requirements of 19.13 (IEC 60335-2-49/A1:2008) | | N/A |
| 22.102 | Lights, switches or push-buttons shall only be coloured red for the indication of danger, alarm or similar situations (IEC 60335-2-48:2002) | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

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

IEC 60335-2-48

| | | | |
|--------|--|--|-----|
| 22.103 | Portable appliances shall not have openings on the underside that would allow small items to penetrate and touch live parts (IEC 60335-2-48:2002) | | N/A |
| 23 | INTERNAL WIRING | | |
| 23.1 | Wireways smooth and free from sharp edges | | C |
| | Wires protected against contact with burrs, cooling fins etc. | | C |
| | Wire holes in metal well rounded or provided with bushings | | N/A |
| | Wiring effectively prevented from coming into contact with moving parts | | C |
| 23.2 | Beads etc. on live wires cannot change their position, and are not resting on sharp edges or corners | | N/A |
| | Beads inside flexible metal conduits contained within an insulating sleeve | | N/A |
| 23.3 | Electrical connections and internal conductors movable relatively to each other not exposed to undue stress | | N/A |
| | Flexible metallic tubes not causing damage to insulation of conductors | | N/A |
| | Open-coil springs not used | | N/A |
| | Adequate insulating lining provided inside a coiled spring, the turns of which touch one another | | N/A |
| | No damage after 10 000 flexings for conductors flexed during normal use or 100 flexings for conductors flexed during user maintenance | | N/A |
| | Electric strength test, 1000 V between live parts and accessible metal parts | | N/A |
| 23.4 | Bare internal wiring sufficiently rigid and fixed | | N/A |
| 23.5 | The insulation of internal wiring withstanding the electrical stress likely to occur in normal use | | C |
| | No breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation | | C |
| 23.6 | Sleeving used as supplementary insulation on internal wiring retained in position by positive means | | C |
| 23.7 | The colour combination green/yellow used only for earthing conductors | | C |
| 23.8 | Aluminium wires not used for internal wiring | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

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

IEC 60335-2-48

| | | | |
|--------|---|----------------------|-----|
| 23.9 | No lead-tin soldering of stranded conductors where they are subject to contact pressure, unless | N/A | |
| | clamping means so constructed that there is no risk of bad contact due to cold flow of the solder | N/A | |
| 23.10 | The insulation and sheath of internal wiring, incorporated in external hoses for the connection of an appliance to the water mains, at least equivalent to that of light polyvinyl chloride sheathed flexible cord (60227 IEC 52) | N/A | |
| 24 | COMPONENTS | | |
| 24.1 | Components comply with safety requirements in relevant IEC standards | C | |
| | List of components | (see appended table) | C |
| | Components not tested and found to comply with relevant IEC standard for the number of cycles specified are tested in accordance with 24.1.1 to 24.1.6 | N/A | |
| | Components not tested and found to comply with relevant IEC standard, components not marked or not used in accordance with its marking, tested under the conditions occurring in the appliance | N/A | |
| 24.1.1 | Capacitors likely to be permanently subjected to the supply voltage and used for radio interference suppression or for voltage dividing, complying with IEC 60384-14, or | N/A | |
| 24.1.2 | Safety isolating transformers complying with IEC 61558-2-6, or | N/A | |
| | tested according to annex G | N/A | |
| 24.1.3 | Switches complying with IEC 61058-1, the number of cycles of operation being at least 10 000, or | N/A | |
| | tested according to annex H | N/A | |
| | If the switch operates a relay or contactor, the complete switching system is subjected to the test | N/A | |
| 24.1.4 | Automatic controls complying with IEC 60730-1 with relevant part 2. The number of cycles of operation being: | | |
| | - thermostats: | 10 000 | N/A |
| | - temperature limiters: | 1 000 | N/A |
| | - self-resetting thermal cut-outs: | 300 | N/A |
| | - voltage maintained non-self-resetting thermal cut-outs: | 1000 | N/A |
| | - other non-self-resetting thermal cut-outs | 30 | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

IEC 60335-2-48

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

| | | | |
|--------|--|--------|-----|
| | - timers: | 3 000 | N/A |
| | - energy regulators: | 10 000 | N/A |
| | Thermal motor protectors are tested in combination with their motor under the conditions specified in Annex D | | N/A |
| | For water valves containing live parts and that are incorporated in external hoses for connection of an appliance to the water mains, the degree of protection declared for subclause 6.5.2 of IEC 60730-2-8 is IPX7 | | N/A |
| 24.1.5 | Appliance couplers complying with IEC 60320-1 | | N/A |
| | However, appliances classified higher than IPX0, the appliance couplers complying with IEC 60320-2-3 | | N/A |
| | Interconnection couplers complying with IEC 60320-2-2 | | N/A |
| 24.1.6 | Small lamp holders similar to E10 lamp holders complying with IEC 60238, the requirements for E10 lamp holders being applicable | | N/A |
| 24.2 | No switches or automatic controls in flexible cords | | C |
| | No devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance | | C |
| | No thermal cut-outs that can be reset by soldering | | C |
| 24.3 | Switches intended for all-pole disconnection of stationary appliances are directly connected to the supply terminals and having a contact separation in all poles, providing full disconnection under overvoltage category III conditions | | N/A |
| 24.4 | Plugs and socket-outlets for extra-low voltage circuits and heating elements, not interchangeable with plugs and socket-outlets listed in IEC 60083 or IEC 60906-1 or with connectors and appliance inlets complying with the standard sheets of IEC 60320-1 | | N/A |
| 24.5 | Capacitors in auxiliary windings of motors marked with their rated voltage and capacitance and used accordingly | | N/A |
| | Voltage across capacitors in series with a motor winding does not exceed 1,1 times rated voltage, when the appliance is supplied at 1,1 times rated voltage under minimum load | | N/A |
| 24.6 | Working voltage of motors connected to the supply mains and having basic insulation that is inadequate for the rated voltage of the appliance, not exceeding 42V | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| IEC 60335-2-48 | | | |
|----------------|--------------------|-----------------|---------|
| Clause | Requirement - Test | Result - Remark | Verdict |

| | | | |
|--------|---|--|-----|
| | In addition, the motors are complying with the requirements of Annex I | | N/A |
| 24.7 | Hose-sets for connection of appliances to the water mains, complying with IEC 61770 and supplied with the appliance | | N/A |
| 24.101 | Connectors fitted to appliances shall not incorporate a thermostat (IEC 60335-2-48:2002) | | N/A |
| 25 | SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS | | |
| 25.1 | Appliance not intended for permanent connection to fixed wiring, means for connection to the supply: | | |
| | - supply cord fitted with a plug | | C |
| | - an appliance inlet having at least the same degree of protection against moisture as required for the appliance | | N/A |
| | - pins for insertion into socket-outlets | | N/A |
| 25.2 | Appliance not provided with more than one means of connection to the supply mains | | C |
| | Stationary appliance for multiple supply may be provided with more than one means of connection, provided electric strength test of 1250 V for 1 min between each means of connection causes no breakdown | | N/A |
| 25.3 | Connection of supply conductors for appliance intended to be permanently connected to fixed wiring possible after the appliance has been fixed to its support | | C |
| | Appliance provided with a set of terminals for the connection of cables or fixed wiring, cross-sectional areas specified in 26.6 | | C |
| | Appliance provided with a set of terminals allowing the connection of a flexible cord | | N/A |
| | Appliance provided with a set of supply leads accommodated in a suitable compartment | | N/A |
| | 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 | | C |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| | | | |
|----------------|--------------------|-----------------|---------|
| IEC 60335-2-48 | | | |
| Clause | Requirement - Test | Result - Remark | Verdict |

| | | | |
|------|--|--|-----|
| N/A | Fixed appliances and appliances with a mass greater than 40 kg and not provided with rollers, castors or similar means shall be constructed so that the supply cord can be connected after the appliance has been installed in accordance with the manufacturers instructions (IEC 60335-2-48:2002) | | |
| C | Terminals for permanent connection of cables to fixed wiring may also be suitable for the type X attachment of a supply cord. In this case a cord anchorage complying with 25.16 shall be fitted to the appliance (IEC 60335-2-48:2002) | | |
| C | If the appliance is provided with a set of terminals allowing the connection of a flexible cord, they shall be suitable for the type X attachment of the cord (IEC 60335-2-48:2002) | | |
| C | In both cases the instructions shall give full particulars of the power supply cord (IEC 60335-2-48:2002) | | |
| N/A | The connection to the supply wires of built-in appliances may be made before the appliance is installed (IEC 60335-2-48:2002) | | |
| C | Cable and conduit entries, rated current of appliance not exceeding 16 A, dimension according to table 10 | | |
| N/A | Introduction of conduit or cable does not reduce clearances or creepage distances below values specified in 29 | | |
| 25.5 | Method for assemble supply cord with the appliance: | | |
| | - type X attachment CGA 0016 CGA 0028 | | C |
| | - type Y attachment CGA 0008 | | C |
| | - type Z attachment, if allowed in part 2 | | N/A |
| | Type X attachment, other than those with a specially prepared cord, not used for flat twin tinsel cords | | N/A |
| 25.6 | Plugs fitted with only one flexible cord | | C |
| 25.7 | Supply cords shall be one of the following type: | | |
| | - rubber sheathed (60245 IEC 53) | | N/A |
| | - polychloroprene sheathed (60245 IEC 57) | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

IEC 60335-2-48

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

| | | | |
|-----|---|---------------------|-----|
| N/A | - cross-linked polyvinyl chloride sheathed (60245 IEC 87) | | N/A |
| N/A | - polyvinyl chloride sheathed: | | N/A |
| N/A | Light polyvinyl chloride sheathed cord (60227 IEC 53) for appliances having a mass not exceeding 3 kg | | N/A |
| N/A | Ordinary polyvinyl sheathed cord (60227 IEC 53) for other appliances | | N/A |
| N/A | - heat resistant polyvinyl chloride sheathed: | | N/A |
| N/A | These cords shall not be used for type X attachment other than specially prepared cords. Their properties shall be at least those of: | | N/A |
| N/A | - heat-resistant light polyvinyl chloride sheathed cord (60227 IEC 53) for appliances having a mass not exceeding 3 kg | | N/A |
| C | - Heavy polychloroprene sheathed flexible cord (60245 IEC 66) | H07RN-F CGA 0008 | C |
| N/A | - heat-resistant polyvinyl sheathed cord (60227 IEC 53) for other appliances | | N/A |
| | Supply cord not lighter than: | | |
| N/A | - braided cord (60245 IEC 51) | | N/A |
| N/A | - ordinary tough rubber sheathed cord (60245 IEC 53) | | N/A |
| N/A | - ordinary polychloroprene sheathed flexible cord (60245 IEC 57) | | N/A |
| N/A | - flat twin tinsel cord (60227 IEC 41) | | N/A |
| N/A | - light polyvinyl chloride sheathed cord (60227 IEC 52), appliance not exceeding 3 kg | | N/A |
| N/A | - ordinary polyvinyl chloride sheathed cord (60227 IEC 53), appliance exceeding 3 kg | | N/A |
| N/A | Temperature rise of external metal parts exceeding 75 K, PVC cord not used, unless | | N/A |
| N/A | appliance so constructed that the supply cord is not likely to touch external metal parts in normal use, or | | N/A |
| N/A | the supply cord is appropriate for higher temperatures, type Y or type Z attachment used | | N/A |
| C | Supply cords shall be oil-resistant, sheathed flexible cable not lighter than ordinary polychloroprene or other equivalent synthetic elastomer-sheathed cord (code designation 60245 IEC 57) (IEC 60335-2-48:2002) | | C |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

IEC 60335-2-48

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

| | | | |
|------|--|---------------------------------------|---|
| 25.8 | Nominal cross-sectional area of supply cords according to table 11; rated current (A); cross-sectional area (mm ²) | 1,5mm ² CGA 0008 13A | C |
|------|--|---------------------------------------|---|

| | | | |
|-------|--|--|---|
| 25.9 | Supply cord not in contact with sharp points or edges | | C |
| 25.10 | Green/yellow core for earthing purposes in Class I appliance | | C |

| | | | |
|-------|--|--|-----|
| 25.11 | Conductors of supply cords not consolidated by lead-tin soldering where they are subject to contact pressure, unless | | N/A |
|-------|--|--|-----|

| | | | |
|-------|--|--|-----|
| | clamping means so constructed that there is no risk of bad contacts due to cold flow of the solder | | C |
| 25.12 | Moulding the cord to part of the enclosure does not damage the insulation of the supply cord | | N/A |

| | | | |
|-------|---|--|-----|
| 25.13 | Inlet opening so shaped as to prevent damage to the supply cord | | N/A |
| | Unless the enclosure at the inlet opening is of insulation material, a non-detachable lining or bushing complying with 29.3 for supplementary insulation provided | | N/A |

| | | | |
|-------|---|--|-----|
| | If unsheathed supply cord, a similar additional bushing or lining is required, unless | | N/A |
| | the appliance is class 0 | | N/A |
| 25.14 | Supply cords adequately protected against excessive flexing | | N/A |

| | | | |
|--|------------------------------|--|-----|
| | Flexing test | | |
| | - applied force (N) | | N/A |
| | - number of flexings | | N/A |
| | The test does not result in: | | |

| | | | |
|--|---|--|-----|
| | - short circuit between the conductors | | N/A |
| | - breakage of more than 10% of the strands of any conductor | | N/A |
| | - separation of the conductor from its terminal | | N/A |
| | - loosening of any cord guard | | N/A |
| | - damage, within the meaning of the standard, to the cord or the cord guard | | N/A |
| | - broken strands piercing the insulation and becoming accessible | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| | | | |
|----------------|--------------------|-----------------|---------|
| IBC 60335-2-48 | | | |
| Clause | Requirement - Test | Result - Remark | Verdict |

| | | | |
|-------|---|-----|----------------|
| 25.15 | Conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorage | C | |
| | The cord cannot be pushed into the appliance to such an extent that the cord or internal parts of the appliance can be damaged | C | |
| | Pull and torque test of supply cord, values shown in table 10: pull (N); torque (not on automatic cord reel) (Nm) | C | 100N 0.35Nm |
| | Max. 2 mm displacement of the cord, and conductors not moved more than 1 mm in the terminals | C | |
| | Creepage distances and clearances not reduced below values specified in 29.1 | C | |
| 25.16 | Cord anchorages for type X attachments constructed and located so that: | | |
| | - replacement of the cord is easily possible | N/A | |
| | - it is clear how the relief from strain and the prevention of twisting are obtained | N/A | |
| | - they are suitable for different types of cord | N/A | |
| | - cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless separated from accessible metal parts by supplementary insulation | N/A | |
| | - the cord is not clamped by a metal screw which bears directly on the cord | N/A | |
| | - at least one part of the cord anchorage securely fixed to the appliance, unless part of a specially prepared cord | N/A | |
| | - screws which have to be operated when replacing the cord do not fix any other component, if applicable | N/A | |
| | - if labyrinths can be bypassed the test of 25.15 is nevertheless withstood | N/A | |
| | - for Class 0, 0I and I appliances: they are of insulating material or are provided with an insulating lining, unless a failure of the insulation of the cord does not make accessible metal parts live | N/A | |
| | - for Class II appliances: they are of insulating material, or if of metal, they are insulated from accessible metal parts by supplementary insulation | N/A | |
| 25.17 | Adequate cord anchorages for type Y and Z attachment | C | |
| 25.18 | Cord anchorages only accessible with the aid of a tool, or | C | |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| | | | |
|----------------|--------------------|-----------------|---------|
| IEC 60335-2-48 | | | |
| Clause | Requirement - Test | Result - Remark | Verdict |

| | | | |
|-------|---|--|-----|
| | so constructed that the cord can only be fitted with the aid of a tool | | C |
| 25.19 | Type X attachment, glands not used as cord anchorage in portable appliances | | N/A |
| | Tying the cord into a knot or tying the cord with string not used | | N/A |
| 25.20 | Conductors of the supply cord for type Y and Z attachment adequately additionally insulated | | C |
| 25.21 | Space for supply cord for type X attachment or for connection of fixed wiring constructed to permit checking of conductors with respect to correct positioning and connection before fitting any cover, no risk of damage to the conductors when fitting the cover, no contact with accessible metal parts if a conductor becomes loose, etc. | | C |
| | 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/A |
| 25.22 | Appliance inlet: | | |
| | - live parts not accessible during insertion or removal | | N/A |
| | - connector can be inserted without difficulty | | N/A |
| | - the appliance is not supported by the connector | | N/A |
| | - 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/A |
| 25.23 | Interconnection cords comply with the requirements for the supply cord, except as specified | | N/A |
| | If necessary, electric strength test of 16.3 | | N/A |
| 25.24 | Interconnection cords not detachable without the aid of a tool if compliance with the standard is impaired when they are disconnected | | N/A |
| 25.25 | Dimensions of pins compatible with the dimensions of the relevant socket-outlet. Dimensions of pins and engagement face in accordance with the relevant plug in IEC 60083 | | N/A |
| 26 | TERMINALS FOR EXTERNAL CONDUCTORS | | |
| 26.1 | Appliances provided with terminals or equally effective devices for connection of external conductors | | C |
| | Terminals only accessible after removal of a non-detachable cover | | C |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

IEC 60335-2-48

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

| | | | |
|------|---|--------------------|-----|
| 26.2 | Appliances with type X attachment and appliances for connection to fixed wiring provided with terminals in which connections are made by means of screws, nuts or similar devices, unless the connections are soldered | CGA0028 CGA0016 | C |
| | Screws and nuts serve only to clamp supply conductors, except | | C |
| | internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors | | C |
| | If soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone | | N/A |
| | Soldering alone used, barriers provided, clearances and creepage distances satisfactory if the conductor becomes free at the soldered joint | | N/A |
| 26.3 | 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 | CGA0028 CGA0016 | C |
| | Terminals for type X attachment and those for connection to fixed wiring so fixed that when tightening or loosening the clamping means: | | |
| | - the terminal does not loosen | CGA0028 CGA0016 | C |
| | - internal wiring is not subjected to stress | | C |
| | - clearances and creepage distances are not reduced below the values in 29 | | C |
| | Compliance checked by inspection and by the test of subclause 8.6 of IEC 60999-1, the torque applied being equal to two-thirds of the torque specified. Nominal diameter of thread (mm); screw category; torque (Nm) | CGA0028 CGA0016 | C |
| 26.4 | Terminals for type X attachment, except those with a specially prepared cord, and those for connection to fixed wiring, no special preparation of conductors required, and so constructed or placed that conductors prevented from slipping out | | C |
| 26.5 | Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection to other parts that result in a hazard | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

IEC 60335-2-48

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

| | | | |
|-------|---|--------------------------|-----|
| 26.6 | Terminals for type X attachment and for connection to fixed wiring suitable for connection of conductors with required cross-sectional area according to table 13; rated current (A); nominal cross-sectional area (mm ²) | | C |
| 26.7 | Terminals only suitable for a specially prepared cord | | N/A |
| 26.8 | Terminals for the connection to fixed wiring, including the earthing terminal, located close to each other | | C |
| 26.9 | Terminals of the pillar type constructed and located as specified | | C |
| 26.10 | 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 | | C |
| | Pull test of 5 N to the connection | | C |
| 26.11 | For type Y and Z attachment: soldered, welded, crimped and similar connections may be used | Crimped connections used | C |
| | For Class II appliances: the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone | | N/A |
| | For Class II appliances: soldering, welding or crimping alone used, barriers provided, clearances and creepage distances satisfactory if the conductor becomes free | | N/A |
| 27 | PROVISION FOR EARTHING | | |
| 27.1 | Accessible metal parts of Class 0I and I appliances, permanently and reliably connected to an earthing terminal or contact of the appliance inlet | CGA0008 | C |
| | Earthing terminals not connected to neutral terminal | | C |
| | Class 0, II and III appliance have no provision for earthing | | N/A |
| | Safety extra-low voltage circuits not earthed, unless protective extra-low voltage circuits | | N/A |
| 27.2 | Clamping means adequately secured against accidental loosening | | C |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| IEC 60335-2-48 | | | |
|----------------|--------------------|-----------------|---------|
| Clause | Requirement - Test | Result - Remark | Verdict |

| | | | |
|------|--|--|-----|
| | Terminals used for the connection of external equipotential bonding conductors allow connection of conductors of 2.5 to 6 mm ² , and | | C |
| | do not provide earthing continuity between different parts of the appliance | | C |
| | Conductors cannot be loosened without the aid of a tool | | C |
| | Stationary appliances shall be provided with a terminal for the connection of an external equipotential conductor. This terminal shall be in effective electrical contact with all fixed exposed parts of the appliance and shall allow the connection of a conductor having a nominal cross-sectional area of up to 10 mm ² . It shall be located in a position convenient for the connection of the bonding conductor after installation of the appliance (IEC 60335-2-48:2002) | | C |
| 27.3 | For detachable parts that are plugged into another part of the appliance, and having an earth connection, the earth connection made before and separated after current-carrying connections when removing the part For appliances with supply cord, current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage | | N/A |
| 27.4 | No risk of corrosion resulting from contact between metal of earthing terminal and other metal | | C |
| | Adequate resistance to corrosion of coated or uncoated parts providing earthing continuity, other than parts of a metal frame or enclosure | | C |
| | Parts of steel providing earthing continuity provided at the essential areas with an electropolated coating, thickness at least 5 µm | | N/A |
| | Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure | | N/A |
| | In case of aluminium alloys precautions taken to avoid risk of corrosion | | N/A |
| 27.5 | Low resistance of connection between earthing terminal and earthed metal parts | | C |
| | This requirement does not apply to connections providing earthing continuity in the protective extra-low voltage circuit, provided that clearances of basic insulation are based on the rated voltage of the appliance | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| | | | |
|----------------|--------------------|-----------------|---------|
| IEC 60335-2-48 | | | |
| Clause | Requirement - Test | Result - Remark | Verdict |

| | | | |
|------|---|----------------------|-----|
| 27.6 | The printed conductors of printed circuit boards not used to provide earthing continuity in hand held appliances | | N/A |
| | They may be used in other appliances if: | | |
| | - at least two tracks are used with independent soldering points and the appliance complies with requirements of 27.5 for each circuit | | N/A |
| | - the material of the printed circuit board complies with IEC 60249-2-4 or IEC 60249-2-5 | | N/A |
| 28 | SCREWS AND CONNECTIONS | | |
| 28.1 | Fixings, electrical connections and connections providing earthing continuity withstand mechanical stresses | | C |
| | Screws not of soft metal liable to creep, such as zinc or aluminium | | C |
| | Diameter of screws of insulating material min. 3 mm | | N/A |
| | Screws of insulating material not used for any electrical connection or connections providing earthing continuity | | N/A |
| | Screws used for electrical connections or connections providing earthing continuity screw into metal | | C |
| | Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation | | N/A |
| | Type X attachment screws to be removed for replacement of supply cord or for user maintenance, not of insulating material if their replacement by a metal screw can impair basic insulation | | N/A |
| | For screws and nuts; test as specified | (see appended table) | C |
| 28.2 | Electrical connections and connections providing earthing continuity constructed so that contact pressure not transmitted through insulating material liable to shrink or distort, unless shrinkage or distortion compensated | | N/A |
| | This requirement does not apply to electrical connections in circuits carrying a current not exceeding 0,5A | | N/A |
| 28.3 | Space-threaded (sheet metal) screws only used for electrical connections if they clamp the parts together | | C |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

IEC 60335-2-48

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

| | | | |
|------|--|--|-----|
| 2 | Thread-cutting (self-tapping) screws only used for electrical connections if they generate a full form standard machine screw thread | | C |
| 2 | Such 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/A |
| 2 | Thread-cutting and space-threaded screws may be used in connections providing earthing continuity, provided unnecessary to disturb the connection and at least two screws are used for each connection | | C |
| 2 | Thread-cutting, thread rolling and space-threaded screws may be used in connections providing earthing continuity provided it is not necessary to disturb the connection | | |
| | - in normal use | | N/A |
| | - during user maintenance | | N/A |
| 2 | - when replacing a supply cord having a type X attachment or | | N/A |
| | - during installation | | N/A |
| | At least two screws must be used for each connection providing earthing continuity unless the screw forms a thread having a length of at least half the diameter of the screw | | N/A |
| 28.4 | Screws and nuts that make mechanical connection secured against loosening if they also make electrical connections or connections providing earthing continuity | | C |
| 2 | Rivets for electrical connections or connections providing earthing continuity secured against loosening if subjected to torsion | | N/A |
| 29 | CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION | | |
| 2 | Clearances, creepage distances and solid insulation withstand electrical stress | | C |
| | For coatings used on printed circuits boards to protect the microenvironment (Type A) or to provide basic insulation (Type B), annex J applies..... | | N/A |
| 2 | The microenvironment is pollution degree 1 under Type A coating | | N/A |
| | No creepage distance or clearance requirements under Type B coating | | N/A |
| 29.1 | Clearances not less than the values specified in table 16, taking into account the rated impulse voltage for the overvoltage categories of table 15, unless | | C |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

IEC 60335-2-48

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

| | | | |
|--------|---|--|-----|
| | for basic insulation and functional insulation they comply with the impulse voltage test of clause 14 | | C |
| | However, if the construction is affected by wear, distortion, movement of the parts or during assembly, the clearances for rated impulse voltages of 1500V and above are increased by 0,5 mm and the impulse voltage test is not applicable | | C |
| | Impulse voltage test not applicable: | | |
| | - when the microenvironment is pollution degree 3 | | N/A |
| | - for basic insulation of class 0 and class 01 appliances | | N/A |
| | Appliances are in overvoltage category II | | C |
| | Clearances less than specified in table 16 not allowed for basic insulation of class 0 and class 01 appliances, | | N/A |
| | or if pollution degree 3 is applicable | | N/A |
| | Compliance is checked by inspection and measurements as specified | | C |
| 29.1.1 | Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage | | C |
| | Clearance at the terminals of tubular sheathed heating elements may be reduced to 1mm if the microenvironment is pollution degree 1 | | C |
| | Lacquered conductors of windings considered to be bare conductors | | N/A |
| 29.1.2 | Clearances of supplementary insulation not less than those specified for basic insulation in table 16 | | C |
| 29.1.3 | Clearances of reinforced insulation not less than those specified for basic insulation in table 16, but using the next higher step for rated impulse voltage | | C |
| 29.1.4 | For functional insulation, the values of table 16 are applicable, unless | | C |
| | the appliance complies with clause 19 with the functional insulation short-circuited | | N/A |
| | Lacquered conductors of windings considered to be bare conductors | | N/A |
| | However, clearances at crossover points are not measured | | N/A |
| | Clearance between surfaces of PTC heating elements may be reduced to 1mm | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

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

IEC 60335-2-48

| | | | |
|--------|--|--|-----|
| 29.1.5 | Appliances having higher working voltage than rated voltage, the voltage used for determining clearances from table 16 is the sum of the rated impulse voltage and the difference between the peak value of the working voltage and the peak value of the rated voltage | | N/A |
| | If the secondary winding of a step-down transformer is earthed, or if there is an earthed screen between the primary and secondary windings, clearances of basic insulation on the secondary side not less than those specified in table 16, but using the next lower step for rated impulse voltage | | N/A |
| | Circuits supplied with a voltage lower than rated voltage, clearances of functional insulation based on the working voltage used as the rated voltage in table 15 | | N/A |
| 29.2 | Creepage distances not less than those appropriate for the working voltage, taking into account the material group and the pollution degree | | C |
| | Pollution degree 2 applies, unless | | N/A |
| | precautions taken to protect the insulation; pollution degree 1 | | C |
| | insulation subjected to conductive pollution; pollution degree 3 | | N/A |
| | Compliance is checked by inspection and measurements as specified | | C |
| | The microenvironment is pollution degree 3 and the insulation shall have a comparative tracking index 9CTI) not less than 250, unless the insulation is enclosed or located so that it is unlikely to be exposed to pollution during normal use of the appliance (IEC 60335-2-48:2002) | | N/A |
| 29.2.1 | Creepage distances of basic insulation not less than specified in table 17 | | C |
| | For pollution degree 1, creepage distance not less than the minimum specified for the clearance in table 16, if the clearance has been checked according to the test of clause 14 | | C |
| 29.2.2 | Creepage distances of supplementary insulation at least as specified for basic insulation in table 17 | | C |
| 29.2.3 | Creepage distances of reinforced insulation at least double as specified for basic insulation in table 17 | | C |
| 29.2.4 | Creepage distances of functional insulation not less than specified in table 18 | | C |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

IEC 60335-2-48

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

| | | | |
|--------|---|--|-----|
| | Creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited | | N/A |
| 29.3 | Supplementary and reinforced insulation having adequate thickness, or a sufficient number of layers, to withstand the electrical stresses | | C |
| | Compliance checked by: | | |
| | - measurement, in accordance with 29.3.1, or | | C |
| | - an electric strength test in accordance with 29.3.2, or | | C |
| | - an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3 | | C |
| | This requirement does not apply to the sheath of a visibly glowing heating element inaccessible to test probe 41 of IEC 61032 (IEC 60335-2-48:2002) | | N/A |
| 29.3.1 | Supplementary insulation having a thickness of at least 1 mm | | C |
| | Reinforced insulation having a thickness of at least 2 mm | | C |
| 29.3.2 | Each layer of material withstand the electric strength test of 16.3 for supplementary insulation | | C |
| | Supplementary insulation consisting of at least 2 layers | | C |
| | Reinforced insulation consisting of at least 3 layers | | C |
| 29.3.3 | The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by | | C |
| | the electric strength test of 16.3 | | C |
| | If the temperature rise during the tests of Clause 19 does not exceed the value specified in Table 3, the test of IEC 60068-2-2 is not carried out | | C |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| | | | |
|----------------|--------------------|-----------------|---------|
| IBC 60335-2-48 | | | |
| Clause | Requirement - Test | Result - Remark | Verdict |

| | | | |
|--------|--|-------|-----|
| 30 | RESISTANCE TO HEAT AND FIRE | | |
| 30.1 | External parts of non-metallic material, | | C |
| | parts supporting live parts, and | | C |
| | thermoplastic material providing supplementary or | | N/A |
| | sufficiently resistant to heat | | C |
| | Ball-pressure test according to IEC 60695-10-2 | | C |
| | External parts: at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 75 °C, whichever is the higher; temperature (°C)..... | 75°C | C |
| | Parts supporting live parts: at 40°C plus the maximum temperature rise determined during the test of clause 11, or at 125°C, whichever is the higher; temperature (°C) | 125°C | C |
| | Parts of thermoplastic material providing supplementary or reinforced insulation, 25°C plus the maximum temperature rise determined during clause 19, if higher; temperature (°C) | | N/A |
| 30.2 | Relevant parts of non-metallic material adequately resistant to ignition and spread of fire | | C |
| | This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames that originate inside the appliance | | N/A |
| 30.2.1 | Glow-wire test of IEC 60695-2-11 at 550 °C, unless the material is classified at least HB40 according to IEC 60695-11-10 | | C |
| | Parts for which the glow-wire test cannot be carried out meet the requirements in ISO9772 for category HBF material | | N/A |
| | Glow-wire test of IEC 60695-2-11 at 650 °C (IEC 60335-2-48:2002) | | C |
| 30.2.2 | Appliances operated while attended, parts of insulating material supporting current-carrying connections and parts within a distance of 3mm subjected to the glow-wire test of IEC 60695-2-11 at a temperature of: | | |
| | -750°C, for connections carrying a current exceeding 0,5A during normal operation | | C |
| | -650°C, for other connections | | C |
| | Test not applicable to conditions as specified | | C |
| 30.2.3 | Appliances operated while unattended, tested as specified in 30.2.3.1 and 30.2.3.2 | | N/A |
| | Test not applicable to conditions as specified | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| | | | |
|----------------|--------------------|-----------------|---------|
| IBC 60335-2-48 | | | |
| Clause | Requirement - Test | Result - Remark | Verdict |

| | | | |
|----------|---|--|-----|
| 30.2.3.1 | Parts of insulating material supporting connections carrying a current exceeding 0,2A during normal operation, and | | C |
| | parts of insulating material within a distance of 3mm, | | C |
| | having a glow-wire flammability index of at least 850°C according to IEC 60695-2-12 | | C |
| 30.2.3.2 | Parts of insulating material supporting current-carrying connections, and | | C |
| | parts of insulating material within a distance of 3mm, | | C |
| | subjected to glow-wire test of IEC 60695-2-11 | | C |
| | Test not carried out on material having a glow-wire ignition temperature according to IEC 60695-2-13 as specified | | N/A |
| | Glow-wire test of IEC 60695-2-11, the temperature being: | | |
| | -750°C, for connections carrying a current exceeding 0,2A during normal operation | | C |
| | -650°C, for other connections | | C |
| | Parts that during the test produce a flame persisting longer than 2 s, tested as specified | | N/A |
| | If a flame persists longer than 2 s during the test, parts above the connection, as specified, subjected to the needle-flame test of annex E, unless | | N/A |
| | the material is classified as V-0 or V-1 according to IEC 60695-11-10 | | N/A |
| 30.2.4 | Base material of printed circuit boards subjected to needle-flame test of annex E | | C |
| | Test not applicable to conditions as specified | | C |
| 30.101 | Filters, if any, on non-metallic materials intended for the absorption of grease are subjected to the burning test specified in ISO 9772 for category HBF material (IEC 60335-2-48:2002) | | N/A |
| 31 | RESISTANCE TO RUSTING | | |
| | Relevant ferrous parts adequately protected against rusting | | C |
| 32 | RADIATION, TOXICITY AND SIMILAR HAZARDS | | |
| | Appliance does not emit harmful radiation in normal use | | N/A |
| | Appliance does not present a toxic or similar hazard in normal use | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

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

| | | | |
|---|-----------------------|---------------|--|
| A | ANNEX A (INFORMATIVE) | ROUTINE TESTS | |
|---|-----------------------|---------------|--|

| | | | |
|--|--|--|---|
| | Description of routine tests to be carried out by the manufacturer | | C |
|--|--|--|---|

| | | | |
|---|---|--|-----|
| B | ANNEX B (NORMATIVE) | APPLIANCES POWERED BY RECHARGEABLE BATTERIES | |
| | The following modifications to this standard are applicable for appliances powered by batteries that are recharged in the appliance | | N/A |
| | This annex does not apply to battery chargers | | N/A |

| | | | |
|-------|---|--|-----|
| 3.1.9 | Appliance operated under the following conditions: | | |
| | -the appliance, supplied by its fully charged battery, operated as specified in relevant part 2 | | N/A |

| | | | |
|--|---|--|-----|
| | -the battery is charged, the battery being initially discharged to such an extent that the appliance cannot operate | | N/A |
|--|---|--|-----|

| | | | |
|--|--|--|-----|
| | -if possible, the appliance is supplied from the supply mains through its battery charger, the battery being initially discharged to such an extent that the appliance cannot operate. The appliance is operated as specified in relevant part 2 | | N/A |
|--|--|--|-----|

| | | | |
|--|--|--|-----|
| | If the appliance incorporates inductive coupling between two parts that are detachable from each other, the appliance is supplied from the supply mains with the detachable part removed | | N/A |
|--|--|--|-----|

| | | | |
|-------|---|--|-----|
| 3.6.2 | Part to be removed in order to discard the battery is not considered to be detachable | | N/A |
| 5.101 | Appliances supplied from the supply mains tested as specified for motor-operated appliances | | N/A |

| | | | |
|-----|--|--|-----|
| 7.1 | Battery compartment for batteries intended to be replaced by the user, marked with battery voltage and polarity of the terminals | | N/A |
|-----|--|--|-----|

| | | | |
|------|---|--|-----|
| 7.12 | The instructions for appliances incorporating batteries intended to be replaced by the user includes required information | | N/A |
|------|---|--|-----|

| | | | |
|--|---|--|-----|
| | Details about how to remove batteries containing materials hazardous to the environment given | | N/A |
|--|---|--|-----|

| | | | |
|------|--|--|-----|
| 7.15 | Markings placed on the part of the appliance connected to the supply mains | | N/A |
|------|--|--|-----|

| | | | |
|-----|---|--|-----|
| 8.2 | Appliances having batteries that according to the instruction may be replaced by the user need only have basic insulation between live parts and the inner surface of the battery compartment | | N/A |
|-----|---|--|-----|

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| | | | |
|----------------|--------------------|-----------------|---------|
| IEC 60335-2-48 | | | |
| Clause | Requirement - Test | Result - Remark | Verdict |

| | | | |
|------|--|--|-----|
| | 11.7 | The battery is charged for the period described | N/A |
| | 19.1 | Appliances subjected to tests of 19.101, 19.102 and 19.103 | N/A |
| | 19.101 | Appliances supplied at rated voltage for 168 h, the battery being continually charged | |
| | 19.102 | Short-circuiting of the terminals of the battery, being fully charged, for appliances having batteries that can be removed without the aid of a tool | N/A |
| | 19.103 | Appliances having batteries replaceable by the user supplied at rated voltage under normal operation with the battery removed or in any position allowed by the construction | N/A |
| | 21.101 | Appliances having pins for insertion into socket-outlets have adequate mechanical strength, checked according to procedure 2 of IEC 68-2-32 | N/A |
| | Part of the appliance incorporating the pins subjected to the free fall test, procedure 2, of IEC 60068-2-32, the number of falls being: | | |
| | | - 100, the mass of part does not exceed 250 g | N/A |
| | | - 50, the mass of part exceeds 250 g | N/A |
| | | After the test, the requirements of 8.1, 15.1.1, 16.3 and clause 29 are met | N/A |
| | 22.3 | Appliances having pins for insertion into socket-outlets tested as fully assembled as possible | N/A |
| | 25.13 | An additional lining or bushing not required for interconnection cords operating at safety extra-low voltage | N/A |
| 30.2 | | For parts of the appliance connected to the supply mains during the charging period, 30.2.3 applies | N/A |
| | | For other parts, 30.2.2 applies | N/A |
| C | ANNEX C (NORMATIVE) AGEING TEST ON MOTORS | | |
| | | Tests, as described, carried out when doubt with regard to the temperature classification of the insulation of a motor winding | N/A |
| D | ANNEX D (NORMATIVE) THERMAL MOTOR PROTECTORS | | |
| | | Applicable to appliances having motors that incorporate thermal motor protectors | N/A |
| E | ANNEX E (NORMATIVE) NEEDLE-FLAME TEST | | |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

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

IEC 60335-2-48

| | | | |
|---------|--|--|-----|
| | Needle-flame test carried out in accordance with IEC 60695-2-2, with the following modifications: | | N/A |
| 5 | Severities | | |
| | The duration of application of the test flame is 30 s ± 1 s | | N/A |
| 8 | Test procedure | | |
| 8.2 | The specimen so arranged that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1 | | N/A |
| 8.4 | The first paragraph does not apply | | N/A |
| | If possible, the flame is applied at least 10 mm from a corner | | N/A |
| 8.5 | The test is carried out on one specimen | | N/A |
| | If the specimen does not withstand the test, the test may be repeated on two further specimens, both withstanding the test | | N/A |
| 10 | Evaluation of test results | | N/A |
| | The duration of burning not exceeding 30 s | | N/A |
| | However, for printed circuit boards, the duration of burning not exceeding 15 s | | N/A |
| F | ANNEX F (NORMATIVE) CAPACITORS | | |
| | Capacitors likely to be permanently subjected to the supply voltage, and used for radio interference suppression or voltage dividing, comply with the following clauses of IEC 60384-14, with the following modifications: | | N/A |
| 1.5 | Terminology | | N/A |
| 1.5.3 | Class X capacitors tested according to subclass X2 | | N/A |
| 1.5.4 | This subclause is applicable | | N/A |
| 1.6 | Marking | | N/A |
| | Items a) and b) are applicable | | N/A |
| 3.4 | Approval testing | | N/A |
| 3.4.3.2 | Table II is applicable as described | | N/A |
| 4.1 | Visual examination and check of dimensions | | N/A |
| | This subclause is applicable | | N/A |
| 4.2 | Electrical tests | | N/A |
| 4.2.1 | This subclause is applicable | | N/A |
| 4.2.5 | This subclause is applicable | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

IEC 60335-2-48

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

| | | | |
|---------------------|--|--|-----|
| 4.2.5.2 | Only table IX is applicable | | N/A |
| | Values for test A apply | | N/A |
| | However, for capacitors in heating appliances the values for test B or C apply | | N/A |
| 4.12 | Damp heat, steady state | | N/A |
| | This subclause is applicable | | N/A |
| | Only insulation resistance and voltage proof are checked | | N/A |
| 4.13 | Impulse voltage | | N/A |
| | This subclause is applicable | | N/A |
| 4.14 | Endurance | | N/A |
| | Subclauses 4.14.1, 4.14.3, 4.14.4 and 4.14.7 applicable | | N/A |
| 4.14.7 | Only insulation resistance and voltage proof are checked | | N/A |
| | Visual examination, no visible damage | | N/A |
| 4.17 | Passive flammability test | | N/A |
| | This subclause is applicable | | N/A |
| 4.18 | Active flammability test | | N/A |
| | This subclause is applicable | | N/A |
| G | ANNEX G (NORMATIVE) SAFETY ISOLATING TRANSFORMERS | | |
| | The following modifications to this standard are applicable for safety isolating transformers: | | N/A |
| 7 | Marking and instructions | | N/A |
| 7.1 | Transformers for specific use marked with: | | N/A |
| | -name, trademark or identification mark of the manufacturer or responsible vendor | | N/A |
| | -model or type reference | | N/A |
| 17 | Overload protection of transformers and associated circuits | | N/A |
| | Fail-safe transformers comply with subclause 15.5 of IEC 61558-1 | | N/A |
| 22 | Construction | | N/A |
| | Subclauses 19.1 and 19.1.2 of IEC 61558-2-6 are applicable | | N/A |
| 29 | Clearances, creepage distances and solid insulation | | N/A |
| 29.1, 29.2 and 29.3 | The distances specified in items 2a, 2c and 3 in table 13 of IEC 61558-1 apply | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

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

| | | | |
|------|---|---|-----|
| H | ANNEX H (NORMATIVE) | Switches comply with the following clauses of IEC 61058-1, as modified: | |
| | -The tests of IEC 61058-1 carried out under the conditions occurring in the appliance | | N/A |
| | -Before being tested, switches are operated 20 times without load | | N/A |
| 8 | Marking and documentation | | N/A |
| | Switches are not required to be marked | | N/A |
| | However, switches that can be tested separately from the appliance marked with the manufacturer's name or trade mark and the type reference | | N/A |
| 13 | Mechanism | | N/A |
| | The tests may be carried out on a separate sample | | N/A |
| 15 | Insulation resistance and dielectric strength | | N/A |
| 15.1 | Not applicable | | N/A |
| 15.2 | Not applicable | | N/A |
| 15.3 | Applicable for full disconnection and micro-disconnection | | N/A |
| 17 | Endurance | | N/A |
| | Compliance is checked on three separate appliances or switches | | N/A |
| | For 17.2.4.4, the number of cycles is 10 000, unless otherwise specified in 24.1.3 of the relevant part 2 of IEC 60335 | | N/A |
| | Switches for operation under no load and which can be operated only by a tool and switches operated by hand that are interlocked so that they cannot be operated under load, are not subjected to the tests | | N/A |
| | Subclauses 17.2.2 and 17.2.5.2 not applicable | | N/A |
| | The ambient temperature during the test is that occurring in the appliance during the test of Clause 11 in IEC 60335-1 | | N/A |
| | Temperature rise of the terminals not more than 30 K above the temperature rise measured in clause 11 of IEC 60335-1 | | N/A |
| 20 | Clearances, creepage distances, solid insulation and coatings of rigid printed board assemblies | | |
| | This clause is applicable to clearances and creepage distances for functional insulation, across full disconnection and micro-disconnection, as stated in table 24 | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

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

IBC 60335-2-48

| | | | |
|--------|--|---|-----|
| I | ANNEX I (NORMATIVE) MOTORS HAVING BASIC INSULATION THAT IS INADEQUATE FOR THE RATED VOLTAGE OF THE APPLIANCE | The following modifications to this standard are applicable for motors having basic insulation that is inadequate for the rated voltage of the appliance: | N/A |
| 8 | Protection against access to live parts | | N/A |
| 8.1 | Metal parts of the motor are considered to be bare live parts | | N/A |
| 11 | Heating | | N/A |
| 11.3 | Temperature rise of the body of the motor is determined instead of the temperature rise of the windings | | N/A |
| 11.8 | Temperature rise of the body of the motor, where in contact with insulating material, not exceeding values in table 3 for the relevant insulating material | | N/A |
| 16 | Leakage current and electric strength | | N/A |
| 16.3 | Insulation between live parts of the motor and its other metal parts not subjected to the test | | N/A |
| 19 | Abnormal operation | | N/A |
| 19.1 | The tests of 19.7 to 19.9 not carried out | | N/A |
| 19.101 | Appliance operated at rated voltage with each of the following fault conditions: | | |
| | - short circuit of the terminals of the motor, including any capacitor incorporated in the motor circuit | | N/A |
| | - short circuit of each diode of the rectifier | | N/A |
| | - open circuit of the supply to the motor | | N/A |
| | - open circuit of any parallel resistor, the motor being in operation | | N/A |
| | Only one fault simulated at a time, the tests carried out consecutively | | N/A |
| 22 | Construction | | N/A |
| 22.101 | For class I appliances incorporating a motor supplied by a rectifier circuit, the d.c. circuit being insulated from accessible parts of the appliance by double or reinforced insulation | | N/A |
| | Compliance checked by the tests specified for double and reinforced insulation | | N/A |
| J | ANNEX J (NORMATIVE) COATED PRINTED CIRCUIT BOARDS | | |
| | Testing of protective coatings of printed circuit boards carried out in accordance with IEC 60664-3 with the following modifications: | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

IEC 60335-2-48

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

| | | | |
|-------|--|-----|-----|
| 6.6 | Climatic sequence | N/A | N/A |
| | When production samples are used, three samples of the printed circuit board are tested | N/A | N/A |
| 6.6.1 | Cold | N/A | N/A |
| | The test is carried out at -25°C | N/A | N/A |
| 6.6.3 | Rapid change of temperature | N/A | N/A |
| | Severity 1 is specified | N/A | N/A |
| 6.8.6 | Partial discharge extinction voltage | N/A | N/A |
| | Type A coatings not subjected to a partial discharge test | N/A | N/A |
| 6.9 | Additional tests | N/A | N/A |
| | This subclause is not applicable | N/A | N/A |
| K | ANNEX K (NORMATIVE) OVERVOLTAGE CATEGORIES | | |
| | The information on overvoltage categories is extracted from IEC 60664-1 | C | C |
| | Overvoltage category is a numeral defining a transient overvoltage condition | C | C |
| | Equipment of overvoltage category IV is for use at the origin of the installation | N/A | N/A |
| | Equipment of overvoltage category III is equipment in fixed installations and for cases where the reliability and the availability of the equipment is subject to special requirements | N/A | N/A |
| | Equipment of overvoltage category II is energy consuming equipment to be supplied from the fixed installation | C | C |
| | If such equipment is subjected to special requirements with regard to reliability and availability, overvoltage category III applies | N/A | N/A |
| | Equipment of overvoltage category I is equipment for connection to circuits in which measures are taken to limit transient overvoltages to an appropriate low level | N/A | N/A |
| L | ANNEX L (INFORMATIVE) GUIDANCE FOR THE MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES | | |
| | Sequences for the determination of clearances and creepage distances | N/A | N/A |
| M | ANNEX M (NORMATIVE) POLLUTION DEGREE | | |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| | | | |
|----------------|--------------------|-----------------|---------|
| IEC 60335-2-48 | | | |
| Clause | Requirement - Test | Result - Remark | Verdict |

| | | | | |
|------|---|-----------|--|-----|
| | The information on pollution degrees is extracted from IEC 60664-1 | Pollution | | N/A |
| | The microenvironment determines the effect of pollution on the insulation, taking into account the microenvironment | | | C |
| | Means may be provided to reduce pollution at the insulation by effective enclosures or similar | | | N/A |
| | Minimum clearances specified where pollution may be present in the microenvironment | | | N/A |
| | Degrees of pollution in the microenvironment | | | C |
| | For evaluating creepage distances, the following degrees of pollution in the microenvironment are established: | | | |
| | - pollution degree 1: no pollution or only dry, non-conductive pollution occurs. The pollution has no influence | | | C |
| | - pollution degree 2: only non-conductive pollution occurs, except that occasionally a temporary conductivity caused by condensation is to be expected | | | N/A |
| | - pollution degree 3: conductive pollution occurs or dry non-conductive pollution occurs that becomes conductive due to condensation that is to be expected | | | N/A |
| | - pollution degree 4: the pollution generates persistent conductivity caused by conductive dust or by rain or snow | | | N/A |
| N | ANNEX N (NORMATIVE) PROOF TRACKING TEST | | | |
| | The proof tracking test is carried out in accordance with IEC 60112 with the following modifications: | | | N/A |
| 7 | Test apparatus | | | N/A |
| 7.3 | Test solutions | | | N/A |
| | Test solution A is used | | | N/A |
| 10 | Determination of proof tracking index (PTI) | | | N/A |
| 10.1 | Procedure | | | N/A |
| | The proof voltage is 100V, 175V, 400V or 600V, | | | N/A |
| | The last paragraph of Clause 3 applies | | | N/A |
| | The test is carried out on five specimens | | | N/A |
| | In case of doubt, additional test with proof voltage reduced by 25V, the number of drops increased to 100 | | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

IEC 60335-2-48

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

| | | | |
|------|--|-----|---|
| 10.2 | Report | N/A | |
| | The report stating if the PTI value was based on a test using 100 drops with a test voltage of (PTI-25) V | N/A | |
| O | ANNEX O (INFORMATIVE) SELECTION AND SEQUENCE OF THE TESTS OF CLAUSE 30 | | |
| | Description of tests for determination of resistance to heat and fire | | C |
| P | ANNEX P (INFORMATIVE) GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN WARM DAMP EQUABLE CLIMATES | | |
| | Modifications applicable for class 0 and 01 appliances having a rated voltage exceeding 150V, intended to be used in countries having a warm damp equable climate and that are marked WDAE | N/A | |
| | Modifications may also be applied to class 1 appliances having a rated voltage exceeding 150V, intended to be used in countries having a warm damp equable climate and that are marked WDAE, if liable to be connected to a supply mains that excludes the protective earthing conductor | N/A | |
| 5 | General conditions for the tests | N/A | |
| 5.7 | The ambient temperature for the tests of Clauses 11 and 13 is 40 ⁺³ / ₀ | N/A | |
| 7 | Marking and instructions | N/A | |
| 7.1 | The appliance marked with the letters WDAE | N/A | |
| 7.12 | The instructions state that the appliance is to be supplied through a RCD having a rated residual operating current not exceeding 30 mA | N/A | |
| | The instructions state that the appliance is considered to be suitable for use in countries having a warm damp equable climate, but may also be used in other countries | N/A | |
| 11 | Heating | N/A | |
| 11.8 | The values of Table 3 are reduced by 15 K | N/A | |
| 13 | Leakage current and electric strength at operating temperature | N/A | |
| 13.2 | The leakage current for class I appliances not exceeding 0,5 mA | N/A | |
| 15 | Moisture resistance | N/A | |
| 15.3 | The value of t is 37 °C | N/A | |
| 16 | Leakage current and electric strength | N/A | |
| 16.2 | The leakage current for class I appliances not exceeding 0,5 mA | N/A | |
| 19 | Abnormal operation | N/A | |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| | | | |
|----------------|--------------------|-----------------|---------|
| IEC 60335-2-48 | | | |
| Clause | Requirement - Test | Result - Remark | Verdict |

| | | | |
|-------------|--|--|-----|
| 19.13 | The leakage current test of 16.2 is applied in addition to the electric strength test of 16.3 | | N/A |
| Q | ANNEX Q (INFORMATIVE) SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS | | |
| | Description of tests for appliances incorporating electronic circuits | | N/A |
| R | ANNEX R (NORMATIVE) SOFTWARE EVALUATION | | |
| | Software evaluated in accordance with the following clauses of Annex H of IEC 60335-1, as modified | | N/A |
| H.2 | Definitions | | N/A |
| | Only definitions H.2.16 to H.2.20 applicable | | N/A |
| H.7 | Information | | N/A |
| | Only footnotes (12) to (18) of Table 7.2, as modified, applicable | | N/A |
| H.11.12 | Controls using software | | N/A |
| | All the subclauses of H.11.12, as modified, except H.11.12.6 and H.11.12.6.1, applicable | | N/A |
| H.11.12.7 | Delete text | | N/A |
| H.11.12.7.1 | For appliances using software class C having a single channel with self-test and monitoring structure, the manufacturer provides the measures necessary to address the faults/errors in safety related segments and data | | N/A |
| H.11.12.8 | Software fault/error detection occurs before compliance with 19.13 of IEC 60335-1 is impaired | | N/A |
| H.11.12.8.1 | Replace text | | N/A |
| H.11.12.13 | Software and safety related hardware under its control initializes and terminates before compliance with 19.13 of IEC 60335-1 is impaired | | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| | | | |
|----------------|--------------------|-----------------|---------|
| IEC 60335-2-48 | | | |
| Clause | Requirement - Test | Result - Remark | Verdict |

| | | | | | | | |
|------------------------|--|------------------------------|----------------|-------|-------------|--------|---|
| 10.1 | | TABLE: Power input deviation | | | | | C |
| Input deviation of/at: | | P rated (W) | P measured (W) | dP | Required dP | Remark | |
| 400V @ CGA 0028 | | 9000W | 9100W | 1,1% | +5 -10% | C | |
| 230V @ CGA0008,CGA0016 | | 3000W | 2900W | -3,3% | +5 -10% | C | |

| | | | | | | | | | | | |
|--------------------------|--|--------------------------|--|----------------|--|----|-----|-------------|--|--------|--|
| 10.2 | | TABLE: Current deviation | | | | | N/A | | | | |
| Current deviation of/at: | | I rated (A) | | I measured (A) | | dl | | Required dl | | Remark | |
| | | | | | | | | | | | |

| | | | | |
|------------------------|------------------------------------|--------------|--------------|---|
| 11.8 | TABLE: Heating test, thermocouples | | CGA 0028 | C |
| | | | | |
| | Test voltage (V) | 245V / Phase | | |
| | Ambient (°C) | 24 | | |
| Thermocouple locations | | | | |
| | dt (K) | | Max. dt (K) | |
| Internal wiring | 22 | | 145 | |
| Internal wiring | 14 | | 145 | |
| Contactor | 18 | | Ref CL.30 | |
| On/Off switch | 20 | | T125 | |
| Rotiserie switch | 24 | | T125 | |
| Thermostat | 31 | | T250 | |
| Control knob | 13 | | Ref to cl 30 | |
| Handle | 10 | | 60 | |
| Pilot light | 30 | | Ref to cl 30 | |
| Timer | 31 | | T125 | |
| Floor | 2 | | 60 | |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| | | | |
|----------------|--------------------|-----------------|---------|
| IEC 60335-2-48 | | | |
| Clause | Requirement - Test | Result - Remark | Verdict |

| | | | | | | |
|-----------------------------|--|--------------------|--------------------|--------|-------------|------------------|
| 11.8 | TABLE: Heating test, resistance method | | | | | C |
| | Test voltage (V) | | | | | |
| | Ambient, t ₁ (°C) | | | | | |
| | Ambient, t ₂ (°C) | | | | | |
| | | | | | | |
| Temperature rise of winding | | R ₁ (Ω) | R ₂ (Ω) | ΔT (K) | Max. ΔT (K) | Insulation class |
| Motor winding | | 23,7 | 29 | 58 | 65 | A |

| | | | | |
|---|--|--|---------------------|---|
| 13.2 | TABLE: Leakage current | | | C |
| | | Heating appliances: 1,15 x rated input..... | 10 350W | |
| | | Motor-operated and combined appliances: 1,06 x rated voltage..... | | |
| | Leakage current between | | I (mA) | |
| | | | Max. allowed I (mA) | |
| | Live 1 parts accessible metal parts connected to foil with accessible surface of insulating material | 8,6 | 9.0 | |
| | Live 2 parts accessible metal parts connected to foil with accessible surface of insulating material | 8,6 | 9.0 | |
| Live 3 parts accessible metal parts connected to foil with accessible surface of insulating material | 8,6 | 9.0 | | |
| Neutral parts accessible metal parts connected to foil with accessible surface of insulating material | 0,2 | 9.0 | | |

| | | | |
|-------------------------------------|--|--------------------------|--------------------|
| 13.3 | | TABLE: Electric strength | |
| Test voltage applied between: | | Voltage (V) | Breakdown (Yes/No) |
| Live parts to basic insulation | | 1000 | No |
| Live parts to reinforced insulation | | 3000 | No |
| | | | |
| | | | |

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

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| | | | |
|----------------|--------------------|-----------------|---------|
| IEC 60335-2-48 | Requirement - Test | Result - Remark | Verdict |
|----------------|--------------------|-----------------|---------|

| | | | |
|------|------------------------|---|---|
| 16.2 | TABLE: Leakage current | Single phase appliances: 1,06 x rated voltage Three phase appliances 1,06 x rated voltage divided by $\sqrt{3}$ | Leakage current between Live parts to accessible metal parts in contact with foil with accessible surface of insulating parts |
| | | 245V | |
| | | I (mA) | Max. allowed I (mA) |
| | | 0,27mA | 9,0mA |

| | | | |
|------|--------------------------|-----------------------|--|
| 16.3 | TABLE: Electric strength | Breakdown (Yes/No) | Test voltage applied between: Live parts to basic insulation Live parts to reinforced insulation |
| | | Voltage (V) | |
| | | 1250V | No |
| | | 3000V | No |

| | | | | |
|----|--|-----------------------------|-------------|-----|
| 17 | TABLE: Overload protection, temperature rise | Temperature rise of part/at | Max. dt (K) | N/A |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

| | | | | |
|------|--|------------------------------------|--------------------|--------|
| 19.7 | TABLE: Abnormal operation, locked rotor/moving parts | Test voltage (V) | 230V | |
| | | Ambient, t ₁ (°C) | 21 | |
| | | Ambient, t ₂ (°C) | 21 | |
| | Temperature of winding | R ₁ (Ω) | R ₂ (Ω) | dt (K) |
| | 230V Motor winding | 23,7 | 41 | 189 |
| | | | | 200 |
| | | | | Class |
| | | | | A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| | | | | |
|----------------|--------|--------------------|-----------------|---------|
| IBC 60335-2-48 | Clause | Requirement - Test | Result - Remark | Verdict |
|----------------|--------|--------------------|-----------------|---------|

| | | |
|------------------------|---|-----|
| 19.9 | TABLE: Abnormal operation, running overload | N/A |
| | Test voltage (V) | |
| | Ambient, t ₁ (°C) | |
| | Ambient, t ₂ (°C) | |
| Temperature of winding | | |
| | R ₁ (Ω) | |
| | R ₂ (Ω) | |
| | dt (K) | |
| | T (°C) | |
| | Max. T (°C) | |

| | | |
|-------|--|---|
| 19.13 | TABLE: Abnormal operation, temperature rises | C |
|-------|--|---|

| | | | | | |
|------------------------|------|--------|------|-------------|--|
| Thermocouple locations | | dt (K) | | Max. dt (K) | |
| | 19.2 | 19.3 | 19.4 | | |
| Ambient | 24 | 24 | 24 | 20±5 | |
| Test floor | 3 | 30 | 38 | 150 | |
| Test wall | 35 | 5 | 6 | 150 | |
| Motor winding | 47 | 112 | 188 | 200 | |

| | | |
|------|-------------------|---|
| 24.1 | TABLE: Components | C |
|------|-------------------|---|

| | | | | | |
|---------------------------|--|--------------|------------------------------|--------------|--------------------------|
| Object / part No. | Manufacturer/ trademark | Type / model | Technical data | Standard | Mark(s) of conformity |
| Supply cord (CGA 0008) | NINGBO HUASHUN ELECTRONICS CO LTD | H07RN-F | 1,5mm ² | 60245 IEC 66 | VDE |
| Plug Top CGA 0008 | - | No.2 | 16A, 250V | SANS 164-1 | TUV |
| Motor | PARVALUX | SD.8 | 220-240V 0,57A Class A | IEC 60335-1 | Tested in appliance |
| Contactor | CHINT | NC1-18 | 32A, 7.5kW | IEC 60947 | VDE |
| Thermostat | EGO | 55.18062.050 | T250 | IEC 60730 | VDE |
| Timer | FAUCIGNY | - | T125, 16(4)A 250V~ | IEC 60947 | VDE |
| On/Off Switch | ARCOLECTRIC | 5508P | T125 12A, 250V | IEC 61058 | CQC |
| Element | - | - | 230V 3000W X3 | IEC 60335-1 | Tested in appliance |

¹⁾ An asterisk indicates a mark which assures the agreed level of surveillance

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

| | | | |
|----------------|--------------------|-----------------|---------|
| IEC 60335-2-48 | | | |
| Clause | Requirement - Test | Result - Remark | Verdict |

| | | | | | |
|------|----------------------------------|------------------------------|----------------------------|----------------------------------|-----------------------|
| 28.1 | TABLE: Threaded part torque test | Threaded part identification | Diameter of thread (mm) | Column number (I, II, or III) | Applied torque (Nm) |
| | | Assembly screws | 4.9mm ² | II | 2.0Nm |

| | | |
|------|--------------------------|---|
| 29.1 | TABLE: Clearances | |
| | Overvoltage category ... | — |
| | Type of insulation: | |

| Rated impulse voltage (V): | Min. cl (mm) | Basic | Functional | Supplementary | Reinforced | Verdict / Remark |
|----------------------------|--------------|-------|------------|---------------|------------|------------------|
| 330 | 0,5* | | | | | N/A |
| 500 | 0,5* | | | | | N/A |
| 800 | 0,5* | | | | | N/A |
| 1 500 | 0,5*/** | | | | | N/A |
| 2 500 | 1,5** | X | X | X | X | C |
| 4 000 | 3,0** | | | | | N/A |
| 6 000 | 5,5** | | | | | N/A |
| 8 000 | 8,0** | | | | | N/A |
| 10 000 | 11,0** | | | | | N/A |

*) The value is increased to 0,8mm for pollution degree 3
 **) If the construction is affected by wear, distortion, movement of the parts or during assembly, the value is increased by 0,5 mm

[illegible]

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

IEC 60335-2-48

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

| | | | | | | | | | | | |
|-----------------|------|------|------|------|------|------|-------|--|---|---|-----|
| >125 and ≤250 | 0,6 | 1,3 | 1,8 | 2,5 | 3,2 | 3,6 | 4,0 | | — | — | N/A |
| >125 and ≤250 | 0,6 | 1,3 | 1,8 | 2,5 | 3,2 | 3,6 | 4,0 | | — | — | N/A |
| >125 and ≤250 | 1,2 | 2,6 | 3,6 | 5,0 | 6,4 | 7,2 | 8,0 | | — | — | N/A |
| >250 and ≤400 | 1,0 | 2,0 | 2,8 | 4,0 | 5,0 | 5,6 | 6,3 | | — | — | C |
| >250 and ≤400 | 1,0 | 2,0 | 2,8 | 4,0 | 5,0 | 5,6 | 6,3 | | — | — | C |
| >250 and ≤400 | 2,0 | 4,0 | 5,6 | 8,0 | 10,0 | 11,2 | 12,6 | | — | — | C |
| >400 and ≤500 | 1,3 | 2,5 | 3,6 | 5,0 | 6,3 | 7,1 | 8,0 | | — | — | N/A |
| >400 and ≤500 | 1,3 | 2,5 | 3,6 | 5,0 | 6,3 | 7,1 | 8,0 | | — | — | N/A |
| >400 and ≤500 | 1,3 | 2,5 | 3,6 | 5,0 | 6,3 | 7,1 | 8,0 | | — | — | N/A |
| >500 and ≤800 | 1,8 | 3,2 | 4,5 | 6,3 | 8,0 | 9,0 | 10,0 | | — | — | N/A |
| >500 and ≤800 | 1,8 | 3,2 | 4,5 | 6,3 | 8,0 | 9,0 | 10,0 | | — | — | N/A |
| >500 and ≤800 | 1,8 | 3,2 | 4,5 | 6,3 | 8,0 | 9,0 | 10,0 | | — | — | N/A |
| >800 and ≤1000 | 2,4 | 4,0 | 5,6 | 8,0 | 10,0 | 11,0 | 12,5 | | — | — | N/A |
| >800 and ≤1000 | 2,4 | 4,0 | 5,6 | 8,0 | 10,0 | 11,0 | 12,5 | | — | — | N/A |
| >800 and ≤1000 | 2,4 | 4,0 | 5,6 | 8,0 | 10,0 | 11,0 | 12,5 | | — | — | N/A |
| >1000 and ≤1250 | 3,2 | 5,0 | 7,1 | 10,0 | 12,5 | 14,0 | 16,0 | | — | — | N/A |
| >1000 and ≤1250 | 3,2 | 5,0 | 7,1 | 10,0 | 12,5 | 14,0 | 16,0 | | — | — | N/A |
| >1000 and ≤1250 | 6,4 | 10,0 | 14,2 | 20,0 | 25,0 | 28,0 | 32,0 | | — | — | N/A |
| >1250 and ≤1600 | 4,2 | 6,3 | 9,0 | 12,5 | 16,0 | 18,0 | 20,0 | | — | — | N/A |
| >1250 and ≤1600 | 4,2 | 6,3 | 9,0 | 12,5 | 16,0 | 18,0 | 20,0 | | — | — | N/A |
| >1250 and ≤1600 | 8,4 | 12,6 | 18,0 | 25,0 | 32,0 | 36,0 | 40,0 | | — | — | N/A |
| >1600 and ≤2000 | 5,6 | 8,0 | 11,0 | 16,0 | 20,0 | 22,0 | 25,0 | | — | — | N/A |
| >1600 and ≤2000 | 5,6 | 8,0 | 11,0 | 16,0 | 20,0 | 22,0 | 25,0 | | — | — | N/A |
| >1600 and ≤2000 | 11,2 | 16,0 | 22,0 | 32,0 | 40,0 | 44,0 | 50,0 | | — | — | N/A |
| >2000 and ≤2500 | 7,5 | 10,0 | 14,0 | 20,0 | 25,0 | 28,0 | 32,0 | | — | — | N/A |
| >2000 and ≤2500 | 7,5 | 10,0 | 14,0 | 20,0 | 25,0 | 28,0 | 32,0 | | — | — | N/A |
| >2000 and ≤2500 | 15,0 | 20,0 | 28,0 | 40,0 | 50,0 | 56,0 | 64,0 | | — | — | N/A |
| >2500 and ≤3200 | 10,0 | 12,5 | 18,0 | 25,0 | 32,0 | 36,0 | 40,0 | | — | — | N/A |
| >2500 and ≤3200 | 10,0 | 12,5 | 18,0 | 25,0 | 32,0 | 36,0 | 40,0 | | — | — | N/A |
| >2500 and ≤3200 | 20,0 | 25,0 | 36,0 | 50,0 | 64,0 | 72,0 | 80,0 | | — | — | N/A |
| >3200 and ≤4000 | 12,5 | 16,0 | 22,0 | 32,0 | 40,0 | 45,0 | 50,0 | | — | — | N/A |
| >3200 and ≤4000 | 12,5 | 16,0 | 22,0 | 32,0 | 40,0 | 45,0 | 50,0 | | — | — | N/A |
| >3200 and ≤4000 | 25,0 | 32,0 | 44,0 | 64,0 | 80,0 | 90,0 | 100,0 | | — | — | N/A |
| >4000 and ≤5000 | 16,0 | 20,0 | 28,0 | 40,0 | 50,0 | 56,0 | 63,0 | | — | — | N/A |

NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

IEC 60335-2-48

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

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

*, B=Basic, S=Supplementary and R=Reinforced

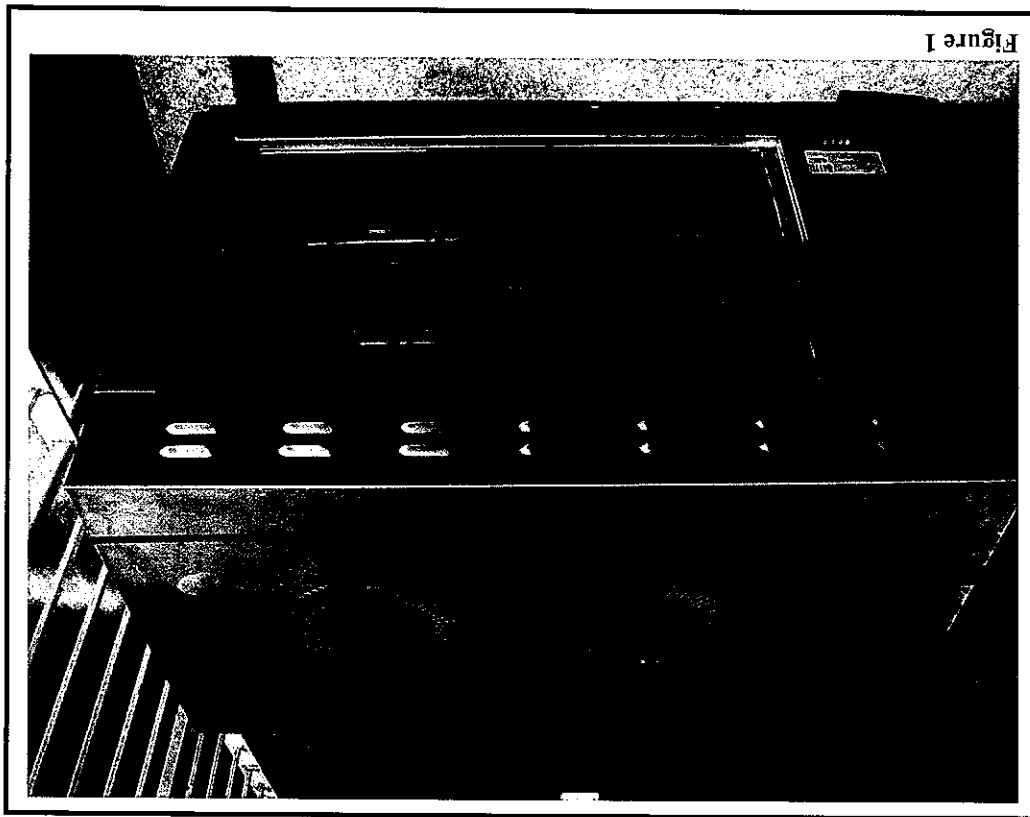
| | | | |
|--------------|-----------------------|--------------------------|----------------------------------|
| 30.1 | TABLE: Ball pressure | | C |
| Part | Test temperature (°C) | Impression diameter (mm) | Allowed impression diameter (mm) |
| Contactor | 125°C | <2mm | 2mm |
| Control Knob | 75°C | <2mm | 2mm |

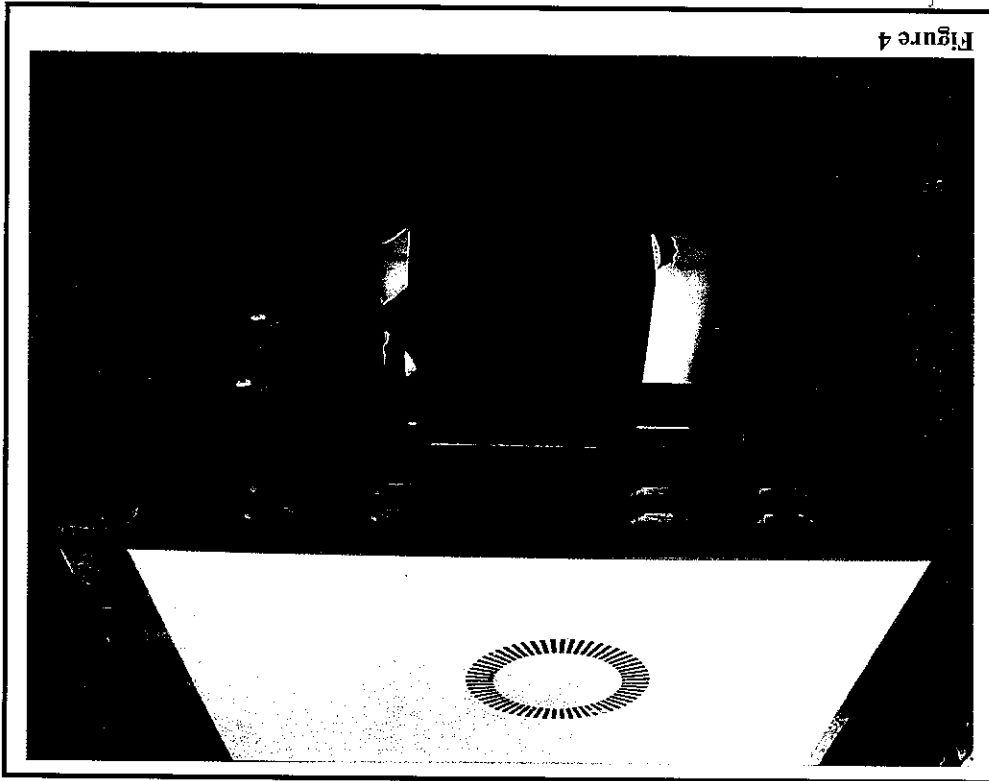
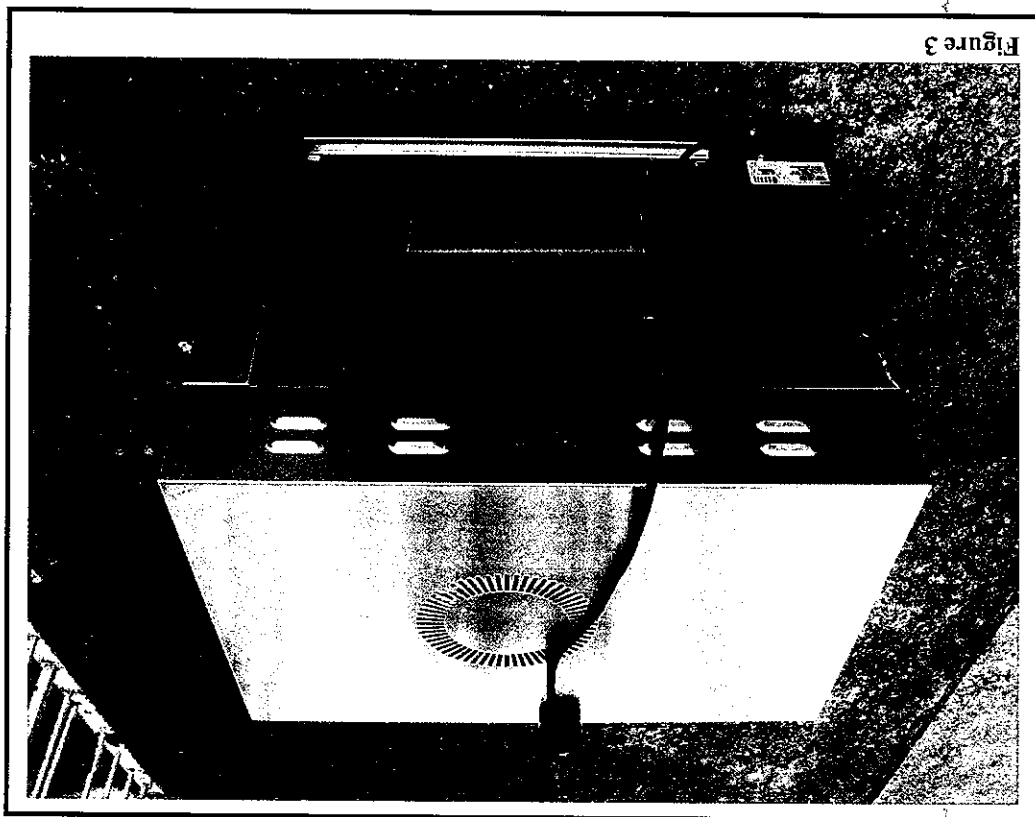
END OF TEST REPORT

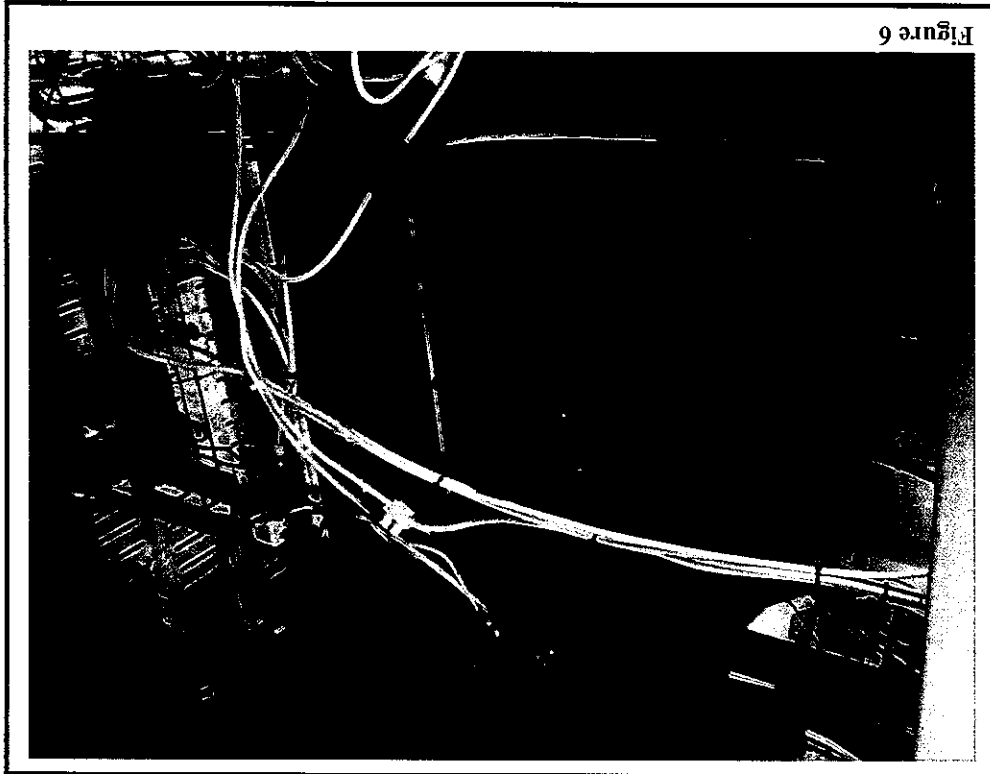
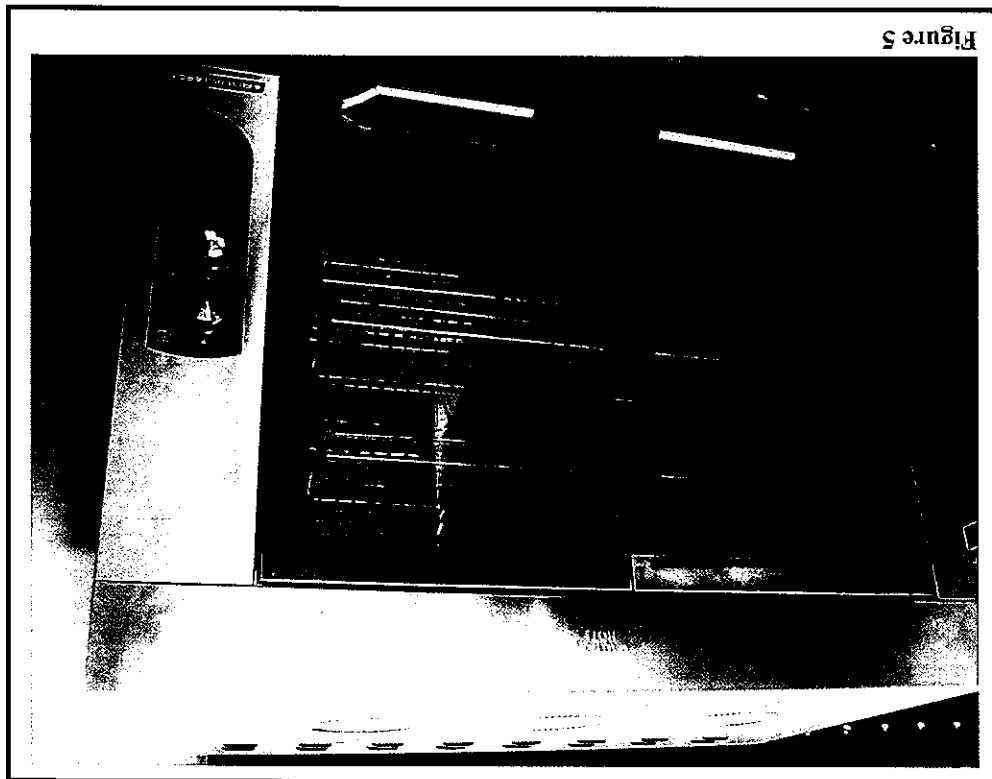
NOTE: This report relates only to the specific sample(s) tested as identified herein. The test results do not apply to any similar items that has not been tested.

Appendix 1

| | |
|--|--------------|
| Report number : WCT 12/0004 | Page 1 of 10 |
| Trading name : ANVIL | |
| Model number : SEE PAGE 2 OF TEST REPORT | |
| | |
| Figure 1 :Rear view - CGA 0016 | |
| Figure 2 : Front view - CGA 0016 | |
| Figure 3 : Rear view - CGA 0008 | |
| Figure 4 : Front view - CGA 0008 | |
| Figure 5 : Front view - CGA 0028 | |
| Figure 6 : Internal view 1 | |
| Figure 7 : Internal view 2 | |
| Figure 8 : Internal view 3 | |
| Figure 9 : Caution view | |
| Figure 10 : Rating label 1 | |
| Figure 11 : Rating label 2 | |
| Figure 12 : Rating label 3 | |
| Figure 13 : Plug top | |
| Figure 14 : Supply cord | |
| Figure 15 : Trade name 1 | |
| Figure 16 : Trade name 2 | |
| Figure 17 : Trade name 3 | |
| | |







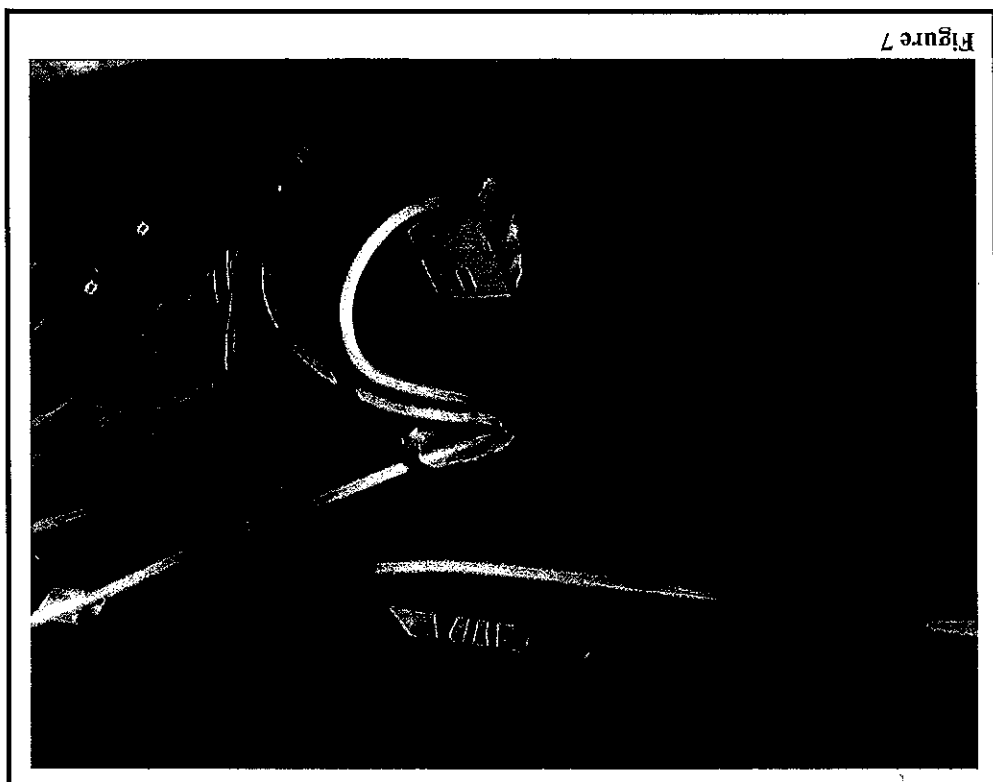


Figure 7

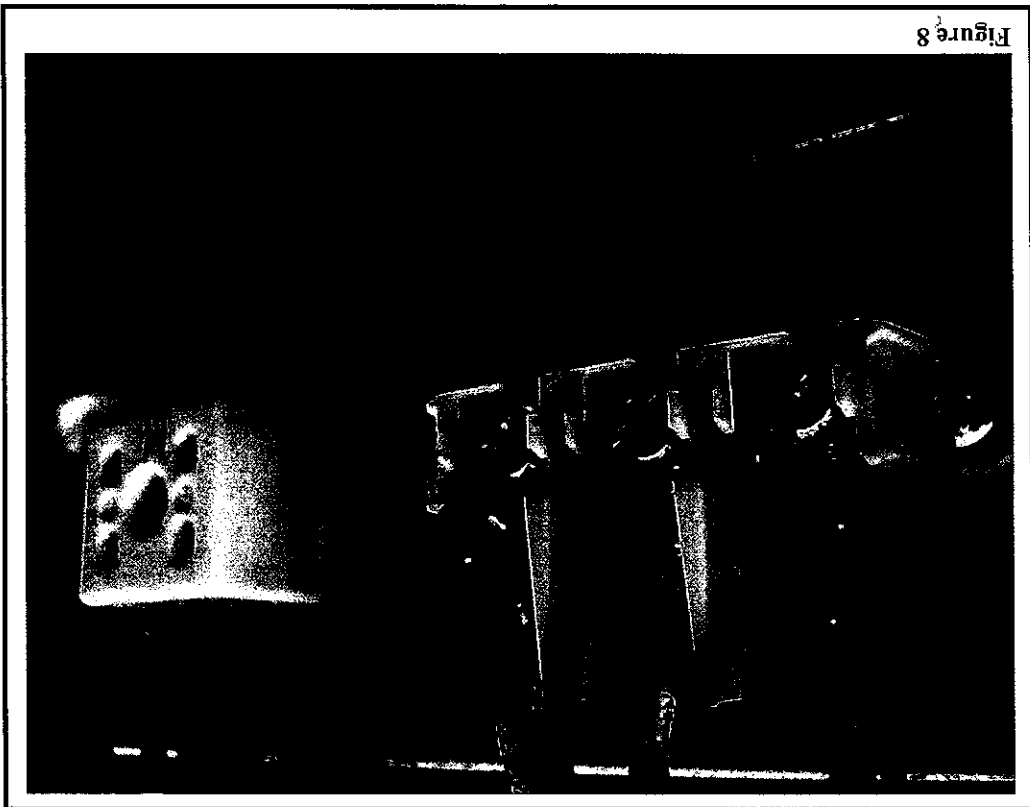


Figure 8

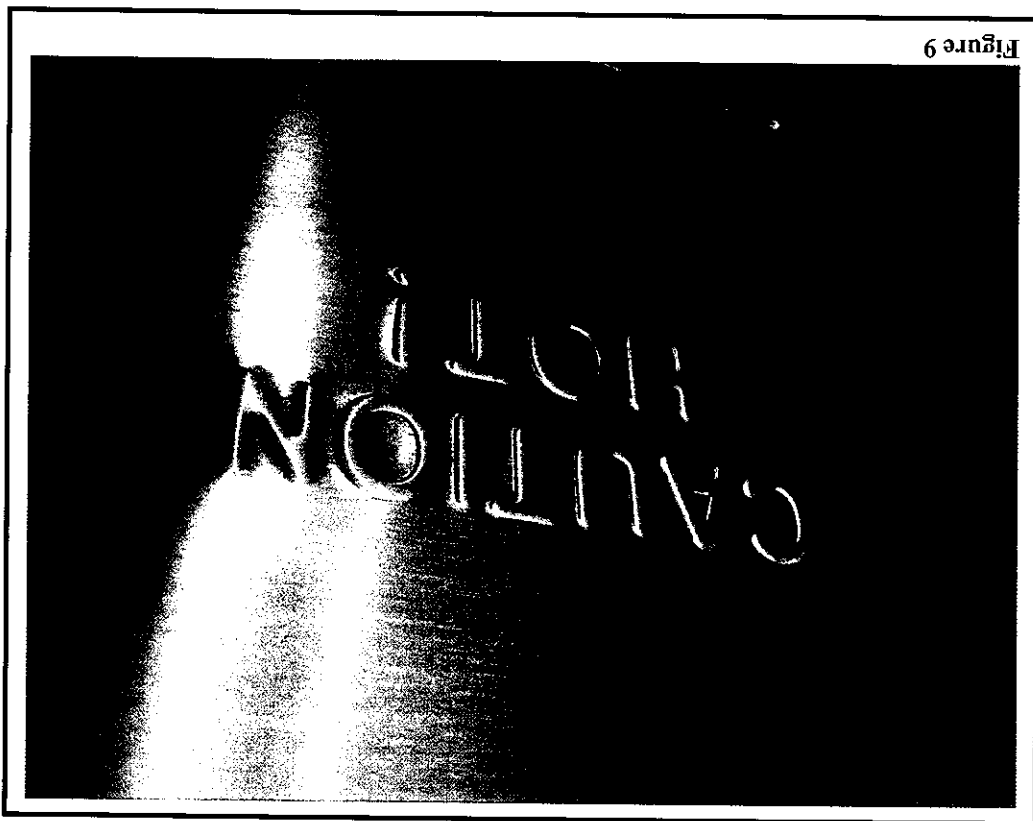


Figure 9

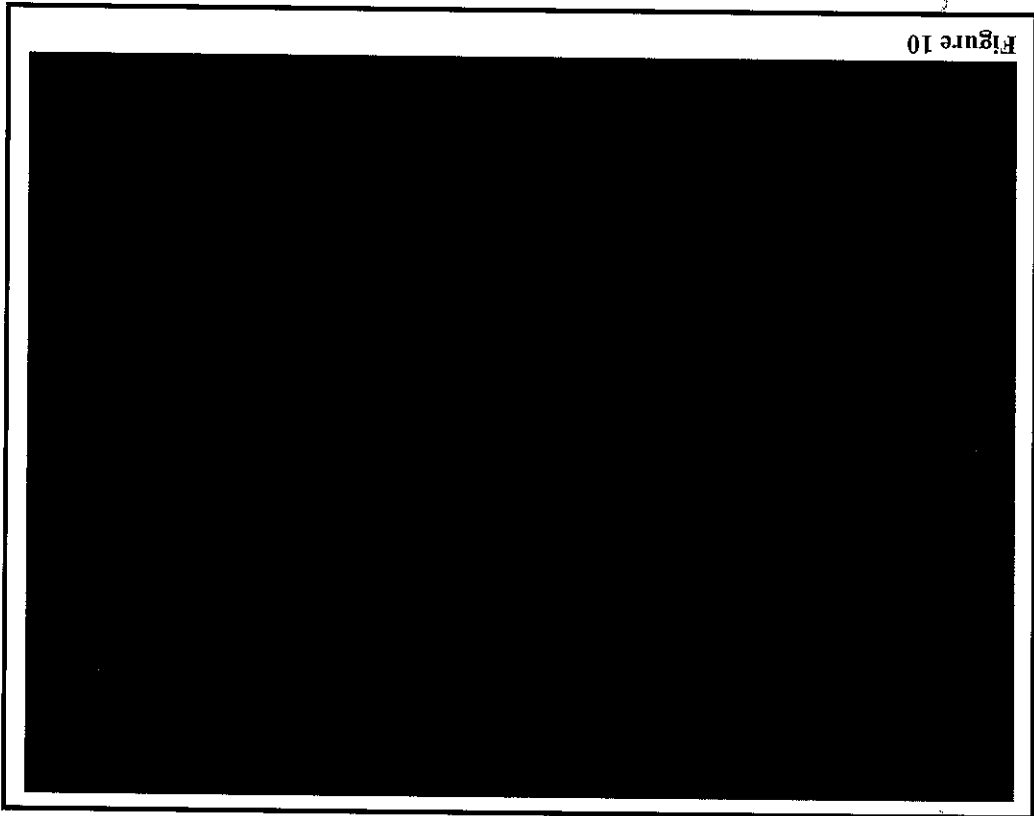


Figure 10

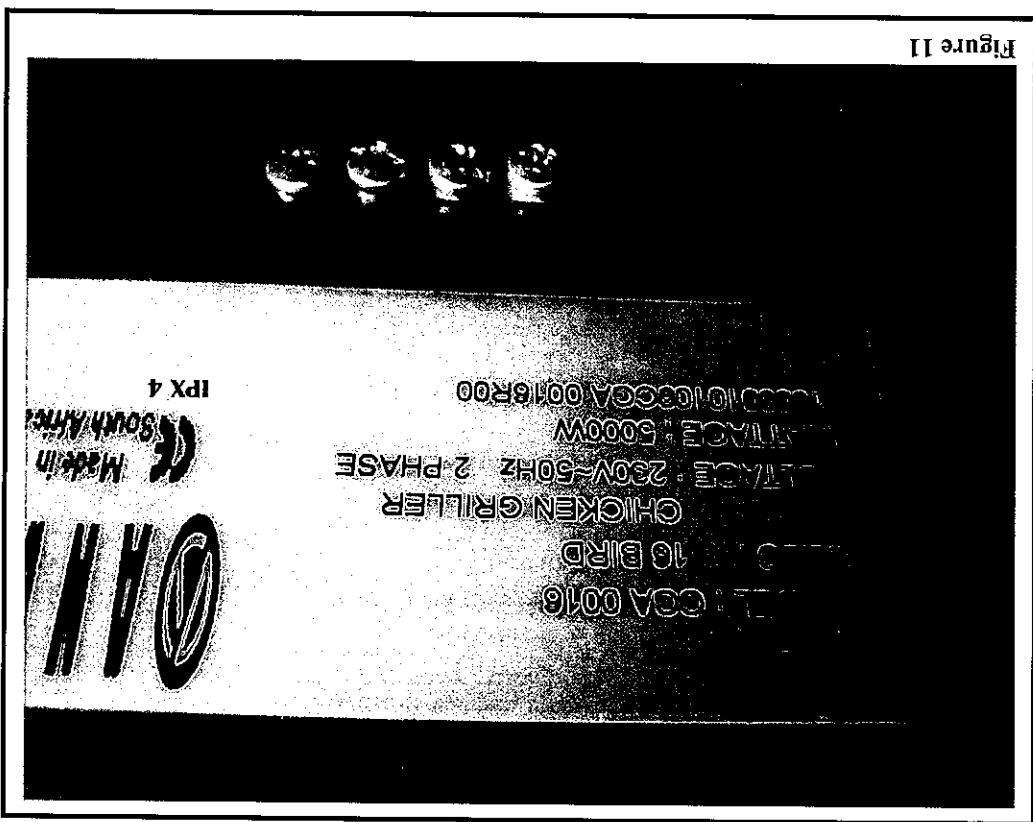


Figure 11

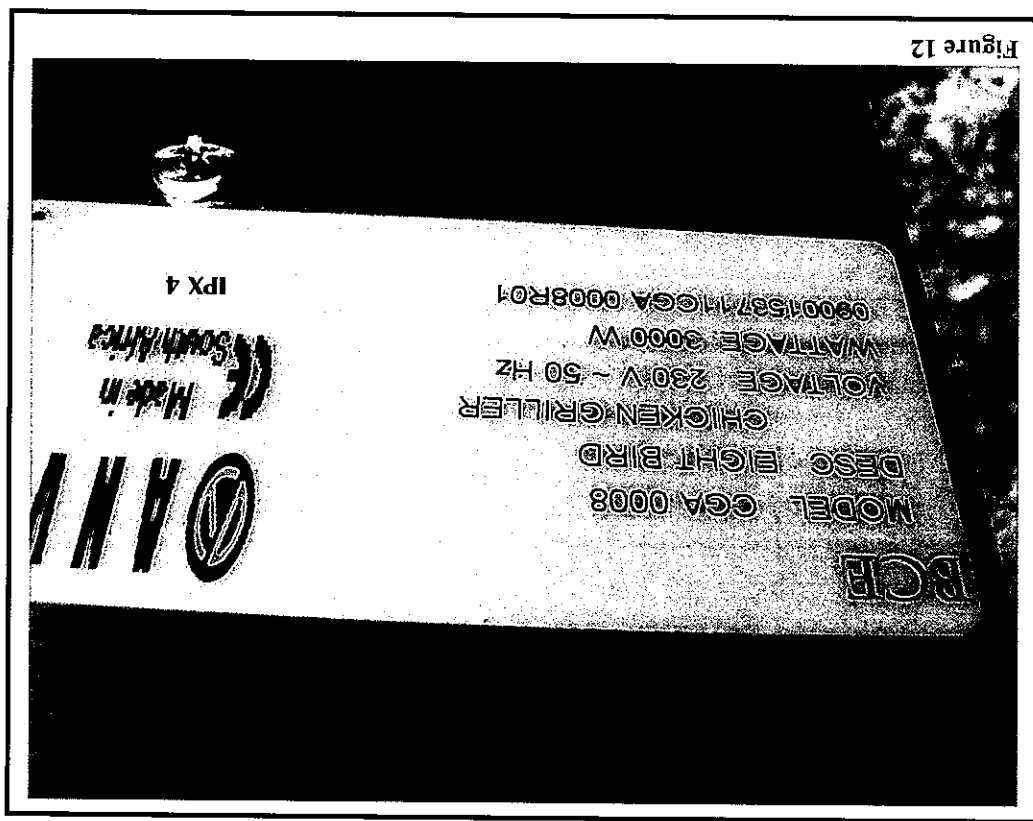


Figure 12

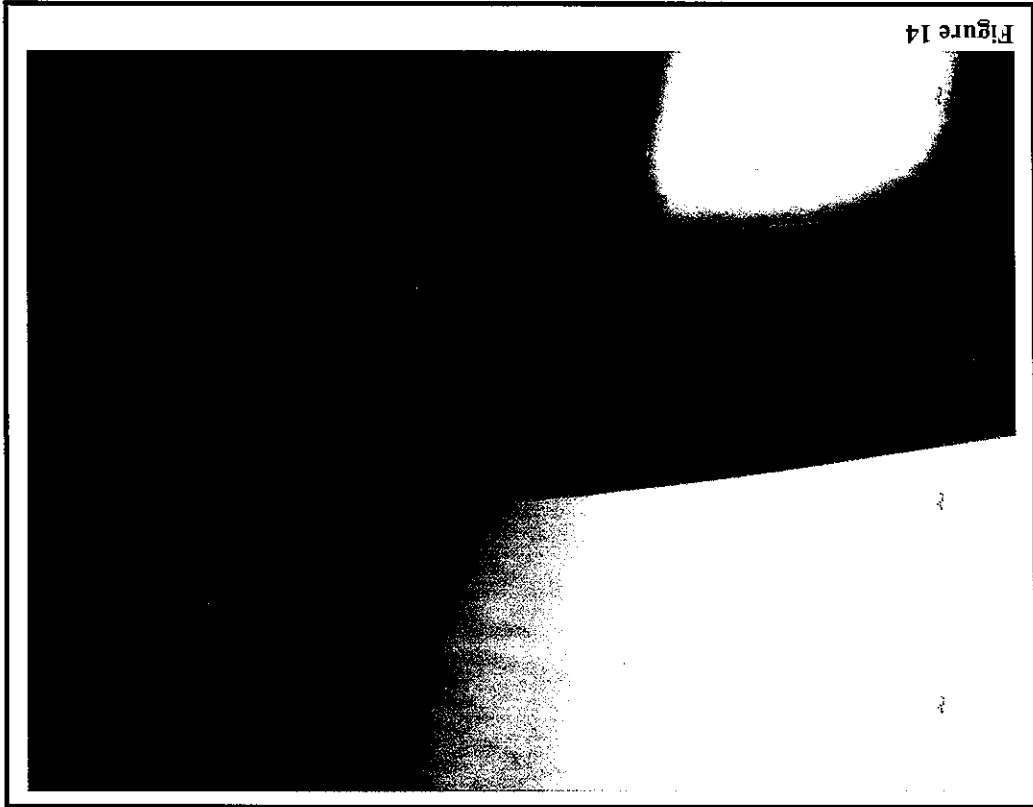
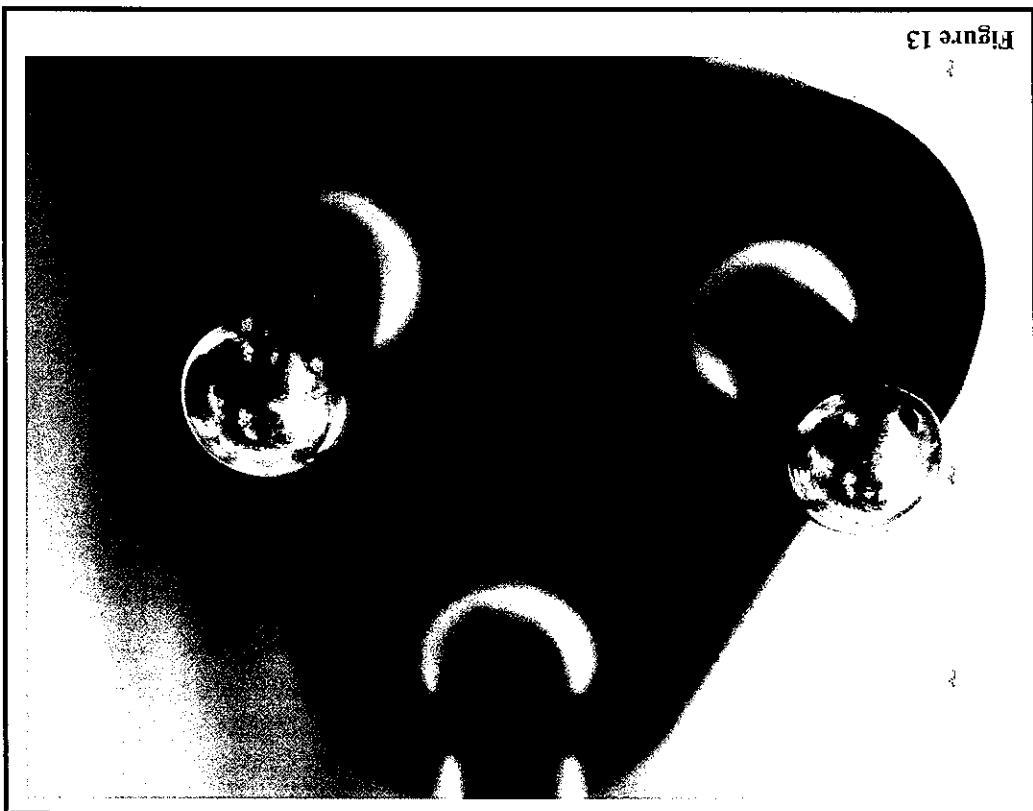




Figure 16

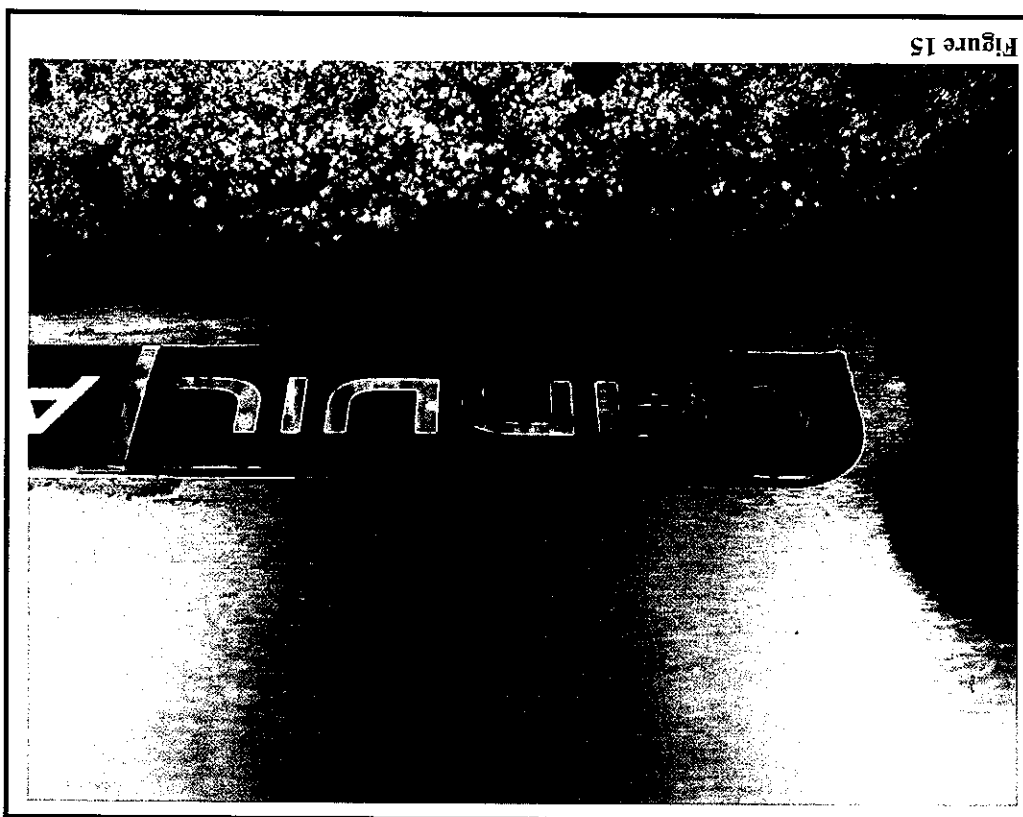


Figure 15



Figure 17

EC Declaration of Conformity

in accordance with EN 45014: 1998

We Scientific Engineering (Pty) Ltd

Of 1239 Anvil Road, Robertville Ext 1, Johannesburg, South Africa

declare that:

Equipment Eight and Sixteen Bird Chicken Griller

Model name/number: CGA0008/CGA0016

in accordance with the following directive(s):

73/23/EEC The Low Voltage Directive

and its amending directives

89/336/EEC The Electromagnetic Compatibility Directive

and its amending directives

has been designed and manufactured to the following specifications:

EN 60335-2-48:2002

EN 60335-1:2007

I hereby declare that the equipment named above has been designed to comply with the relevant sections of the above referenced specifications. The unit complies with all applicable essential requirements of the directives.

Signed by:

BD

CE02

Name: Bernard Parschau

Position: Director

Done at Johannesburg

On 23 October 2008

660/02D1898