



## CONSOLIDATED TEST REPORT

### SAMPLE INFORMATION:

1. Sample Description: **HAND DRYER**
2. Trade Mark: **DIHOUR**
3. Model, Specification, Grade: **DH9988H, ED360, DH2600, DH3601, FJD4, DH9988H-B**
4. Manufacturer: **TAIZHOU DIHOUR ELECTRICAL APPLIANCES CO., LTD.**  
Manufacturer Address: North Dashi Class I Highway, Daxi Town, Wenling City, ZheJiang Province, China.

### CLIENT INFORMATION:

1. Applicant: **TAIZHOU DIHOUR ELECTRICAL APPLIANCES CO., LTD.**  
Applicant Address: North Dashi Class I Highway, Daxi Town, Wenling City, ZheJiang Province, China.
2. Test Standards:
3.  
**EPA3050B:1996、EN1122B:2001、EPA3052:1996、EPA3060A:1996、  
EPA7196A:1992、EPA3540C:1996、EPA8270D:2007、IEC62321:2008**

### REMARKS:

1. The test data obtained and the report issued by laboratories other than BST are provided by the applicant to us for data consolidation purposes. The report shall not be reproduced in part without written approval of us.
2. Characterization & Condition of sample: Normal.
3. Ambient Condition During Testing: (15~22) °C (20~40) %RH
4. Date of Consolidated May. 06, 2016

Approved by:

(Christina)



## CONSOLIDATED TEST REPORT

| No. | Component | Material                      | Issue Body | Report No.& Issue Date              | Test Data(PPM)                                                  |
|-----|-----------|-------------------------------|------------|-------------------------------------|-----------------------------------------------------------------|
| 01  |           | BOTTOM CASE                   | SGS        | CANEC1002778801<br>Date:Jul.05.2015 | Cd:N.D<br>Pb: N.D<br>Hg:N.D<br>Cr6+:N.D                         |
| 02  |           | MONOLAYER<br>GLASS DOWN       | SGS        | CANEC1002778801<br>Date:Jul.05.2015 | Cd:N.D<br>Pb: N.D<br>Hg:N.D<br>Cr6+:N.D                         |
| 03  |           | MOTOR BASE                    | SGS        | CANEC1002778801<br>Date:Jul.05.2015 | Cd:N.D<br>Pb:N.D<br>Hg:N.D<br>Cr6+:Negative                     |
| 04  |           | AIR OUTLET                    | SGS        | CANEC1002778801<br>Date:Jul.05.2015 | Cd:N.D<br>Pb: N.D<br>Hg:N.D<br>Cr6+:N.D                         |
| 05  |           | SHOCK<br>ABSORPTION<br>COTTON | SGS        | CANEC1002778801<br>Date:Jul.05.2015 | Cd:N.D<br>Pb: N.D<br>Hg:N.D<br>Cr6+:N.D                         |
| 06  |           | SEAL RING                     | SGS        | CANEC1002778801<br>Date:Jul.05.2015 | Cd:N.D<br>Pb: N.D<br>Hg:N.D<br>Cr6+:N.D                         |
| 07  |           | MOTOR SEAT<br>COVER           | SGS        | CANEC1002778801<br>Date:Jul.05.2015 | Cd:N.D<br>Pb: N.D<br>Hg:N.D<br>Cr6+:N.D                         |
| 08  |           | HEATER                        | SGS        | CANEC1002778801<br>Date:Jul.05.2015 | Cd:N.D<br>Pb:N.D<br>Hg:N.D<br>Cr6+:N.D<br>PBBS:N.D<br>PBDES:N.D |



## CONSOLIDATED TEST REPORT

| No. | Component | Material                | Issue Body | Report No.& Issue Date              | Test Data(PPM)                                                  |
|-----|-----------|-------------------------|------------|-------------------------------------|-----------------------------------------------------------------|
| 09  |           | REACTANCE TIN BOX       | SGS        | CANEC1002778801<br>Date:Jul.05.2015 | Cd:N.D<br>Pb: N.D<br>Hg:N.D<br>Cr6+:Negative                    |
| 10  |           | REACTANCE TIN BOX COVER | SGS        | CANEC1002778801<br>Date:Jul.05.2015 | Cd:N.D<br>Pb:4<br>Hg:N.D<br>Cr6+:Negative                       |
| 11  |           | SELF-TAPPING SCREW      | SGS        | CANEC1000739501<br>Date:Mar.10.2015 | Cd:N.D<br>Pb: N.D<br>Hg:N.D<br>Cr6+:N.D                         |
| 12  |           | PCB SPONGE              | SGS        | SH8147694/CHEM<br>Date:Jun.17.2015  | Cd:N.D<br>Pb: N.D<br>Hg:N.D<br>Cr6+:N.D                         |
| 13  |           | CONNECTING LINE         | SGS        | CANEC1002778801<br>Date:Jul.05.2015 | Cd:N.D<br>Pb: N.D<br>Hg:N.D<br>Cr6+:N.D                         |
| 14  |           | PCB                     | SGS        | CANEC1002778801<br>Date:Jul.05.2015 | Cd:N.D<br>Pb:N.D<br>Hg:N.D<br>Cr6+:N.D<br>PBBS:N.D<br>PBDES:N.D |
| 14  |           | SENSOR PCB              | SGS        | CANEC1002778801<br>Date:Jul.05.2015 | Cd:N.D<br>Pb:N.D<br>Hg:N.D<br>Cr6+:N.D<br>PBBS:N.D<br>PBDES:N.D |



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| No. | Component | Material                 | Issue Body | Report No.& Issue Date              | Test Data(PPM)                          |
|-----|-----------|--------------------------|------------|-------------------------------------|-----------------------------------------|
| 16  |           | POWER CORD HOLDER        | SGS        | SH8147694/CHEM<br>Date:Jun.17.2015  | Cd:N.D<br>Pb: N.D<br>Hg:N.D<br>Cr6+:N.D |
| 17  |           | WATER ABSORPTION CERAMIC | SGS        | CANEC1002778801<br>Date:Jul.05.2015 | Cd:N.D<br>Pb: N.D<br>Hg:N.D<br>Cr6+:N.D |
| 18  |           | SILICA GEL               | SGS        | CANEC1002778801<br>Date:Jul.05.2015 | Cd:N.D<br>Pb: N.D<br>Hg:N.D<br>Cr6+:N.D |
| 19  |           | INSTALL PART             | SGS        | CANEC1002778801<br>Date:Jul.05.2015 | Cd:N.D<br>Pb: N.D<br>Hg:N.D<br>Cr6+:N.D |
| 20  |           | FILTER BOX               | SGS        | CANEC1002778801<br>Date:Jul.05.2015 | Cd:N.D<br>Pb: N.D<br>Hg:N.D<br>Cr6+:N.D |
| 21  |           | WATER TANK               | SGS        | CANEC1002778801<br>Date:Jul.05.2015 | Cd:N.D<br>Pb: N.D<br>Hg:N.D<br>Cr6+:N.D |
| 22  |           | CARTON                   | SGS        | SH8147694/CHEM<br>Date:Jun.17.2015  | Cd:N.D<br>Pb: N.D<br>Hg:N.D<br>Cr6+:N.D |



## CONSOLIDATED TEST REPORT

SAMPLE PHOTO:



PHOTO 1



PHOTO 2



## CONSOLIDATED TEST REPORT

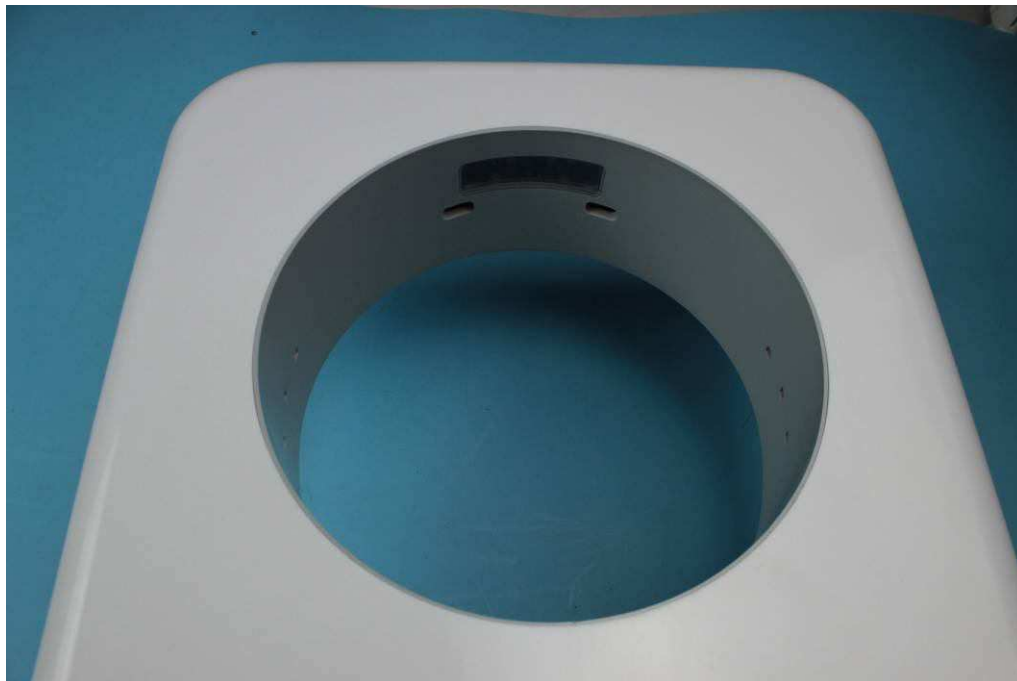


PHOTO 3



PHOTO 4



## CONSOLIDATED TEST REPORT



PHOTO 5

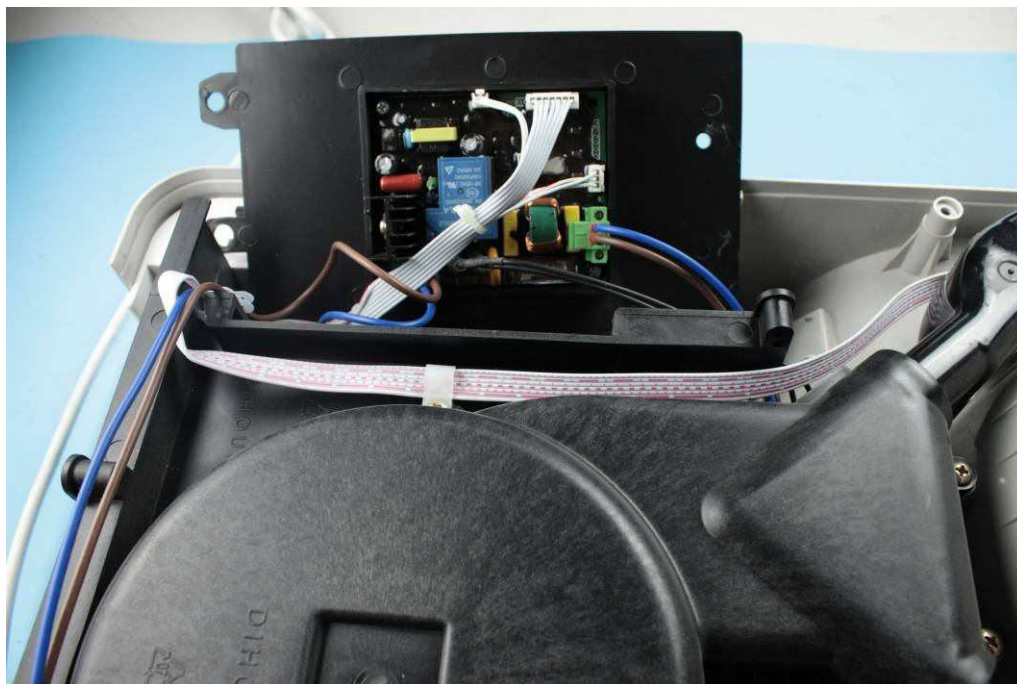


PHOTO 6



## CONSOLIDATED TEST REPORT

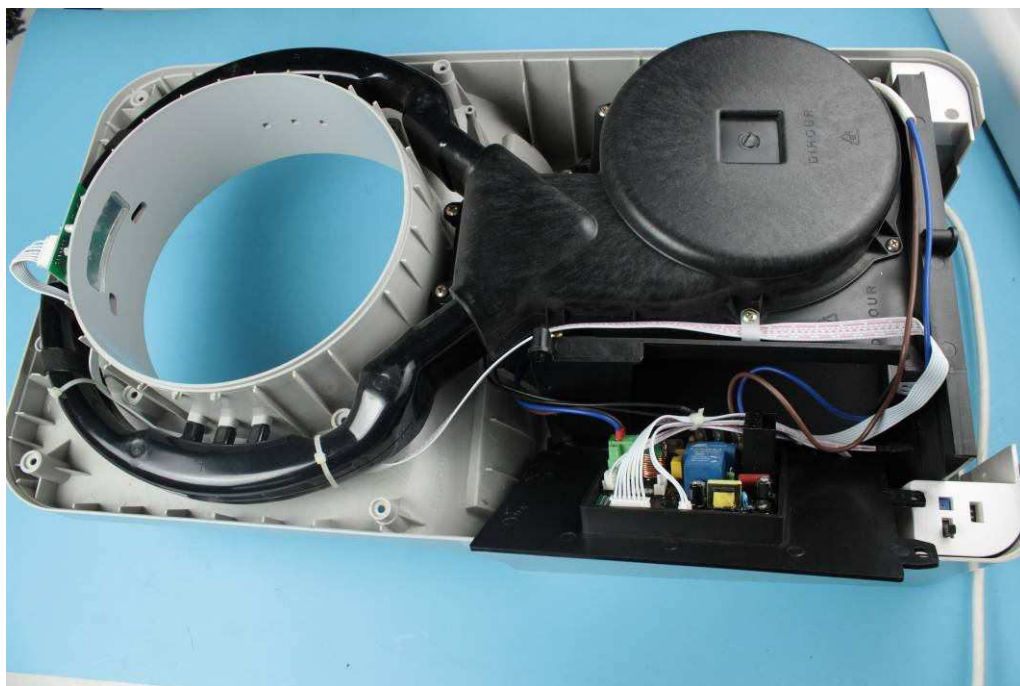


PHOTO 7

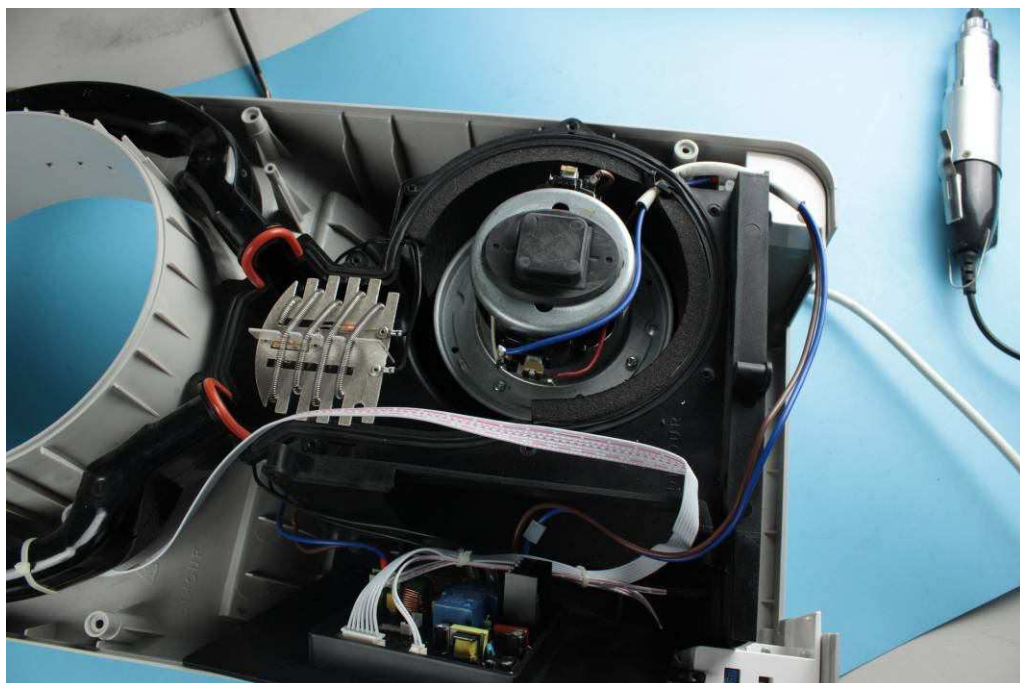


PHOTO 8



## CONSOLIDATED TEST REPORT



PHOTO 9

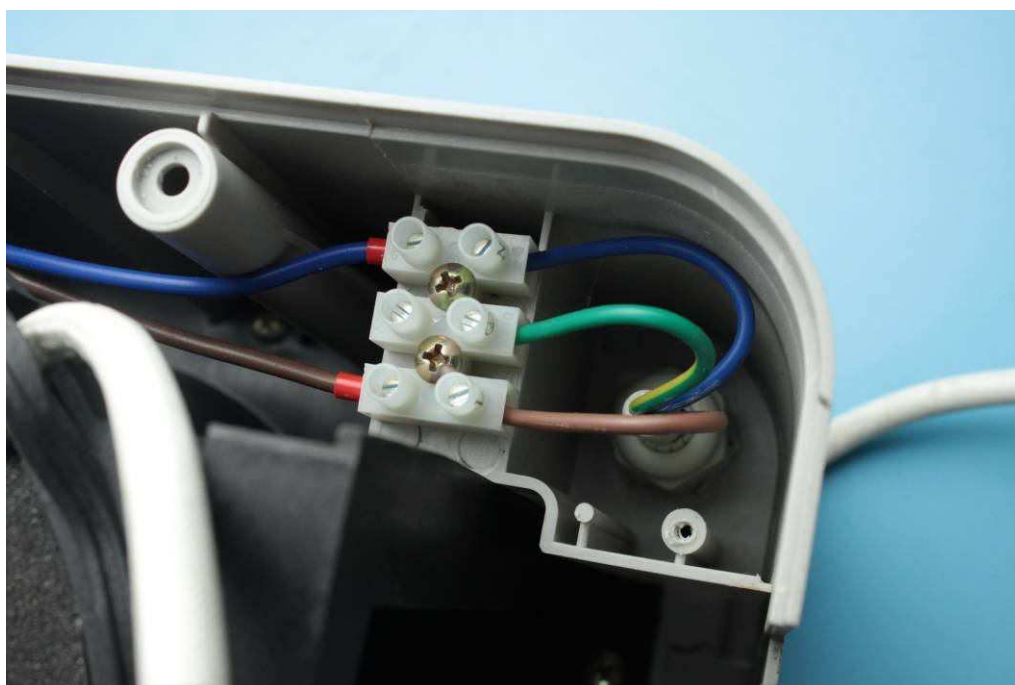


PHOTO 10



## CONSOLIDATED TEST REPORT



PHOTO 11



PHOTO 12



## CONSOLIDATED TEST REPORT



PHOTO 13

P=PASS

ND=NOT DETECTED

ppm=PARTS PER MILLION

END OF REPORT

TAIZHOU DIHOUR ELECTRICAL APPLIANCES CO., LTD.

# CE LVD REPORT

|                   |                                                                                                                                                          |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Prepared For :    | TAIZHOU DIHOUR ELECTRICAL APPLIANCES CO., LTD.<br>North Dashi Class I highway,Daxi Town,Wenling City,ZheJiang<br>Province,China.                         |
| Product Name:     | HAND DRYER                                                                                                                                               |
| Main Test Model:  | DH9988H                                                                                                                                                  |
| Additional Model: | ED360, DH2600, DH3601, FJD4, DH9988H-B                                                                                                                   |
| Prepared By :     | Shenzhen BST Technology Co., Ltd.<br><br>Building No.23-24, Zhiheng Industrial Park, Guankouer Road,<br>Nantou,Nanshan District,Shenzhen,Guangdong,China |
| Test Date:        | Apr. 25, 2016 – May. 05, 2016                                                                                                                            |
| Date of Report :  | May. 06, 2016                                                                                                                                            |
| Report No.:       | SHBST16040061903595SR-2                                                                                                                                  |

**TEST REPORT****EN 60335-2-23****Household and similar electrical appliances-Safety  
Part 2-23: Particular requirements for appliances for skin or hair care****Testing laboratory**

Name ..... : Shenzhen BST Technology Co.,Ltd.  
Address ..... : Building No.23-24, Zhiheng Industrial Park, Guankouer Road,  
Nantou,Nanshan District,Shenzhen,Guangdong,China  
Testing location ..... : Shenzhen BST Technology Co.,Ltd.

**Client**

Name ..... : TAIZHOU DIHOUR ELECTRICAL APPLIANCES CO., LTD.  
Address ..... : North Dashi Class I highway,Daxi Town,Wenling City,ZheJiang  
Province,China.

**Test specification**

Standard ..... : EN 60335-1:2012+A11:2014  
EN 60335-2-23:2003+A11:2010  
Test procedure ..... : Compliance with:  
EN 60335-1:2012+A11:2014  
EN 60335-2-23:2003+A11:2010  
Procedure deviation ..... : N.A.  
Non-standard test method ..... : N.A.

**Test item**

Description ..... : HAND DRYER  
Trade marking ..... : DIHOUR  
Model and/or type reference..... : See page 1 for details  
Manufacturer ..... : TAIZHOU DIHOUR ELECTRICAL APPLIANCES CO., LTD.  
Address ..... : North Dashi Class I highway,Daxi Town,Wenling City,ZheJiang  
Province,China.  
Rating(s)..... : AC220-240V 50/60Hz Min(1050W) Max(1450W)

**Particulars: test item vs. test requirements**

Electrical safety class..... : Class II  
IP number..... : IP42  
Voltage selector ..... : No  
PTC heating element..... : Yes

**Test case verdicts**

Test case does not apply to the test object..... : N(.A)  
Test item does meet the requirement ..... : P(Pass)  
Test item does not meet the requirement ..... : F(Fail)



**General remarks**

"(see remark #)" refers to a remark appended to the report.

"(see Annex #)" refers to an annex appended to the report.

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

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

Note: The series products have the same circuit diagram, PCB layout and functionality. The differences are the model name, so, we select DH9988H to test.

**Copy of marking plate**

Product Name: HAND DRYER

Model: DH9988H

Rating: AC220-240V 50/60Hz Min(1050W) Max(1450W)



TAIZHOU DIHOUR ELECTRICAL APPLIANCES  
CO., LTD.

Prepared by :

*Ken*  
Engineer

Reviewer :

*Mei*  
Supervisor

Approved & Authorized Signer :

*Christina*  
Christina / Manager



| EN 60335-2-23 |                                                                                                                                                                                             |                       |         |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                          | Result - Remark       | Verdict |
| 5             | GENERAL NOTES FOR THE TESTS                                                                                                                                                                 |                       | --      |
|               | Tests performed according to Cl. 5, e.g. nature of supply, sequence of testing, etc.                                                                                                        |                       | P       |
|               | The test of 25.14 for hand-held appliances is carried out on a separate appliance.                                                                                                          |                       | P       |
| 6             | CLASSIFICATION                                                                                                                                                                              |                       | --      |
| 6.1           | Appliances shall be one of the following Classes with respect to protection against electric shock                                                                                          |                       | --      |
|               | - hairdryers, curling irons, curling combs, facial saunas and other steam-producing or spray-producing appliances shall be of Class II or III                                               |                       | N       |
|               | - however, fixed hairdryers intended to be permanently connected to fixed wiring, helmet-type hairdryers for hairdressers and steam-producing appliances for hairdressers may be of Class I |                       | P       |
|               | - other appliances shall be of Class I, Class II or Class III                                                                                                                               | Class II              | P       |
|               | Protection against harmful ingress of water                                                                                                                                                 |                       | N       |
| 6.2           | Hand dryers shall be at least IPX1                                                                                                                                                          |                       | N       |
|               | Curling rollers of permanent-wave appliances shall be at least IPX4                                                                                                                         |                       | N       |
| 7             | MARKING                                                                                                                                                                                     |                       | --      |
| 7.1           | Rated voltage or voltage range (V) .....                                                                                                                                                    | AC220-240V            | P       |
|               | Single-phase appliances: 230 V covered                                                                                                                                                      |                       | P       |
|               | Multi-phase appliances: 400 V covered                                                                                                                                                       |                       | N       |
|               | Nature of supply                                                                                                                                                                            | ~                     | P       |
|               | Rated frequency or frequency range (Hz) .....                                                                                                                                               | 50/60Hz               | P       |
|               | Rated power input or rated current                                                                                                                                                          | Min(1050W) Max(1450W) | P       |
|               | Manufacturer's or responsible vendor's name, trademark or identification mark                                                                                                               |                       | P       |
|               | Model or type reference                                                                                                                                                                     | See page 2            | P       |
|               | Symbol for Class II                                                                                                                                                                         | Class II Appliance    | P       |
|               | IP number                                                                                                                                                                                   | IP42                  | P       |



| EN 60335-2-23 |                                                                                                                                                                                                                         |                                                                |         |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                                      | Result - Remark                                                | Verdict |
|               | Portable hairdryers, curling irons and similar appliances shall be marked with the substance of the following warning: WARNING - Do not use this appliance near water, contained in bath-tubes, basins or other vessels |                                                                | N       |
|               | Marking on a label which is permanently attached to the appliance or appropriate symbol                                                                                                                                 |                                                                | N       |
| 7.2           | Warning for stationary appliances                                                                                                                                                                                       |                                                                | N       |
|               | Warning placed in vicinity of terminal cover                                                                                                                                                                            |                                                                | N       |
| 7.3           | Range of rated values correctly marked                                                                                                                                                                                  | AC220-240V                                                     | P       |
| 7.4           | Voltage setting clearly discernible                                                                                                                                                                                     | The appliance can not be adjusted for different rated voltages | N       |
| 7.5           | Marking of rated input for each rated voltage                                                                                                                                                                           |                                                                | N       |
|               | Marking for upper and lower limits of rated input                                                                                                                                                                       | Single input.                                                  | N       |
| 7.6           | Correct symbols used                                                                                                                                                                                                    |                                                                | P       |
|               | Symbol 5582 of IEC 60417-1                                                                                                                                                                                              | No suitable                                                    | N       |
| 7.7           | Correct connection diagram, fixed to the appliance                                                                                                                                                                      |                                                                | N       |
| 7.8           | Not for type Z attachment:                                                                                                                                                                                              |                                                                | --      |
|               | - marking of terminals for the neutral conductor (N)                                                                                                                                                                    |                                                                | P       |
|               | - marking of earthing terminals                                                                                                                                                                                         |                                                                | N       |
|               | - marking not placed on removable parts                                                                                                                                                                                 |                                                                | P       |
|               | - marking of terminal for single-pole protective device                                                                                                                                                                 |                                                                | N       |
| 7.9           | Marking or placing of switches which may cause a hazard                                                                                                                                                                 | No hazard when operating                                       | N       |
| 7.10          | Indications of switches and regulating devices by use of figures, letters or other                                                                                                                                      | Stationary appliance                                           | N       |
|               | The figure 0 indicates only OFF position, unless no confusion with the OFF position                                                                                                                                     |                                                                | N       |
| 7.11          | Indication for direction of adjustment of controls                                                                                                                                                                      |                                                                | P       |
| 7.12          | The instructions for use for portable hairdryers shall include the substance of the following                                                                                                                           |                                                                | --      |
|               | - when the hairdryer is used in a bathroom, unplug it after use since the proximity of water presents a hazard even when the hairdryer is switched off                                                                  |                                                                | N       |



| EN 60335-2-23 |                                                                                                                                                                                                                                              |                      |         |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                                                           | Result - Remark      | Verdict |
|               | - for additional protection the installation of a residual current device (RCD) with a rated residual operating current not exceeding 30 mA is advisable in the electrical circuit supplying the bathroom. Ask your installer for advice     |                      | N       |
|               | The instructions for use for facial saunas shall include the substance of the following                                                                                                                                                      |                      | --      |
|               | - clean the appliance after use to avoid the accumulation of grease and other residues                                                                                                                                                       |                      | N       |
| 7.12.1        | The instructions for installation for fixed hairdryers intended for use in bathrooms shall include the substance of the following                                                                                                            | No such construction | --      |
|               | - this hairdryer must be fixed out of reach of a person using a bath or shower                                                                                                                                                               |                      | N       |
|               | If the hand-held part of the hairdryer incorporates electrical components, the instructions shall state that the appliance must be fixed so that the hand-held part, when fully extended, is out of reach of a person using a bath or shower |                      | N       |
| 7.12.2        | Means for disconnection with contact separation at least 3 mm                                                                                                                                                                                |                      | P       |
|               | Stationary appliance with supply cord and plug: statement in the instructions that the appliance is so positioned that the plug is accessible                                                                                                |                      | N       |
| 7.12.3        | Insulation in contact with parts exceeding 50 K; instruction                                                                                                                                                                                 |                      | N       |
| 7.12.4        | Information with regard to building-in:                                                                                                                                                                                                      |                      | --      |
|               | - dimensions of space                                                                                                                                                                                                                        |                      | N       |
|               | - dimensions and position of support                                                                                                                                                                                                         |                      | N       |
|               | - ventilation openings                                                                                                                                                                                                                       |                      | N       |
|               | - connection/interconnection plug accessible                                                                                                                                                                                                 |                      | N       |
| 7.12.5        | Replacement cord, type X attachment                                                                                                                                                                                                          |                      | N       |
|               | Replacement cord, type Y attachment                                                                                                                                                                                                          |                      | P       |
|               | Replacement cord, type Z attachment                                                                                                                                                                                                          |                      | N       |
| 7.13          | Instructions and other texts in official language                                                                                                                                                                                            |                      | P       |
| 7.14          | Marking easily legible and durable                                                                                                                                                                                                           |                      | P       |
| 7.15          | Marking on a main part                                                                                                                                                                                                                       |                      | P       |
|               | Marking clearly discernible from outside                                                                                                                                                                                                     |                      | P       |



| EN 60335-2-23 |                                                                                                               |                      |         |
|---------------|---------------------------------------------------------------------------------------------------------------|----------------------|---------|
| Clause        | Requirement – Test                                                                                            | Result - Remark      | Verdict |
|               | Stationary appliance: name or trademark and model or type reference visible after installation                | No such construction | N       |
|               | Indication for switches and controls in vicinity of components; not on removable parts if misleading          |                      | N       |
| 7.16          | Marking of a possible replaceable thermal link or fuse link clearly visible with regard to replacing the link |                      | P       |

|       |                                                                                              |                           |    |
|-------|----------------------------------------------------------------------------------------------|---------------------------|----|
| 8     | PROTECTION AGAINST ACCESSIBILITY TO LIVE PARTS                                               |                           | -- |
| 8.1   | Adequate protection against accidental contact with live parts                               |                           | P  |
| 8.1.1 | All positions; detachable parts removed                                                      |                           | P  |
|       | Removal of lamps: protection against contact with live parts                                 |                           | P  |
|       | Use of test finger: no contact with live parts                                               |                           | P  |
| 8.1.2 | Use of test pin: no contact with live parts                                                  | Class II appliance        | N  |
| 8.1.3 | Not applicable                                                                               |                           | -- |
| 8.1.4 | Accessible part not considered live if:                                                      | No hazards when operating | N  |
|       | - extra-low a.c. voltage: peak values not exceeding 42,4 V                                   |                           | N  |
|       | - extra-low d.c. voltage: not exceeding 42,4 V                                               |                           | N  |
|       | - or separated from live parts by protective impedance, d.c. current not exceeding 2 mA      |                           | N  |
|       | - or separated from live parts by protective impedance, a.c. peak value not exceeding 0,7 mA |                           | N  |
|       | - for peak value 42,4 V up to and including 450 V capacitance not exceeding 0,1 uF           |                           | P  |
|       | - for peak value 450 V up to and including 15 kV discharge not exceeding 45 C.               |                           | N  |
| 8.1.5 | Live parts protected at least by basic insulation before installation or assembly:           |                           | -- |
|       | - built-in appliances                                                                        | Stationary Appliance      | N  |
|       | - fixed appliances                                                                           |                           | N  |
|       | - separate units                                                                             |                           | N  |



| EN 60335-2-23 |                                                                                                                                                                                                                                                          |                           |         |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                                                                       | Result - Remark           | Verdict |
| 8.2           | Class II appliances and constructions adequately protected against accidental contact with basic insulation and metal parts separated from live parts with only basic insulation                                                                         | Class II appliance        | P       |
| 10            | POWER INPUT AND CURRENT                                                                                                                                                                                                                                  |                           | --      |
| 10.1          | Power input at rated voltage and normal operating temperature not deviating from rated input by more than shown in table; measured power input (W); rated input (W); deviation .....                                                                     | (See attached table)      | P       |
| 10.2          | Current at normal operating temperature not deviating from rated current by more than shown in table; measured current at rated voltage under normal operation (A); rated current (A); deviation ..                                                      |                           | N       |
| 11            | HEATING                                                                                                                                                                                                                                                  |                           | --      |
| 11.1          | No excessive temperatures in normal use                                                                                                                                                                                                                  |                           | P       |
|               | For appliances incorporating a swivel connection, compliance is also checked by the test of 11.101                                                                                                                                                       |                           | P       |
| 11.2          | Placing and mounting of appliance as described                                                                                                                                                                                                           |                           | P       |
|               | Appliances provided with a stand and which also have means for attaching to a support are positioned to give the most unfavourable results                                                                                                               |                           | P       |
| 11.3          | Temperature rises determined by thermocouples or resistance method                                                                                                                                                                                       | Thermocouples             | P       |
| 11.4          | Heating appliances operated under normal operation at 1,15 times rated power input                                                                                                                                                                       | Motor-operated appliances | N       |
|               | If the temperature rise limits are exceeded in appliance incorporating motors, transformers or electronic circuits and the power input is lower than the rated power input, the test is repeated with the appliance supplied at 1,06 times rated voltage |                           | N       |
| 11.5          | Motor-operated appliances operated under normal operation at most unfavourable voltage between 0,94 and 1,06 times rated voltage                                                                                                                         | Motor-operated appliances | P       |
| 11.6          | Combined appliances are operated as heating appliances                                                                                                                                                                                                   | Motor-operated appliances | N       |
| 11.7          | Appliances without a timer are operated                                                                                                                                                                                                                  | Used the timer            | N       |
|               | - for 30 min for hand-held appliances                                                                                                                                                                                                                    |                           | N       |



| EN 60335-2-23 |                                                                                                                                                              |                          |         |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------|
| Clause        | Requirement – Test                                                                                                                                           | Result - Remark          | Verdict |
|               | - in cycles of 30 s on and 5 s off, until steady conditions are established, for hand dryers which are automatically controlled by the presence of the hands | No such devices          | N       |
|               | - until steady conditions are established for other appliances                                                                                               |                          | N       |
|               | Appliances incorporating a timer are operated in cycles until steady conditions are established                                                              |                          | N       |
|               | Each cycle consists of the maximum operating time of the timer followed by a rest period of 5 s                                                              |                          | N       |
| 11.8          | Protective devices do not operate                                                                                                                            |                          | P       |
|               | Sealing compound not flowing out                                                                                                                             | No such sealing compound | N       |
|               | Temperatures not exceeding values in Table 3                                                                                                                 | (see appended table)     | P       |
| 11.101        | Appliances incorporating a swivel connection are positioned with their major axis horizontal, the supply cord hanging vertically                             |                          | P       |
|               | A pull force of 1 N is applied to the supply cord                                                                                                            |                          | P       |
|               | The appliance is supplied at rated voltage, the current being 1,25 times the rated current                                                                   |                          | P       |
|               | The appliance is rotated about its major axis at a rate of approximately 50 rev/min, the direction of rotation being reversed after every 20 revolutions     |                          | P       |
|               | The test is continued for 1500 revolutions                                                                                                                   |                          | P       |
|               | The temperature rise of sliding contacts shall not exceed 65 K                                                                                               |                          | P       |
| 13            | LEAKAGE CURRENT                                                                                                                                              |                          | --      |
| 13.1          | Leakage current not excessive and electric strength adequate                                                                                                 |                          | P       |
| 13.2          | Leakage current measured by means of circuit described in Annex G                                                                                            |                          | P       |
|               | Leakage current measurements                                                                                                                                 | (see appended table)     | P       |
| 13.3          | Electric strength test of insulation                                                                                                                         | (see appended table)     | P       |
|               | No breakdown during the test                                                                                                                                 |                          | P       |
| 15            | MOISTURE RESISTANCE                                                                                                                                          |                          | --      |



| EN 60335-2-23 |                                                                                                                            |                           |         |
|---------------|----------------------------------------------------------------------------------------------------------------------------|---------------------------|---------|
| Clause        | Requirement – Test                                                                                                         | Result - Remark           | Verdict |
| 15.1          | Enclosure provides the degree of moisture protection according to classification of appliance                              | IP42                      | P       |
|               | Appliance subjected to test as specified                                                                                   |                           | P       |
|               | Withstand electric strength test specified in 16.3                                                                         |                           | P       |
|               | No trace of water on insulation which can result in a reduction of distances and clearances below values specified in 29.1 |                           | P       |
| 15.1.1        | Appliances other than IPX0 are subjected to the test of IEC 529 as follows                                                 |                           | --      |
|               | - IPX1 appliances as described in 14.2.1                                                                                   |                           | N       |
|               | - IPX2 appliances as described in 14.2.2                                                                                   | IP42                      | P       |
|               | - IPX3 appliances as described in 14.2.3                                                                                   |                           | N       |
|               | - IPX4 appliances as described in 14.2.4                                                                                   |                           | N       |
|               | - IPX5 appliances as described in 14.2.5                                                                                   |                           | N       |
|               | - IPX6 appliances as described in 14.2.6                                                                                   |                           | N       |
|               | - IPX7 appliances as described in 14.2.7                                                                                   |                           | N       |
|               | For this test the appliance is immersed in water containing 1% NaCl.                                                       |                           | N       |
| 15.1.2        | Hand-held appliance turned continuously through the most unfavourable positions during the test                            | Motor-operated appliances | N       |
|               | Built-in appliance installed according to the manufacturer's instruction                                                   | Motor-operated appliances | N       |
|               | Other appliances tested as specified                                                                                       |                           | N       |
| 15.2          | Spillage of liquid does not affect the electrical insulation                                                               |                           | N       |
|               | Overfilling test with additional amount of liquid (l) . :                                                                  |                           | N       |
|               | Withstand electric strength test in 16.3                                                                                   |                           | N       |
|               | No trace of water on insulation which can result in reduction of distances and clearances below values specified in 29.1   |                           | N       |
| 15.3          | Humidity treatment for 48 h                                                                                                | 93 %, 28°C                | P       |
|               | Withstanding the test of Cl. 16                                                                                            |                           | P       |
| 16            | LEAKAGE CURRENT AND ELECTRIC STRENGTH                                                                                      |                           | --      |



| EN 60335-2-23 |                                                                                                                                                               |                      |         |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------|
| Clause        | Requirement – Test                                                                                                                                            | Result - Remark      | Verdict |
| 16.1          | No excessive leakage current and adequate insulation and electric strength (tests 16.2 and 16.3)                                                              |                      | P       |
| 16.2          | Leakage current measurements                                                                                                                                  | (see appended table) | P       |
| 16.3          | Electric strength tests (values in Table 5)                                                                                                                   | (see appended table) | P       |
| 17            | OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS                                                                                                   |                      | --      |
|               | No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use                                      |                      | N       |
|               | 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            |                      | N       |
|               | Temperature rise of insulation of the conductors of safety extra-low voltage circuits not exceeding the relevant value specified in Table 3 by more than 15 K |                      | N       |
|               | Temperature of the winding not exceeding the value specified in Table 6                                                                                       |                      | N       |
| 19            | ABNORMAL OPERATION                                                                                                                                            |                      | --      |
| 19.1          | The risk of fire or mechanical damage under abnormal or careless operation obviated                                                                           |                      | P       |
|               | Electronic circuits so designed and applied that a fault will not render the appliance unsafe                                                                 |                      | P       |
|               | Hairdryers are also subjected to the tests of 19.101 and 19.102                                                                                               |                      | N       |
| 19.2          | Test of appliance with heating elements with restricted heat dissipation; test voltage (V): power input of 0,85 times rated power input .....                 |                      | P       |
|               | Restricted heat dissipation is obtained as follows                                                                                                            |                      | --      |
|               | - motors are disconnected                                                                                                                                     |                      | N       |
|               | - hand-held hairdryers are placed on the floor of the test corner in any stable position likely to occur                                                      |                      | P       |
|               | - appliances intended to be filled with water are operated empty                                                                                              | No such construction | N       |



| EN 60335-2-23 |                                                                                                                                                                                                                                               |                              |         |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                                                            | Result - Remark              | Verdict |
|               | Hairdryers provided with a flexible hood attachment are also tested with the motor running, the air flow through the hose being restricted to give the most unfavourable result                                                               |                              | N       |
|               | Heaters for detachable curlers are placed on a low density glass-fibre insulation having a coefficient of thermal insulation of approximately 2,5 m <sup>2</sup> * K/W                                                                        | No such constructions        | N       |
| 19.3          | Test of 19.2 repeated; test voltage (V): power input of 1,24 times rated power input .....                                                                                                                                                    |                              | P       |
| 19.4          | Test conditions as in Cl. 11, the power input being 1,15 times rated power input, any control limiting the temperature during tests of Cl. 11 short-circuited                                                                                 |                              | P       |
| 19.5          | Test of 19.4 repeated on Class 0I and I appliances with tubular sheathed or embedded heating elements. No short-circuiting, but one end of the element connected to the elements sheath                                                       | No such heating elements     | N       |
|               | The test repeated with reversed polarity and the other end of the heating element connected to the sheath                                                                                                                                     |                              | N       |
| 19.6          | Appliances with PTC heating elements tested as specified. Supplied at rated voltage, establishing steady conditions, then the voltage increased in steps by 5% until 1,5 times rated voltage is reached or until the heating element ruptures | No such PTC heating elements | N       |
| 19.7          | Stalling test by locking the rotor if the locked rotor torque is smaller than the full load torque or locking moving parts                                                                                                                    |                              | N       |
|               | Locked rotor, motor capacitors open circuited or short-circuited, if required                                                                                                                                                                 |                              | N       |
|               | Appliances with timer or controller supplied with rated voltage for each of the tests, for a period equal to the maximum period allowed                                                                                                       |                              | N       |
|               | Test period at rated voltage (s or min) or until steady state conditions established:                                                                                                                                                         |                              | N       |
|               | Winding temperatures not exceeding limiting temperature; type of appliance; insulation class; measured temperature °C.....*-                                                                                                                  |                              | N       |
|               | The test is carried out for 5 min except for:                                                                                                                                                                                                 |                              | --      |
|               | - hand-held appliances                                                                                                                                                                                                                        |                              | N       |



| EN 60335-2-23 |                                                                                                                                                                                                                     |                       |         |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                                  | Result - Remark       | Verdict |
|               | - appliances which have to be kept switched on by hand                                                                                                                                                              |                       | N       |
|               | - appliances provided with a timer                                                                                                                                                                                  | No provided timer     | N       |
|               | - hand dryers are subjected to the test only when the locked rotor torque is smaller than the full load                                                                                                             |                       | N       |
| 19.8          | Three-phase motors operated at rated voltage with one phase disconnected                                                                                                                                            | No three-phase motor. | N       |
| 19.9          | Not applicable                                                                                                                                                                                                      | Not applicable.       | --      |
| 19.10         | Series motor operated at 1,3 times rated voltage for 1 min                                                                                                                                                          | No such motor         | N       |
|               | Parts shall not be ejected from the appliance                                                                                                                                                                       |                       | N       |
|               | The test is made with the heating elements disconnected or switched off                                                                                                                                             |                       | N       |
| 19.11         | Electronic circuits, compliance checked by evaluation of the fault conditions specified in 19.11.2 for all circuits or parts of circuits, unless they comply with the conditions specified in 19.11.1               |                       | N       |
| 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                                                               |                       | N       |
|               | - the protection against electric shock, fire hazard, mechanical hazard or dangerous malfunction in other parts of the appliance does not rely on the correct functioning of the electronic circuit                 |                       | N       |
| 19.11.2       | Fault conditions applied one at a time, the appliance operated under conditions specified in Cl. 11, but supplied at rated voltage, the duration of the tests as specified:                                         |                       | --      |
|               | a) short-circuit of creepage distances and clearances between live parts of different potential, if these distances are less than the values specified in 29.1, unless the relevant part is adequately encapsulated |                       | P       |
|               | b) open circuit at the terminals of any component                                                                                                                                                                   |                       | P       |
|               | c) short-circuit of capacitors, unless they comply with IEC 384-14 or subclause 14.2 of IEC 65                                                                                                                      |                       | P       |



| EN 60335-2-23 |                                                                                                                                                                                                                                                                                                           |                 |         |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                                                                                                                        | Result - Remark | Verdict |
|               | d) short-circuit of any two terminals of an electronic component, other than integrated circuits. This fault condition is not applied between the circuits of an optocoupler                                                                                                                              |                 | P       |
|               | e) failure of triacs in the diode mode                                                                                                                                                                                                                                                                    |                 | P       |
|               | f) failure of an integrated circuit. In this case the possible hazardous situations of the appliance are assessed to ensure that safety does not rely on the correct functioning of such a component                                                                                                      |                 | P       |
|               | During and after each test the following is checked:                                                                                                                                                                                                                                                      |                 | --      |
|               | - the temperature rise of the windings do not exceed the values specified in Table 6                                                                                                                                                                                                                      |                 | P       |
|               | - the appliance complies with the conditions specified in 19.13                                                                                                                                                                                                                                           |                 | P       |
|               | - live parts not accessible to the test finger or test pin as specified in Cl. 8                                                                                                                                                                                                                          |                 | P       |
|               | - any current flowing through protective impedance not exceeding the limits specified in 8.14                                                                                                                                                                                                             |                 | N       |
|               | 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 20.1 of IEC 65                                                                                                                                                                                                                 |                 | N       |
|               | - any loosened conductor does not reduce the creepage distances or clearances between live part and accessible metal parts                                                                                                                                                                                |                 | N       |
|               | - the appliance withstands the tests of 19.11.2 with open circuited conductor bridged                                                                                                                                                                                                                     |                 | N       |
| 19.12         | If the safety of the appliance for any of the fault conditions specified in 19.11.2 depends on the operation of a miniature fuse-link complying with IEC 127, the test is repeated, measuring the current flowing through the fuse-link; measured current (A); rated current of the fuse-link (A) ..... : |                 | N       |
| 19.13         | During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts                                                                                                                                                                                        |                 | P       |
|               | Temperature rises not exceeding the values shown in Table 7                                                                                                                                                                                                                                               |                 | P       |



| EN 60335-2-23 |                                                                                                                                                                                                                                        |                 |         |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                                                     | Result - Remark | Verdict |
|               | Enclosures not deformed to such an extent that compliance with Cl. 8 is impaired                                                                                                                                                       |                 | P       |
|               | Appliance still operable and complying with 20.2                                                                                                                                                                                       |                 | P       |
|               | Appliance, other than Class III, withstands the electric strength test of 16.3, however, the test voltage being:                                                                                                                       |                 | --      |
|               | - basic insulation: 1250V                                                                                                                                                                                                              |                 | P       |
|               | - supplementary insulation: 1750 V                                                                                                                                                                                                     |                 | N       |
|               | - reinforced insulation: 3000 V                                                                                                                                                                                                        |                 | P       |
| 19.101        | Hairdryers are operated as specified in Cl. 11 except that the heating element and motor are supplied separately                                                                                                                       |                 | N       |
|               | The heating element is supplied at the voltage used for 1.14 and the motor is supplied at its working voltage until steady conditions are established                                                                                  |                 | N       |
|               | The voltage applied to the motor is then reduced until the running speed of the motor is just sufficient to prevent the thermal cut-out from operating                                                                                 |                 | N       |
|               | The hairdryer is then operated until steady conditions are established                                                                                                                                                                 |                 | N       |
|               | The voltage is decreased at                                                                                                                                                                                                            |                 | --      |
|               | - 1 V/min for motors having a working voltage not exceeding 30 V                                                                                                                                                                       |                 | N       |
|               | - 5 V/min for motors having a working voltage exceeding 30 V                                                                                                                                                                           |                 | N       |
|               | The hairdryer shall not emit flames or molten metal, and temperature rises shall not exceed the values in Table 7                                                                                                                      |                 | N       |
|               | The other criteria of 19.13 do not apply                                                                                                                                                                                               |                 | N       |
|               | It may be necessary to compensate for the effect on the heating element of disconnecting the motor                                                                                                                                     |                 | N       |
| 19.102        | Portable hairdryers are operated under normal operation at 1,15 times rated power input                                                                                                                                                |                 | N       |
|               | A sheet of polyethylene approximately 20 cm x 20 cm and having a thickness of 50 mm is placed against the air-inlet and moved in any direction in order to reduce the airflow so that the most unfavourable conditions are established |                 | N       |



| EN 60335-2-23 |                                                                                                                                                     |                 |         |
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| Clause        | Requirement – Test                                                                                                                                  | Result - Remark | Verdict |
|               | The test is carried out for 30 min                                                                                                                  |                 | N       |
|               | The test is repeated with the airflow directed horizontally                                                                                         |                 | N       |
|               | The most unfavourable conditions are usually obtained by positioning the polyethylene sheet so that the thermal cut-out is prevented from operating |                 | N       |

|      |                                                                                                                                          |                           |    |
|------|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----|
| 20   | STABILITY AND MECHANICAL HAZARDS                                                                                                         |                           | -- |
| 20.1 | Adequate stability                                                                                                                       |                           | N  |
|      | Tilting test through an angle of 10° placed on an inclined plane/horizontal plane); appliance does not overturn <input type="checkbox"/> |                           | N  |
|      | Tilting test repeated on appliances with heating elements, angle of inclination increased to 15° <input type="checkbox"/>                | Motor-operated appliances | P  |
|      | Possible heating test in overturned position; temperature rise does not exceed values shown in Table 7                                   |                           | N  |
| 20.2 | Moving parts adequately arranged or enclosed as to provide protection against personal injury                                            | No this device            | N  |
|      | Protective enclosures, guards and similar parts are non-detachable                                                                       |                           | P  |
|      | Adequate mechanical strength and fixing of protective enclosures                                                                         |                           | P  |
|      | Self-resetting thermal cut-outs and overcurrent protective devices not causing a hazard, if unexpectedly reclosed                        |                           | N  |
|      | Not possible to touch dangerous moving parts with test finger                                                                            |                           | N  |

|    |                                                                                                      |                                 |    |
|----|------------------------------------------------------------------------------------------------------|---------------------------------|----|
| 21 | MECHANICAL STRENGTH                                                                                  |                                 | -- |
|    | Appliance has adequate mechanical strength and is constructed as to withstand rough handling         |                                 | P  |
|    | No damage after three blows applied to various parts of the enclosure, impact energy 0,5 ± 0,04 Nm   | Impact energy 0.5 J three blows | P  |
|    | If necessary, supplementary or reinforced insulation subjected to the electric strength test of 16.3 |                                 | P  |



| EN 60335-2-23 |                                                                                                                                                                                                                                                                                               |                       |         |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                                                                                                            | Result - Remark       | Verdict |
|               | If necessary, repetition of groups of three blows on a new sample                                                                                                                                                                                                                             |                       | N       |
| 21.101        | Hand-held appliances are placed on a horizontal surface which is positioned 70 cm above a rigidly supported hardwood board                                                                                                                                                                    |                       | P       |
|               | The appliances is supplied at rated voltage and operated at its highest setting                                                                                                                                                                                                               |                       | P       |
|               | It is pulled from the surface by its supply cord and allowed to drop freely                                                                                                                                                                                                                   |                       | P       |
|               | The test is carried out five times, the appliance being placed in different positions likely to occur                                                                                                                                                                                         |                       | P       |
|               | The appliance shall not be damaged to such an extent that compliance with this standard is impaired. In particular, the requirements of Cl. 8 and Cl. 29 shall be fulfilled                                                                                                                   |                       | P       |
| 22            | CONSTRUCTION                                                                                                                                                                                                                                                                                  |                       | --      |
| 22.1          | Appliance marked with the first numeral of the IP system: relevant requirements of IEC 529 are fulfilled                                                                                                                                                                                      | IP42                  | P       |
| 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                                                                                                                                                                                                                                                            |                       | N       |
|               | - a switch complying with 24.3                                                                                                                                                                                                                                                                |                       | N       |
|               | - a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided                                                                                                                                                                                |                       | N       |
|               | - an appliance coupler                                                                                                                                                                                                                                                                        |                       | N       |
|               | Single-phase Class I appliance with heating elements, intended to be permanently connected to fixed wiring, incorporating single-pole switches or single-pole protective devices for the disconnection of the heating element(s): the switches/devices being connected in the phase conductor | No such constructions | N       |
| 22.3          | Appliance provided with pins: no undue strain on socket-outlets                                                                                                                                                                                                                               | No such pins          | N       |
|               | Applied torque not exceeding 0,25 Nm                                                                                                                                                                                                                                                          |                       | N       |



| EN 60335-2-23 |                                                                                                                                                                                         |                                                                                               |         |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                      | Result - Remark                                                                               | Verdict |
| 22.4          | Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets                                                            | No heating liquids                                                                            | N       |
| 22.5          | No risk of electric shock when touching the pins of the plug                                                                                                                            | After withdraw of the mains plug, 1min later, the voltage of the plug is 0 V, no exceeded 34V | P       |
| 22.6          | Electrical insulation not affected by condensing water or leaking liquid                                                                                                                | No such appliance                                                                             | N       |
|               | Electrical insulation of Class II appliances not affected in case of a hose rupture or seal leak                                                                                        |                                                                                               | P       |
| 22.7          | Adequate safeguards against the risk of excessive pressure in appliances provided with steam-producing devices                                                                          | No such appliance                                                                             | N       |
| 22.8          | Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and which are likely to be cleaned in normal use | No such compartments                                                                          | N       |
| 22.9          | Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances                                                                      |                                                                                               | P       |
|               | Adequate insulating properties of oil or grease to which insulation is exposed                                                                                                          | No such substances                                                                            | N       |
| 22.10         | Location or protection of reset buttons of non-self-resetting controls is so that accidental resetting is unlikely                                                                      | No such devices                                                                               | N       |
| 22.11         | Reliable fixing of non-detachable parts which provide the necessary degree of protection against electric shock, moisture or contact with moving parts                                  |                                                                                               | P       |
|               | Obvious locked position of snap-in devices used for fixing such parts                                                                                                                   |                                                                                               | P       |
|               | No deterioration of the fixing properties of snap-in devices used in parts which are likely to be removed during installation or servicing                                              |                                                                                               | P       |
|               | Tests                                                                                                                                                                                   |                                                                                               | P       |
| 22.12         | Handles, knobs etc. fixed in a reliable manner                                                                                                                                          |                                                                                               | N       |
|               | Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible                                                                      |                                                                                               | P       |



| EN 60335-2-23 |                                                                                                                                                                                                     |                                     |         |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                  | Result - Remark                     | Verdict |
|               | Axial force 15 N applied to parts, the shape of which being so that an axial pull is unlikely to be applied                                                                                         |                                     | N       |
|               | Axial force 30 N applied to parts, the shape of which being so that an axial pull is likely to be applied                                                                                           |                                     | P       |
| 22.13         | Unlikely that handles, when gripped as in normal use, make the operators hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only |                                     | P       |
| 22.14         | No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance                                                                                                   |                                     | P       |
|               | No exposed pointed ends of self tapping screws etc., liable to be touched by the user in normal use or during user maintenance                                                                      |                                     | P       |
| 22.15         | Storage hooks and the like for flexible cords smooth and well rounded                                                                                                                               |                                     | N       |
| 22.16         | Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands, no undue wear of contacts                                             | No such cord reel                   | N       |
|               | Cord reel tested with 6000 operations, as specified                                                                                                                                                 |                                     | N       |
|               | Electric strength test of 16.3, voltage of 1000 V applied                                                                                                                                           |                                     | N       |
| 22.17         | Spacers not removable from the outside by hand or by means of a screwdriver or a spanner                                                                                                            | No such spacer                      | N       |
| 22.18         | Current-carrying parts and other metal parts resistant to corrosion under normal conditions of use                                                                                                  |                                     | P       |
| 22.19         | Driving belts not used as electrical insulation                                                                                                                                                     | No such parts                       | N       |
| 22.20         | Direct contact between live parts and thermal insulation effectively prevented, unless material used is non-corrosive, non-hygroscopic and non-combustible                                          | Non-corrosive material              | P       |
| 22.21         | Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not be used as insulation, unless impregnated                                                                                | No such material use for insulation | N       |
| 22.22         | Asbestos not used in the construction of the appliance                                                                                                                                              |                                     | P       |



| EN 60335-2-23 |                                                                                                                                                                            |                              |         |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------|
| Clause        | Requirement – Test                                                                                                                                                         | Result - Remark              | Verdict |
|               | Asbestos is used, but the liberation of dust of impregnated asbestos or of asbestos fibres into the surrounding air adequately prevented                                   |                              | N       |
| 22.23         | Oils containing polychlorinated biphenyl (PCB) not used                                                                                                                    |                              | P       |
| 22.24         | Bare heating elements adequately supported                                                                                                                                 |                              | --      |
|               | In case of rupture, the heating conductor is unlikely to come in contact with earthed metal parts or accessible metal parts                                                |                              | P       |
|               | The heating element shall also be unlikely to come into contact with the skin or hair if it ruptures                                                                       |                              | P       |
| 22.25         | Sagging heating conductors cannot come into contact with accessible metal parts                                                                                            |                              | P       |
| 22.26         | The insulation between parts operating at safety extra-low voltage and other live parts complies with the requirements for double or reinforced insulation                 |                              | N       |
| 22.27         | Parts connected by protective impedance separated by double or reinforced insulation                                                                                       | No such protective impedance | N       |
| 22.28         | Metal parts of Class II appliances conductively connected to gas pipes or in contact with water: separated from live parts by double or reinforced insulation              | No such construction         | N       |
| 22.29         | Class II appliances permanently connected to fixed wiring so constructed that the required degree of protection against electric shock is maintained after installation    |                              | N       |
| 22.30         | Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or                                           |                              | P       |
|               | so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete       |                              | P       |
| 22.31         | Creepage distances and clearances over supplementary and reinforced insulation not reduced below values specified in 29.1 as a result of wear                              |                              | P       |
|               | Creepage distances and clearances over supplementary or reinforced insulation not reduced to less than 50% of values specified in 29.1 if wires, screws etc. becomes loose |                              | P       |



| EN 60335-2-23 |                                                                                                                                                                                                                                                                                   |                       |         |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                                                                                                | Result - Remark       | Verdict |
| 22.32         | Supplementary and reinforced insulation designed or protected against deposition of dirt or dust                                                                                                                                                                                  |                       | P       |
|               | Ceramic material not tightly sintered, similar material or beads alone not used as supplementary or reinforced insulation                                                                                                                                                         |                       | P       |
|               | Supplementary insulation of natural or synthetic rubber resistant to ageing, or arranged and dimensioned so that creepage distances are not reduced below values specified in 29.1                                                                                                |                       | N       |
|               | Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature                                                                                                                                                                                                                   |                       | N       |
|               | Supplementary insulation and reinforced insulation in Class II curling irons shall be resistant to ageing                                                                                                                                                                         |                       | P       |
|               | Additional test for samples of insulation not mentioned in Table 3                                                                                                                                                                                                                |                       | N       |
| 22.33         | Conductive liquids which are or may become accessible in normal use are not in direct contact with live parts                                                                                                                                                                     | No conductive liquids | N       |
|               | Conductive liquids are not in direct contact with basic insulation or reinforced insulation in Class II constructions                                                                                                                                                             |                       | P       |
| 22.34         | Shafts of operating knobs, handles, levers etc. not live, unless the shaft is not accessible when the part is removed                                                                                                                                                             |                       | P       |
| 22.35         | Handles, levers and knobs, held or actuated in normal use, not becoming live in the event of an insulation fault                                                                                                                                                                  |                       | P       |
|               | 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 |                       | P       |
|               | 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       |



| EN 60335-2-23 |                                                                                                                                                                                                                                                |                         |         |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                                                             | Result - Remark         | Verdict |
| 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 |                         | P       |
|               | For Class I appliances other than hand dryers and face dryers, metal parts which could be in contact with skin or hair in normal use shall be separated from live parts by double insulation or reinforced insulation and shall not be earthed |                         | P       |
| 22.37         | Capacitors in Class II appliances not connected to accessible metal parts, unless complying with 22.42                                                                                                                                         |                         | N       |
|               | Metal casings of capacitors in Class II appliances separated from accessible metal parts by supplementary insulation, unless complying with 22.42                                                                                              |                         | P       |
| 22.38         | Capacitors not connected between the contacts of a thermal cut-out                                                                                                                                                                             |                         | P       |
| 22.39         | Lamp holders only used for the connection of lamps                                                                                                                                                                                             |                         | N       |
| 22.40         | Motor-operated appliances and combined appliances, intended to be moved while in operation or which have accessible moving parts, are fitted with a switch to control the motor                                                                |                         | P       |
|               | The actuating member of this switch shall be easily visible and accessible                                                                                                                                                                     |                         | P       |
|               | The switch in the off position shall disconnect electronic circuits, unless compliance with Cl. 19 does not depend on the operation of a self-resetting thermal cut-out (EN 60 335-2-23:03)                                                    |                         | P       |
| 22.41         | Mercury switches mounted according to the requirement                                                                                                                                                                                          | No such component       | N       |
| 22.42         | Protective impedance consisting of at least two separate components                                                                                                                                                                            | No protective impedance | N       |
|               | Values specified in 8.1.4 not exceeded if any one of the components is short-circuited or open circuited                                                                                                                                       |                         | N       |
| 22.43         | Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur                                                                                                                              | No such parts           | N       |



| EN 60335-2-23 |                                                                                                                                                                                                                        |                   |         |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                                     | Result - Remark   | Verdict |
| 22.44         | Appliance enclosure not shaped and decorated so that the appliance is likely to be treated as a toy by children                                                                                                        | No such enclosure | P       |
| 22.45         | The appliance shall be constructed cannot be reduced values specified in 29.1.3 due to deformation.                                                                                                                    |                   | P       |
| 22.101        | Appliances provided with steam-producing or spray-producing devices shall be constructed so that there is no spillage or unintentional burst of steam or water which is likely to cause a hazard                       |                   | P       |
| 22.102        | Curling rollers of permanent-wave appliances in which the heating elements are integral with the curling rollers and which are energized during use shall be supplied with safety extra-low voltage not exceeding 24 V |                   | P       |

|      |                                                                                                             |                                 |    |
|------|-------------------------------------------------------------------------------------------------------------|---------------------------------|----|
| 23   | INTERNAL WIRING                                                                                             |                                 | -- |
| 23.1 | Wire ways smooth and free from sharp edges                                                                  |                                 | P  |
|      | Wires protected against contact with burrs, cooling fins etc.                                               |                                 | P  |
|      | Wire holes in metal well rounded or provided with bushings                                                  |                                 | P  |
|      | Wiring effectively prevented from coming into contact with moving parts                                     |                                 | P  |
| 23.2 | Beads etc. on live wires cannot change their position, and are not resting on sharp edges or corners        | No such beads                   | N  |
|      | Beads inside flexible metal conduits contained within an insulating sleeve                                  |                                 | N  |
| 23.3 | Electrical connections and internal conductors movable relatively to each other not exposed to undue stress |                                 | N  |
|      | Flexible metallic tubes not causing damage to insulation of conductors                                      | No such flexible metallic tubes | N  |
|      | Open-coil springs not used                                                                                  |                                 | P  |
|      | Adequate insulating lining provided inside a coiled spring, the turns of which touch one another            | No such lining                  | N  |
|      | No damage after 10 000 flexings                                                                             |                                 | N  |
|      | Electric strength test, 1000 V between live parts and metal parts                                           |                                 | N  |



| EN 60335-2-23 |                                                                                                                                                           |                          |         |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------|
| Clause        | Requirement – Test                                                                                                                                        | Result - Remark          | Verdict |
|               | The number of flexings for conductors which are flexed only when the appliance is stored is 5000                                                          |                          | N       |
| 23.4          | Bare internal wiring sufficiently rigid and fixed                                                                                                         |                          | P       |
| 23.5          | The basic insulation of internal wiring withstanding the electrical stress likely to occur in normal use                                                  |                          | P       |
|               | No breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation                            |                          | P       |
| 23.6          | Sleeving used as supplementary insulation on internal wiring retained in position by positive means                                                       |                          | P       |
| 23.7          | Only the colour combination green/yellow used for earthing conductors                                                                                     |                          | N       |
| 23.8          | Aluminium wires not used for internal wiring                                                                                                              |                          | P       |
| 23.9          | No lead-tin soldering of stranded conductors where they are subject to contact pressure, unless                                                           |                          | N       |
|               | clamping means so constructed that there is no risk of bad contact due to cold flow of the solder                                                         |                          | N       |
| 24            | COMPONENTS                                                                                                                                                |                          | --      |
| 24.1          | Components comply with safety requirements in relevant IEC standards                                                                                      |                          | P       |
| 24.1.1        | Capacitors likely to be subjected to the supply mains voltage and used for radio interference suppression or voltage dividing, shall comply with Annex ZC | No such capacitor        | N       |
|               | Small lampholders: compliance with requirements for E10 lampholders                                                                                       | No such lampholder used  | N       |
|               | Isolating transformers and safety isolating transformers comply with IEC 742                                                                              | No such transformer used | N       |
|               | Safety isolating transformers tested with the appliance, comply with Annex ZD                                                                             |                          | N       |
|               | Appliance couplers for IPx0 appliances: compliance with IEC 320                                                                                           |                          | N       |
|               | Automatic controls: compliance with IEC 730, unless tested with the appliance                                                                             | No such controls         | N       |
|               | Other appliance couplers: compliance with IEC 309                                                                                                         |                          | N       |
|               | Switches: compliance with IEC 1058, unless tested with the appliance                                                                                      |                          | N       |



| EN 60335-2-23 |                                                                                                                                                                                      |                 |         |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                   | Result - Remark | Verdict |
| 24.1.2        | Automatic controls complying with IEC 730: additional tests according to this standard and 11.3.5 to 11.3.8 and Cl. 17 of IEC 730 as type 1 controls, the cycles of operation being: |                 | --      |
|               | - thermostats: 10 000                                                                                                                                                                |                 | N       |
|               | - temperature limiters: 1000                                                                                                                                                         |                 | N       |
|               | - self-resetting thermal cut-outs: 300                                                                                                                                               |                 | N       |
|               | - non-self-resetting thermal cut-outs: 30                                                                                                                                            |                 | N       |
|               | - energy regulators: 3000                                                                                                                                                            |                 | N       |
|               | - timers: 10 000                                                                                                                                                                     |                 | N       |
| 24.1.3        | For switches, the test of 17.2.7 of IEC 1058-1 is carried out for 10 000 cycles of operation                                                                                         |                 | N       |
|               | Switches not separately tested and found to comply with IEC 1058-1 under conditions covering those occurring in the appliance, comply with Annex ZE                                  |                 | N       |
|               | Switches for no-load-operation and operable only with the aid of a tool, are not subjected to the tests of Cl. 17 of IEC 1058-1                                                      |                 | N       |
|               | This applies also to switches operated by hand, and with interlock for no-load-operation                                                                                             |                 | N       |
|               | Switches without this interlock subjected to the test of 17.2.7 of IEC 1058-1 for 100 cycles of operation                                                                            |                 | N       |
|               | Switches incorporated in hand dryers are tested for 50 000 cycles of operation                                                                                                       |                 | N       |
| 24.1.4        | Components marked with their operating characteristics are used in the appliance in accordance with these markings                                                                   |                 | N       |
|               | Component which have to comply with other standard is tested separately, according to the relevant standard                                                                          |                 | N       |
|               | Component used within the limits of its marking, tested in accordance with conditions occurring in the appliance                                                                     |                 | N       |
|               | Component not marked, or not used in accordance with its marking, or no IEC standard exists, tested under the conditions occurring in the appliance                                  |                 | N       |
|               | Components not mentioned in Table 3 tested as part of the appliance                                                                                                                  |                 | N       |



| EN 60335-2-23 |                                                                                                                                                                                                                                                           |                                 |         |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                                                                        | Result - Remark                 | Verdict |
| 24.1.5        | Voltage across capacitors in series with a motor winding does not exceed 1,1 times rated voltage, when the appliance is supplied at 1,1 times rated voltage under minimum load                                                                            | No such capacitors              | N       |
|               | List of components                                                                                                                                                                                                                                        |                                 | N       |
| 24.2          | No switches or automatic controls in flexible cords                                                                                                                                                                                                       |                                 | P       |
|               | Helmet-type hairdryers and permanent-wave appliances may incorporate a switch in a flexible cord                                                                                                                                                          |                                 | N       |
|               | No devices causing the protective device in the fixed wiring to operate in the event of a fault in the appliance                                                                                                                                          |                                 | N       |
|               | No thermal cut-outs which can be reset by soldering                                                                                                                                                                                                       |                                 | N       |
| 24.3          | Switch intended for all-pole disconnection of stationary appliances is directly connected to the supply terminals, having a contact separation of at least 3 mm in each pole                                                                              |                                 | N       |
| 24.4          | Plugs and socket-outlets for heating elements and extra-low voltage circuits, not interchangeable with plugs and                                                                                                                                          | No such plug and socket-outlets | N       |
|               | socket-outlets or with connectors and appliance inlets complying with IEC 83 or IEC 320, respectively                                                                                                                                                     |                                 | N       |
| 24.5          | Plugs and socket-outlets etc. for interconnection cords, not interchangeable with plugs and socket-outlets or connectors and appliance inlets complying with IEC 83 or IEC 320, respectively, if direct supply from the mains could give rise to a hazard |                                 | N       |
| 24.6          | Motors connected to the supply mains and having inadequate basic insulation for the rated voltage of the appliance, comply with the requirements of Annex F                                                                                               |                                 | N       |
| 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                                                                                                                                                                                                                          |                                 | P       |



| EN 60335-2-23 |                                                                                                                                                                                                           |                                 |         |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                        | Result - Remark                 | Verdict |
|               | - an appliance inlet having at least the same degree of protection against moisture as required for the appliance                                                                                         | No inlet                        | N       |
|               | - pins for insertion into socket-outlets                                                                                                                                                                  |                                 | N       |
| 25.2          | Appliance not provided with more than one means of connection to the supply                                                                                                                               |                                 | P       |
|               | Stationary appliance for multiple supply may be provided with more than one means of connection, provided electric strength test of 1250 V for 1 min between each means of connection causes no breakdown |                                 | N       |
| 25.3          | Connection of supply wires for appliance intended to be permanently connected to fixed wiring possible after the appliance has been fixed to its support                                                  | No such constructions           | N       |
|               | Appliance provided with a set of terminals for the connection of cables or fixed wiring, cross-sectional areas specified in 26.3                                                                          |                                 | N       |
|               | Appliance provided with a set of terminals allowing the connection of a flexible cord                                                                                                                     |                                 | N       |
|               | Appliance provided with a set of terminals and cable entries, conduit entries, knock-outs or glands, allowing connection of appropriate type of cable or conduit                                          |                                 | N       |
| 25.4          | Cable and conduit entries, rated current of appliance not exceeding 16 A, dimensions according to Table 10                                                                                                | Not to be permanently connected | N       |
|               | Introduction of conduit or cable does not affect the protection against electric shock or reduce creepage distances and clearances below values specified in 29.1                                         |                                 | N       |
| 25.5          | Method for assemble supply cord with the appliance:                                                                                                                                                       |                                 | --      |
|               | - type X attachment                                                                                                                                                                                       |                                 | N       |
|               | - type Y attachment                                                                                                                                                                                       |                                 | P       |
|               | Type Z attachment is allowed for                                                                                                                                                                          |                                 | N       |
|               | - hand-held appliances                                                                                                                                                                                    |                                 | N       |
|               | - hairdryers with a flexible hood attachment                                                                                                                                                              |                                 | N       |
|               | - heaters for detachable curlers having not more than 10 curlers                                                                                                                                          |                                 | N       |



| EN 60335-2-23 |                                                                                                                                                                               |                 |         |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause        | Requirement – Test                                                                                                                                                            | Result - Remark | Verdict |
|               | Type X attachment: specially prepared cord                                                                                                                                    |                 | N       |
|               | Type X attachment not used for flat twin tinsel cord                                                                                                                          |                 | N       |
| 25.6          | Plugs fitted with only one flexible cord                                                                                                                                      |                 | P       |
|               | Supply cords of single-phase portable appliances having a rated current not exceeding 16 A, provided with a plug complying with the following Standard Sheets of IEC 83:      |                 | --      |
|               | - for Class I appliances: Standard Sheet C2b, C3b or C4                                                                                                                       |                 | P       |
|               | - for Class II appliances: Standard Sheet C5 or C6                                                                                                                            |                 | N       |
| 25.7          | Appliance supply cord not lighter than:                                                                                                                                       |                 | --      |
|               | - braided cord (245 IEC 51)                                                                                                                                                   |                 | N       |
|               | - ordinary tough rubber sheathed cord (245 IEC 53)                                                                                                                            |                 | N       |
|               | - ordinary polychloroprene sheathed flexible cord (245 IEC 57) (EN 60 335-1:94)                                                                                               |                 | N       |
|               | - flat twin tinsel cord (227 IEC 41)                                                                                                                                          |                 | N       |
|               | - light polyvinyl chloride sheathed cord (227 IEC 52)                                                                                                                         |                 | P       |
|               | - ordinary polyvinyl chloride sheathed cord (227 IEC 53)                                                                                                                      |                 | N       |
|               | Temperature rise of external metal parts exceeding 75 K, PVC cord not used                                                                                                    |                 | N       |
|               | PVC cord used: appliance so constructed that the supply cord is not likely to touch external metal parts in normal use                                                        |                 | N       |
|               | The temperature rise limit of 75 K is increased to 130 K if the temperature rise decreases to 75 K within 5 min after the appliance has been switched off (EN 60 335-2-23:03) |                 | N       |
|               | PVC supply cord appropriate for higher temperatures, type Y or type Z attachment used                                                                                         |                 | N       |
| 25.8          | Nominal cross-sectional area of supply cords according to Table 11; rated current (A); cross-sectional area (mm <sup>2</sup> ) .....                                          |                 | P       |
|               | For hand-held hairdryers having a supply cord not exceeding 2 m, the nominal cross-sectional area may be reduced to                                                           |                 | --      |
|               | - 0,75 mm <sup>2</sup> for rated current up to 10 A                                                                                                                           |                 | P       |
|               | - 1,0 mm <sup>2</sup> for rated current up to 16 A                                                                                                                            |                 | N       |



| EN 60335-2-23 |                                                                                                                                                                                |                                                                |         |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|---------|
| Clause        | Requirement – Test                                                                                                                                                             | Result - Remark                                                | Verdict |
| 25.9          | Supply cord not in contact with sharp points or edges                                                                                                                          | Non - detachable supply cord, not contact sharp point or edges | P       |
| 25.10         | Green/yellow core for earthing purposes in Class I appliance                                                                                                                   |                                                                | P       |
| 25.11         | Conductors of supply cords not consolidated by lead-tin soldering where they are subject to contact pressure, unless                                                           |                                                                | P       |
|               | Clamping means so constructed that there is no risk of bad contacts due to cold flow of the solder                                                                             |                                                                | N       |
| 25.12         | Moulding the cord to part of the enclosure does not damage the insulation of the supply cord                                                                                   | No such constructions                                          | N       |
| 25.13         | Inlet opening provided with a bushing, or is so constructed, that there is no risk of damage to the supply cord when introduced                                                |                                                                | P       |
| 25.13.1       | Inlet bushing so shaped as to prevent damage to the supply cord                                                                                                                |                                                                | P       |
|               | Inlet bushing not detachable                                                                                                                                                   |                                                                | P       |
| 25.13.2       | At inlet openings, the insulation between the conductor of a supply cord and the enclosure of the appliance is consisting of the insulation of the conductor, and in addition: |                                                                | --      |
|               | - for Class 0 appliances: at least one separate insulation                                                                                                                     |                                                                | N       |
|               | - for other appliances: at least two separate insulations                                                                                                                      |                                                                | N       |
|               | Only one separate insulation is required if the enclosure at the inlet opening is of insulating material                                                                       |                                                                | N       |
|               | The separate insulation consists of:                                                                                                                                           |                                                                | --      |
|               | - the sheath of a supply cord at least equivalent to that of a cord complying with IEC 227 or 245                                                                              |                                                                | N       |
|               | - a lining or bushing of insulating material complying with the requirements of 29.2 for supplementary insulation                                                              |                                                                | N       |
| 25.14         | Supply cords adequately protected against excessive flexing                                                                                                                    |                                                                | --      |
|               | Flexing test; applied force (N); number of flexings :                                                                                                                          |                                                                | P       |
|               | The test does not result in:                                                                                                                                                   |                                                                | --      |
|               | - short-circuit between the conductors                                                                                                                                         |                                                                | P       |



| EN 60335-2-23 |                                                                                                                                |                     |         |
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| Clause        | Requirement – Test                                                                                                             | Result - Remark     | Verdict |
|               | - breakage of more than 10% of the strands of any conductor                                                                    |                     | P       |
|               | - separation of the conductor from its terminal                                                                                |                     | P       |
|               | - loosening of any cord guard                                                                                                  |                     | P       |
|               | - damage, within the meaning of the standard, to the cord or the cord guard                                                    |                     | P       |
|               | - broken strands piercing the insulation and becoming accessible                                                               |                     | P       |
|               | Test for hand-held appliances, except appliances incorporating a swivel connection (4000 flexings, 180°)                       |                     | P       |
| 25.15         | Conductors of the supply cord relieved from strain, twisting and abrasion by use of cord anchorages                            |                     | P       |
|               | The cord cannot be pushed into the appliance to such an extent that the cord or internal parts of the appliance can be damaged |                     | P       |
|               | Pull and torque test of supply cord, values shown in Table 10: pull (N); torque (not on automatic cord reel) (Nm) .....        |                     | P       |
|               | Max. 2 mm displacement of the cord, and conductors not moved more than 1 mm in the terminals                                   | No legible movement | P       |
|               | Creepage distances and clearances not reduced below values specified in 29.1                                                   |                     | P       |
|               | The swivel connection is not locked during the tests                                                                           |                     | P       |
| 25.16         | Cord anchorages for type X attachments so constructed and located that:                                                        |                     | --      |
|               | - replacement of the cord is easily possible                                                                                   |                     | N       |
|               | - it is clear how the relief from strain and the prevention of twisting are obtained                                           |                     | N       |
|               | - they are suitable for different types of cord                                                                                |                     | N       |
|               | - cord cannot touch the clamping screws of cord anchorage if these screws are accessible, unless separated from                |                     | N       |
|               | - accessible metal parts by supplementary insulation                                                                           |                     | N       |
|               | - the cord is not clamped by a metal screw which bears directly on the cord                                                    |                     | N       |



| EN 60335-2-23 |                                                                                                                                                                                                                                                                                                     |                   |         |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                                                                                                                  | Result - Remark   | Verdict |
|               | - at least one part of the cord anchorage securely fixed to the appliance, unless part of a specially prepared cord                                                                                                                                                                                 |                   | N       |
|               | - screws which have to be operated when replacing the cord do not fix any other component, if applicable                                                                                                                                                                                            |                   | N       |
|               | - if labyrinths can be bypassed the test of 25.15 is nevertheless withstood                                                                                                                                                                                                                         |                   | N       |
|               | - for Class 0, 0I and I appliances: they are of insulating material or are provided with an insulating lining, unless a failure of the insulation of the cord does not make accessible metal parts live                                                                                             |                   | N       |
|               | - for Class II appliances: they are of insulating material, or if of metal, they are insulated from accessible metal parts by supplementary insulation                                                                                                                                              |                   | P       |
| 25.17         | Adequate cord anchorages for type Y and Z attachment                                                                                                                                                                                                                                                |                   | P       |
| 25.18         | Cord anchorages only accessible with the aid of a tool,                                                                                                                                                                                                                                             |                   | N       |
|               | or so constructed that the cord only can be fitted with the aid of a tool                                                                                                                                                                                                                           |                   | N       |
| 25.19         | Type X attachment, glands not used as cord anchorage in portable appliances                                                                                                                                                                                                                         |                   | N       |
|               | Tying the cord into a knot or tying the cord with string not used                                                                                                                                                                                                                                   |                   | N       |
| 25.20         | Conductors of the supply cord for type Y and Z attachment adequately additionally insulated                                                                                                                                                                                                         |                   | P       |
| 25.21         | Space for supply cable for fixed wiring or supply cord for type X attachment constructed to permit checking of conductors with respect to correct positioning and connection before fitting any cover, no risk of damage, no contact with accessible metal parts if a conductor becomes loose, etc. | No such space     | N       |
|               | 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                                                                                                | Plastic enclosure | N       |
| 25.22         | Appliance inlet:                                                                                                                                                                                                                                                                                    |                   | --      |
|               | - live parts not accessible during insertion or removal                                                                                                                                                                                                                                             | No inlet          | N       |



| EN 60335-2-23 |                                                                                                                                                                                                                    |                 |         |
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| Clause        | Requirement – Test                                                                                                                                                                                                 | Result - Remark | Verdict |
|               | - connector can be inserted without difficulty                                                                                                                                                                     |                 | N       |
|               | - the appliance is not supported by the connector                                                                                                                                                                  |                 | N       |
|               | - is not for cold conditions if temperature rise of external metal parts exceeds 75 K, unless the supply cord is not likely to touch such metal parts                                                              |                 | N       |
| 25.23         | Interconnection cords comply with the requirements for the supply cord, except as specified                                                                                                                        |                 | N       |
|               | If necessary, electric strength test of 16.3                                                                                                                                                                       |                 | N       |
| 25.24         | Interconnection cords not detachable without the aid of a tool                                                                                                                                                     |                 | N       |
| 25.25         | Interconnection cords shall not be detachable without the aid of a tool if compliance with the standard is when they are disconnected (EN 60 335-2-23:03)                                                          |                 | N       |
| 25.101        | Appliances incorporating a swivel connection shall be constructed so that during normal use there will be no electrical or mechanical failure which could impair compliance with this standard (EN 60 335-2-23:03) |                 | P       |
|               | The appliance is operated under the condition as specified in 11.101, the number of revolutions being increased to 20 000                                                                                          |                 | P       |
|               | After this test, the swivel connection and the supply cord shall be fit for further use                                                                                                                            |                 | P       |
|               | Live parts shall not have become accessible and the appliance shall withstand the electric strength test of 16.3                                                                                                   |                 | P       |
| 26            | TERMINALS FOR EXTERNAL CONDUCTORS                                                                                                                                                                                  |                 | --      |
| 26.1.1        | Appliances with type X attachment and appliances for connection to fixed wiring provided with terminals in which connection is made by means of screws, nuts or equally effective devices                          |                 | N       |
|               | Screws and nuts serve only to clamp supply conductors, except                                                                                                                                                      |                 | N       |
|               | Internal conductors, if so arranged that they are unlikely to be displaced when fitting the supply conductors                                                                                                      |                 | N       |



| EN 60335-2-23 |                                                                                                                                                                                                                                             |                 |         |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                                                          | Result - Remark | Verdict |
| 26.1.2        | For type X attachment soldered connections used, the conductor so positioned or fixed that reliance is not placed on soldering alone                                                                                                        |                 | N       |
|               | Soldering alone used, barriers provided, creepage distances and clearances satisfactory if the conductor becomes free                                                                                                                       |                 | N       |
|               | For type Y and Z attachment: soldered, welded, crimped and similar connections used                                                                                                                                                         |                 | N       |
|               | For Class II appliances: the conductor so positioned or fixed that reliance is not placed on soldering, welding or crimping alone                                                                                                           |                 | N       |
|               | For Class II appliances: soldering, welding or crimping alone used, barriers provided, creepage distances and clearances satisfactory if the conductor becomes free                                                                         |                 | N       |
| 26.2          | Terminals for type X attachment and for connection to fixed wiring suitable for connection of conductors with required cross-sectional area according to Table 11; rated current (A); nominal cross-sectional area (mm <sup>2</sup> ) ..... |                 | N       |
|               | Terminals only suitable for a specially prepared cord                                                                                                                                                                                       |                 | N       |
| 26.3          | Terminals for the supply cord suitable for their purpose                                                                                                                                                                                    |                 | N       |
|               | 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                                                                         |                 | N       |
|               | Pull test of 5 N to the connection                                                                                                                                                                                                          |                 | N       |
|               | Terminals for type X attachment in appliance incorporating a swivel connection, shall not allow the connection of a supply cord by means of screws and shall not be of the screwless type                                                   |                 | N       |
| 26.4          | 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                                                                                                                                                                                                              |                 | N       |
|               | - internal wiring is not subjected to stress                                                                                                                                                                                                |                 | N       |
|               | - creepage distances and clearances are not reduced below the values in 29.1                                                                                                                                                                |                 | N       |



| EN 60335-2-23 |                                                                                                                                                                                                                                                 |                    |         |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                                                              | Result - Remark    | Verdict |
| 26.5          | Terminals for type X attachment and for connection to fixed wiring so constructed that the conductor is clamped between metal surfaces with sufficient contact pressure and without damaging the conductor                                      |                    | N       |
| 26.6          | Terminals for type X attachment, no special preparation of conductors required, and so constructed and placed that conductors prevented from slipping out, except those with a specially prepared cord and those for connection to fixed wiring |                    | N       |
| 26.7          | Terminals of the pillar type constructed and located as specified                                                                                                                                                                               |                    | N       |
| 26.8          | Terminals for the connection to fixed wiring located close to each other, including the earthing terminal                                                                                                                                       |                    | N       |
| 26.9          | Terminals for type X attachment accessible after removal of a cover or part of the enclosure                                                                                                                                                    |                    | N       |
| 26.10         | Terminals not accessible without the aid of a tool                                                                                                                                                                                              |                    | N       |
| 26.11         | Terminals for type X attachment so located or shielded that if a wire of a stranded conductor escapes, no risk of accidental connection between live parts and accessible metal parts, and                                                      |                    | N       |
|               | for Class II construction, between live parts and metal parts separated from accessible metal parts by supplementary insulation only                                                                                                            |                    | P       |
|               | Stranded conductor test, 8 mm insulation removed                                                                                                                                                                                                |                    | N       |
| 27            | PROVISION FOR EARTHING                                                                                                                                                                                                                          |                    | N       |
| 27.1          | Accessible metal parts of Class 0I and I appliances, permanently and reliably connected to an earthing terminal                                                                                                                                 | Class II apparatus | N       |
|               | Earthing terminals not connected to neutral terminal                                                                                                                                                                                            |                    | N       |
|               | Class 0, II and III appliance have no provision for earthing                                                                                                                                                                                    |                    | N       |
| 27.2          | Screw clamping terminals comply with Cl. 26                                                                                                                                                                                                     |                    | N       |
|               | Screwless terminals comply with IEC 998-2-2                                                                                                                                                                                                     |                    | N       |
|               | Terminals used for the connection of external equipotential bonding conductors allow connection of conductors of 2,5 to 6 mm <sup>2</sup> , and                                                                                                 |                    | N       |



| EN 60335-2-23 |                                                                                                                                            |                 |         |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause        | Requirement – Test                                                                                                                         | Result - Remark | Verdict |
|               | do not provide earthing continuity between different parts of the appliance                                                                |                 | N       |
|               | Conductors cannot be loosened without the aid of a tool                                                                                    |                 | N       |
|               | Clamping means adequately secured against accidental loosening                                                                             |                 | N       |
| 27.3          | Earth connection "made before" and "separated after" current-carrying connections                                                          |                 | N       |
|               | Current-carrying conductors become taut before earthing conductor, if the cord slips out of the cord anchorage                             |                 | N       |
| 27.4          | No risk of corrosion resulting from contact between metal of earthing terminal and other metal                                             |                 | N       |
|               | Adequate resistance to corrosion of coated or uncoated parts providing earthing continuity, other than parts of a metal frame or enclosure |                 | N       |
|               | Parts of steel providing earthing continuity provided at the essential areas with an electroplated coating, thickness at least 5 $\mu$ m   |                 | N       |
|               | Adequate protection against rusting of parts of coated or uncoated steel, only intended to provide or transmit contact pressure            |                 | N       |
|               | In case of aluminium alloys precautions taken to avoid risk of corrosion                                                                   |                 | N       |
| 27.5          | Low resistance of connection between earthing terminal and earthed metal parts                                                             |                 | N       |
|               | Resistance not exceeding 0,1 $\Omega$ at the specified low-resistance test                                                                 | 0.05 $\Omega$   | N       |
| 27.6          | In hand-held appliances printed conductors of printed circuit boards not used to provide earthing continuity                               |                 | N       |
|               | In other appliances at least two tracks are used with independent soldering points, and                                                    |                 | N       |
|               | the appliance complies with the requirements of 27.5 for each circuit, and                                                                 |                 | N       |
|               | the material of the printed board complies with IEC 249-2-4 or IEC 249-2-5                                                                 |                 | N       |
| 28            | SCREWS AND CONNECTIONS                                                                                                                     |                 | --      |



| EN 60335-2-23 |                                                                                                                                                                                                |                               |         |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                             | Result - Remark               | Verdict |
| 28.1          | Fixings and electrical connections withstand mechanical stresses                                                                                                                               |                               | P       |
|               | Screws not of soft metal liable to creep, such as zinc or aluminium                                                                                                                            |                               | P       |
|               | Diameter of screws of insulating material min. 3 mm                                                                                                                                            | No insulating material screws | N       |
|               | Screws of insulating material not used for any electrical connection                                                                                                                           |                               | N       |
|               | Screws transmitting electrical contact only screwing into metal                                                                                                                                |                               | N       |
|               | Screws not of insulating material if their replacement by a metal screw can impair supplementary or reinforced insulation                                                                      |                               | N       |
|               | Type X attachment, screws to be removed for replacement of supply cord, or for users maintenance, not of insulating material if their replacement by a metal screw can impair basic insulation |                               | N       |
|               | Screws and nuts transmitting contact pressure subjected to torque test as specified, applying torque as shown in Table 14                                                                      |                               | P       |
|               | The test is not carried out on screws and nuts transmitting contact pressure for earthing continuity provided at least two screws or nuts are used                                             |                               | N       |
| 28.2          | Contact pressure not transmitted through insulating material liable to shrink or distort, unless shrinkage or distortion compensated                                                           |                               | N       |
|               | This requirement does not apply to electrical connections in circuits carrying a current not exceeding 0,5 A                                                                                   |                               | N       |
| 28.3          | Space-threaded (sheet metal) screws only used for the connection of current-carrying parts if they clamp these parts directly in contact with each other                                       |                               | N       |
|               | Thread-cutting (self-tapping) screws not used for electrical connection of current-carrying parts, unless generating a full form standard machine screw thread                                 | Only for fixed enclosure      | P       |



| EN 60335-2-23 |                                                                                                                                                                                                                                                                                           |                      |         |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                                                                                                        | Result - Remark      | Verdict |
|               | Thread-cutting (self-tapping) screws not used if they are likely to be operated by the user or installer unless the thread is formed by a swaging action                                                                                                                                  |                      | P       |
|               | Use of thread-cutting and space-threaded screws for earthing continuity according to specification                                                                                                                                                                                        |                      | N       |
| 28.4          | Screws for current-carrying mechanical connection or screws providing earthing continuity secured against loosening                                                                                                                                                                       |                      | N       |
|               | Rivets for current-carrying connections subject to torsion secured against loosening                                                                                                                                                                                                      |                      | P       |
| 29            | CREEPAGE DISTANCES, CLEARANCES AND DISTANCES THROUGH INSULATION                                                                                                                                                                                                                           |                      | --      |
| 29.1          | Creepage distances and clearances not less than specified in Table 13                                                                                                                                                                                                                     | (see appended table) | P       |
|               | Resonant voltage between the point where a winding and a capacitor are connected together and metal parts separated from live parts by basic insulation only, creepage distances and clearances not less than the values specified for the value of the voltage produced by the resonance |                      | N       |
|               | Values increased by 4 mm in case of reinforced insulation when resonance voltage                                                                                                                                                                                                          |                      | N       |
| 29.2          | Distances through insulation not less than 1,0 mm for supplementary insulation, and 2,0 mm for reinforced insulation                                                                                                                                                                      |                      | P       |
|               | For curling irons, the distance through insulation between metal parts separated by supplementary insulation may be reduced to 0,6 mm, provided that the distance through basic insulation is at least 1 mm                                                                               |                      | P       |
| 29.2.1        | Supplementary insulation applied in thin sheet form, other than mica or similar scaly material, consists of at least two layers, each of the layers withstands the electric strength test of 16.3 for supplementary insulation                                                            |                      | P       |
|               | Reinforced insulation applied in thin sheet form, other than mica or similar scaly material, consists of at least three layers, and any two of the layers together withstand the electric strength test of 16.3 for reinforced insulation                                                 |                      | P       |



| EN 60335-2-23 |                                                                                                                                                                                                      |                 |         |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                   | Result - Remark | Verdict |
| 29.2.2        | Supplementary or reinforced insulation inaccessible and does not exceed the maximum permissible temperature values                                                                                   |                 | P       |
|               | Supplementary or reinforced insulation, after conditioning as specified, withstands the electric strength test as specified in 16.3, both at the oven temperature and room temperature               |                 | P       |
| 30            | RESISTANCE TO HEAT, FIRE AND TRACKING                                                                                                                                                                |                 | --      |
| 30.1          | See Annex H                                                                                                                                                                                          |                 | P       |
|               | Relevant external parts of non-metallic material                                                                                                                                                     |                 | P       |
|               | Parts supporting live parts and parts providing supplementary or reinforced insulation sufficiently resistant to heat                                                                                |                 | P       |
|               | Ball-pressure test with a force of 20 N, diameter of impression not exceeding 2 mm                                                                                                                   |                 | P       |
|               | External parts: at 75 °C for enclosure                                                                                                                                                               |                 | N       |
|               | Parts supporting live parts: at 125 °C                                                                                                                                                               |                 | N       |
|               | Parts providing supplementary or reinforced insulation: temperature ( °C)..... :                                                                                                                     |                 | N       |
|               | For hand dryers and hairdryers, the temperature rise occurring during the tests of Cl. 19 are not taken into account                                                                                 |                 | N       |
| 30.2          | Relevant parts of non-metallic material adequately resistant to ignition and spread of fire                                                                                                          |                 | P       |
|               | For helmet-type hairdryers compliance is also checked by the test of 30.101 (EN 60 335-2-23:03)                                                                                                      |                 | N       |
|               | For heaters for detachable curlers, 30.2.3 is applicable (EN 60 335-2-23:03)                                                                                                                         |                 | N       |
|               | For other appliances, 30.2.2 is applicable                                                                                                                                                           |                 | P       |
| 30.2.1        | Possible burning test of relevant parts according to Annex J                                                                                                                                         |                 | N       |
|               | Glow-wire test of Annex K made at temperature 550 °C                                                                                                                                                 | Plastic parts   | P       |
| 30.2.2        | Appliances operated while attended, parts of insulating material supporting connections carrying a current exceeding 0,5 A in normal operation, subjected to the glow-wire test of Annex K at 650 °C |                 | P       |



| EN 60335-2-23 |                                                                                                                                                                    |                 |         |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause        | Requirement – Test                                                                                                                                                 | Result - Remark | Verdict |
| 30.2.3        | Appliances operated while unattended, possible bad-connection test according to Annex L                                                                            |                 | N       |
|               | Glow-wire test of Annex K made at 850 °C                                                                                                                           |                 | N       |
|               | Possible needle-flame test according to Annex M                                                                                                                    |                 | N       |
| 30.2.4        | Parts of non-metallic material within a distance of 50 mm from parts not withstanding the tests of 30.2.2 or 30.2.3, subjected to the needle-flame test of Annex M |                 | N       |
| 30.3          | Relevant insulating material have adequate resistance to tracking                                                                                                  |                 | N       |
|               | Tracking test at 175 V according to Annex N                                                                                                                        |                 | N       |
|               | Tracking test at 250 V according to Annex N                                                                                                                        |                 | N       |
|               | No hazard other than fire, tracking test at 175 V according to Annex N, and in addition needle-flame test of surrounding parts according to Annex M                |                 | N       |
|               | Possible needle-flame test of non-metallic material                                                                                                                |                 | N       |
| 30.101        | For helmet-type hairdryers the needle-flame test of Annex M is applied to                                                                                          |                 | --      |
|               | - parts of non-metallic material enclosing the heating element and other electrical components                                                                     |                 | N       |
|               | - non-metallic parts within the enclosure                                                                                                                          |                 | N       |
| 31            | RESISTANCE TO RUSTING                                                                                                                                              |                 | --      |
|               | Relevant ferrous parts adequately protected against rusting                                                                                                        |                 | P       |
| 32            | RADIATION, TOXICITY AND SIMILAR HAZARDS                                                                                                                            |                 | --      |
|               | Appliance does not emit harmful radiation                                                                                                                          | No radiation    | P       |
|               | Appliance does not present a toxic or similar hazard                                                                                                               |                 | P       |
| A             | ANNEX A, NORMATIVE REFERENCES                                                                                                                                      |                 | --      |
|               | The annex contains a list of standards which are referred to, and thus become part of, this standard                                                               |                 | P       |
| C             | ANNEX C, AGEING TEST ON MOTORS                                                                                                                                     |                 | --      |



| EN 60335-2-23 |                                                                                                                                                                                                                  |                 |         |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                               | Result - Remark | Verdict |
|               | Test carried out when doubt with regard to the classification of the insulating system of a motor winding                                                                                                        |                 | N       |
| D             | ANNEX D, ALTERNATIVE REQUIREMENTS FOR PROTECTED MOTOR UNITS                                                                                                                                                      |                 | --      |
|               | Test of 19.7 carried out on a separate motor protector according to the specification                                                                                                                            |                 | N       |
| E             | ANNEX E, MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES                                                                                                                                                        |                 | --      |
|               | Methods of measuring creepage distances and clearances, specified in 29.1, indicated in 10 different cases                                                                                                       |                 | P       |
| F             | ANNEX F, MOTORS NOT ISOLATED FROM THE SUPPLY MAINS AND HAVING BASIC INSULATION NOT DESIGNED FOR THE RATED VOLTAGE OF THE APPLIANCE                                                                               |                 | --      |
|               | Motors having a working voltage not exceeding 42 V, not being isolated from the supply mains, and having basic insulation not designed for the rated voltage of the appliance are tested according to this annex |                 | N       |
|               | All clauses of this standard apply, unless otherwise specified in this annex                                                                                                                                     |                 | N       |
| F.8           | Protection against accessibility to live parts                                                                                                                                                                   |                 | N       |
| F.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       |
| F.16          | Leakage current and electric strength                                                                                                                                                                            |                 | N       |
| F.16.3        | The insulation between live parts of the motor and its other metal parts is not subjected to this test                                                                                                           |                 | N       |
| F.19          | Abnormal operation                                                                                                                                                                                               |                 | --      |
|               | The test of 19.7 to 19.9 are not to make                                                                                                                                                                         |                 | N       |
| F.19.101      | Appliance operated at rated voltage with each of the following defects:                                                                                                                                          |                 | --      |
|               | - short-circuit of the terminals of the motor, including any capacitor incorporated in the motor circuit                                                                                                         |                 | N       |
|               | - open circuit of the supply to the motor                                                                                                                                                                        |                 | N       |



| EN 60335-2-23 |                                                                                                                                                                                     |                 |         |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                  | Result - Remark | Verdict |
|               | - open circuit of any shunt resistor during operation of the motor                                                                                                                  |                 | N       |
| F.22          | Construction                                                                                                                                                                        |                 | N       |
| F.22.101      | Class I appliance 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       |
| G             | ANNEX G, CIRCUIT FOR MEASURING LEAKAGE CURRENTS                                                                                                                                     |                 | --      |
|               | A suitable circuit for measuring leakage currents is shown                                                                                                                          |                 | P       |
| J             | ANNEX J, BURNING TEST                                                                                                                                                               |                 | --      |
|               | The burning test is made in accordance with IEC 707, and method FH is used                                                                                                          |                 | N       |
|               | Category FH3 applies, the maximum burning rate being 40 mm/min                                                                                                                      |                 | N       |
| K             | ANNEX K, GLOW-WIRE TEST                                                                                                                                                             |                 | --      |
|               | The glow-wire test is made in accordance with IEC 695-2-1 (clause numbers between parentheses refer to IEC 695-2-1)                                                                 |                 | --      |
| (4)           | Description of test apparatus: the last paragraph before the note is replaced                                                                                                       |                 | P       |
| (5)           | Severities: the duration of application of the tip of the glow-wire to the specimen being $(30 \pm 1)$ s                                                                            |                 | P       |
| (10)          | Observations and measurements: item c) does not apply                                                                                                                               |                 | P       |
| L             | ANNEX L, BAD-CONNECTION TEST WITH HEATERS                                                                                                                                           |                 | --      |
|               | The bad-connection test with heaters is made in accordance with IEC 695-2-3 (clause numbers between parentheses refer to IEC 695-2-3)                                               |                 | N       |
| (3)           | General description of the test: additions concerning crimped connections                                                                                                           |                 | N       |
| (4)           | Description of test apparatus: replacements of some of the test specifications and the first paragraph of the note                                                                  |                 | N       |
| (6)           | Severities: the duration of application of the test power being $(30 \pm 1)$ min                                                                                                    |                 | N       |
| (8)           | Test procedure: subclause 8.6 replaced                                                                                                                                              |                 | N       |



| EN 60335-2-23 |                                                                                                                        |                 |         |
|---------------|------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause        | Requirement – Test                                                                                                     | Result - Remark | Verdict |
| (11)          | Information to be given in the relevant specification: item h), the first dashed paragraph, does not apply             |                 | N       |
| M             | ANNEX M, NEEDLE-FLAME TEST                                                                                             |                 | --      |
|               | The needle-flame test is made in accordance with IEC 695-2-2 (clause numbers between parentheses refer to IEC 695-2-2) |                 | --      |
| (4)           | Description of the apparatus: the sixth paragraph is replaced                                                          |                 | N       |
| (5)           | Severities: the duration of application of the test flame is $(30 \pm 1)$ s                                            |                 | N       |
| (8)           | Test procedure: some changes in the test specifications                                                                |                 | N       |
| (10)          | Evaluation of the test results: addition in the test specification                                                     |                 | N       |
| N             | ANNEX N, PROOF TRACKING TEST                                                                                           |                 | --      |
|               | The proof tracking test is made in accordance with IEC 112 (clause numbers between parentheses refer to IEC 112)       |                 | --      |
| (3)           | Test specimen: the last sentence of the first paragraph does not apply                                                 |                 | N       |
| (5)           | Test apparatus: some changes in the subclauses                                                                         |                 | N       |
| (6)           | Procedure: adjustments of the test specifications                                                                      |                 | N       |
| P             | ANNEX P, SEVERITY OF DUTY CONDITIONS OF INSULATING MATERIAL WITH RESPECT TO THE RISK OF TRACKING                       |                 | --      |
|               | Recognition of different duty conditions with respect to the risk of tracking                                          |                 | N       |
| ZA            | ANNEX ZA, SPECIAL NATIONAL CONDITIONS (EN 60 335-1:02)                                                                 |                 | --      |
| 7.12          | DENMARK: requirements regarding marking tag of power supply cord and connecting of earthing wire                       |                 | N       |
| 19.5          | NORWAY: the test is also applicable to appliances intended to be permanently connected to fixed wiring                 |                 | N       |



| EN 60335-2-23 |                                                                                                                                                                                                              |                 |         |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                           | Result - Remark | Verdict |
| 19.11.2       | AUSTRIA: requirements regarding appliances having circuits which under fault conditions may cause earth-leakage currents having a d.c. component exceeding 5 mA and exceeding 20% of the total earth-leakage |                 | N       |
| 22.2          | FRANCE, NORWAY: The second paragraph of this subclause dealing with single-phase Class I appliances with heating elements is not applicable due to the supply system                                         |                 | N       |
| 25.6          | BELGIUM, FRANCE, GREECE, UNITED KINGDOM: plugs according to Standard Sheet C2b not allowed                                                                                                                   |                 | N       |
|               | AUSTRIA, GERMANY, FINLAND, ICELAND, IRELAND, ITALY, LUXEMBOURG, NETHERLANDS, NORWAY, PORTUGAL, SPAIN, SWEDEN, SWITZERLAND, UNITED KINGDOM: plugs according to Standard C3b not allowed                       |                 | N       |
|               | DENMARK: Supply cords of single-phase portable appliances having a rated current not exceeding 10 A provided with a plug according to the following:                                                         |                 | --      |
|               | Class I appliances: Section 107-2-D1 Standard Sheet DK2-1a                                                                                                                                                   |                 | N       |
|               | For appliances covered by a Part 2 of EN 60 335, also plugs in accordance with IEC 83, Standard Sheet C2b, C3b or C4 are allowed                                                                             |                 | N       |
|               | Class II appliances: IEC 83, Standard Sheet C5 or C6                                                                                                                                                         |                 | P       |
|               | Stationary single-phase appliances, having a rated current not exceeding 10 A, and provided with a plug, the plug is in accordance with the requirements above                                               |                 | N       |
|               | Multi-phase appliances and single-phase appliances having a rated current exceeding 10 A, and provided with a plug, the plug is in accordance with the requirements below:                                   |                 | --      |
|               | Class I appliances: Section 107-2-D1, Standard Sheet DK6-1a/EN 60 309-2, Standard Sheet 2-II, 2-IV                                                                                                           |                 | N       |
|               | Class II appliances: Section 107-2-D1, Standard Sheet DK6-1a/2-II, 2-IV                                                                                                                                      |                 | N       |
|               | IRELAND: plug is in accordance with Standard Sheets B1 (15A), B2 and C2b                                                                                                                                     |                 | N       |
|               | SPAIN: appliances having a rated current not exceeding 6 A, provided with a plug complying with UNE 20 315:                                                                                                  |                 | --      |



| EN 60335-2-23 |                                                                                                                                                                                                                           |                 |         |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                                        | Result - Remark | Verdict |
|               | for Class I appliances: figure 7C                                                                                                                                                                                         |                 | N       |
|               | for Class II appliances: figure 15A                                                                                                                                                                                       |                 | N       |
|               | Class I appliances having a rated current not exceeding 16 A, provided with a plug complying with Standard UNE 20 315 figure 7B                                                                                           |                 | N       |
|               | SWITZERLAND: supply cords of portable household and similar electrical appliances, rated current not exceeding 10 A, provided with a plug complying with SEV 1011 or IEC 884-1 and one of the following dimension sheets: |                 | --      |
|               | SEV 6532-2:1991 plug type 15 3P+N+PE 250/400 V, 10 A                                                                                                                                                                      |                 | N       |
|               | SEV 6532-2:1991 plug type 11 L+N 250 V, 10 A                                                                                                                                                                              |                 | N       |
|               | SEV 6532-2:1991 plug type 12 L+N+PE 250 V, 10 A                                                                                                                                                                           |                 | N       |
|               | UNITED KINGDOM: plug according to Standard Sheet B2 or C5 used (refer to Annex ZB)                                                                                                                                        |                 | N       |
| 25.8          | IRELAND, UNITED KINGDOM: replacement of figures (rated current/cross-sectional area) in the table                                                                                                                         |                 | N       |

|       |                                                                                                                |             |    |
|-------|----------------------------------------------------------------------------------------------------------------|-------------|----|
| ZB    | ANNEX ZB, A-DEVIATIONS (EN 60 335-1:02)                                                                        |             | -- |
| 3     | SWITZERLAND: information about batteries                                                                       |             | N  |
| 7.1   | ITALY: the voltage is 220 V/380 V                                                                              |             | N  |
|       | SPAIN: the voltages are 127 V/220 V and 220 V/380 V                                                            |             | N  |
| 7.12  | IRELAND: information about required label attached to the supply cord, concerning the colour code of the wires |             | N  |
| 22.22 | GERMANY: the amount of asbestos in the mass containing asbestos not exceeding 0,1%                             | No asbestos | P  |
|       | FINLAND: certain types of asbestos not used                                                                    |             | P  |
| 24    | SWEDEN: components containing mercury not used                                                                 |             | P  |
| 25.6  | UNITED KINGDOM: regulations concerning plugs to be fitted to domestic appliances                               |             | N  |
| ZC    | ANNEX ZC, CAPACITORS                                                                                           |             | -- |



| EN 60335-2-23 |                                                                                                                                                                                                                                                          |                 |         |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                                                                       | Result - Remark | Verdict |
| ZC            | The following clauses and subclauses of IEC 384-14:1981 apply to capacitors likely to be permanently subjected to the supply mains voltage and used for radio interference suppression or for voltage dividing purposes with the following modifications |                 | N       |
| 4             | Terminology                                                                                                                                                                                                                                              |                 | N       |
| 4.3           | Applicable, capacitors of Class X tested as capacitors of Class X2                                                                                                                                                                                       |                 | N       |
| 4.4           | Applicable                                                                                                                                                                                                                                               |                 | N       |
| 6             | Marking                                                                                                                                                                                                                                                  |                 | N       |
| 6.1           | Items a) and b) applicable                                                                                                                                                                                                                               |                 | N       |
| 8             | Schedules for qualification approval tests                                                                                                                                                                                                               |                 | N       |
| 8.1           | Table II, group 0, group 2 and group 3 applicable as follows:                                                                                                                                                                                            |                 | N       |
|               | - group 0: subclauses 10.1, 10.2, 11.1 and 11.3                                                                                                                                                                                                          |                 | N       |
|               | - group 2: subclause 12.10                                                                                                                                                                                                                               |                 | N       |
|               | - group 3: subclause 12.11                                                                                                                                                                                                                               |                 | N       |
| 10.1          | Visual examination and check of dimensions                                                                                                                                                                                                               |                 | N       |
|               | Applicable                                                                                                                                                                                                                                               |                 | N       |
| 10.2          | Applicable for the marking required by 6.1a) and b)                                                                                                                                                                                                      |                 | N       |
| 11            | Electrical tests                                                                                                                                                                                                                                         |                 | --      |
| 11.1          | Applicable                                                                                                                                                                                                                                               |                 | N       |
| 11.3          | Only table VI applies; climatic category is -/-/21; the values for test A apply; capacitors in heating appliances, the values for test B or C apply                                                                                                      |                 | N       |
| 12            | Environmental test                                                                                                                                                                                                                                       |                 | --      |
| 12.10         | Applicable; only insulation resistance and voltage proof are checked (see Table X)                                                                                                                                                                       |                 | N       |
| 12.11         | Applicable with 12.11.2 and 12.11.6 modified as follow                                                                                                                                                                                                   |                 | N       |
|               | Capacitors are subjected to an impulse voltage test if they are incorporated:                                                                                                                                                                            |                 | --      |
|               | - in appliances liable to be operated while unattended                                                                                                                                                                                                   |                 | N       |



| EN 60335-2-23 |                                                                                                                                                                                                      |                 |         |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                   | Result - Remark | Verdict |
|               | - in other appliances where they are liable to remain under electric stress while the ON/OFF switch or control is in the OFF position, irrespective of the position of the plug in the socket-outlet |                 | N       |
|               | The wave form of the impulse is 1,2/50 with a peak value of 2,5 Kv                                                                                                                                   |                 | N       |
|               | Alternatively, the test is carried out with an impulse voltage having any front time but with a time to half value not exceeding 100 $\mu$ s                                                         |                 | N       |
|               | The peak value of the impulse voltage adjusted by a suitable means such as an impulse proof capacitor of low inductance and having a capacitance similar to that of the capacitor under test         |                 | N       |
|               | No flashover or visible damage when the impulse voltage is applied 3 times with at least 1 s between the impulses                                                                                    |                 | N       |
| 12.11.6       | See Note                                                                                                                                                                                             |                 | N       |

|        |                                                                                                                               |  |    |
|--------|-------------------------------------------------------------------------------------------------------------------------------|--|----|
| ZD     | ANNEX ZD, SAFETY ISOLATING TRANSFORMERS                                                                                       |  | -- |
|        | Safety isolating transformers, tested with the appliance, comply with this standard and the following additional requirements |  | N  |
| 7      | Marking and instructions                                                                                                      |  | N  |
| 7.1    | Marking of transformers for specific use:                                                                                     |  | N  |
|        | - name                                                                                                                        |  | N  |
|        | - trademark/identification mark of manufacturer or responsible vendor                                                         |  | N  |
|        | - model or type reference                                                                                                     |  | N  |
| 17     | Overload protection of transformers and associated equipment                                                                  |  | N  |
|        | The temperature limits specified for the windings do not apply to fail-safe transformers                                      |  | N  |
|        | Such transformers comply with 14.5 of EN 60 742                                                                               |  | N  |
| 22     | Construction                                                                                                                  |  | N  |
| 22.501 | Subclause 8.6 of EN 60 742 applicable                                                                                         |  | N  |
| 29     | Creepage distances, clearances and distances through insulation                                                               |  | N  |



| EN 60335-2-23 |                                                                                                                                                                                                      |                 |         |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|
| Clause        | Requirement – Test                                                                                                                                                                                   | Result - Remark | Verdict |
| 29.1          | The distances specified in Table XV of EN 60 742, items 1a, 1c and 2 apply                                                                                                                           |                 | N       |
| ZE            | ANNEX ZE, SWITCHES                                                                                                                                                                                   |                 | --      |
|               | Switches tested with the appliance comply with this standard and the following clauses of IEC 1058-1, as modified                                                                                    |                 | --      |
|               | - the tests of IEC 1058-1 carried out under the conditions occurring in the appliance, unless                                                                                                        |                 | N       |
|               | - otherwise specified, the tests are carried out on the switch incorporated in the appliance                                                                                                         |                 | N       |
|               | - before being tested in the appliance, switches are operated 20 times without load                                                                                                                  |                 | N       |
| 8             | Marking and documentation                                                                                                                                                                            |                 | --      |
|               | Switches are not required to be marked except, that incorporated switches shall be marked with the manufacturer's name or trademark and the type reference                                           |                 | N       |
| 13            | Mechanism                                                                                                                                                                                            |                 | --      |
|               | Applicable                                                                                                                                                                                           |                 | N       |
| 15            | Insulation resistance and electric strength                                                                                                                                                          |                 | --      |
| 15.1          | Not applicable                                                                                                                                                                                       |                 | N       |
| 15.2          | Not applicable                                                                                                                                                                                       |                 | N       |
| 15.3          | Applicable for full disconnection and micro-disconnection                                                                                                                                            |                 | N       |
| 17            | Endurance                                                                                                                                                                                            |                 | --      |
|               | Applicable, at the end of the tests, temperature rise of the terminals not increased by more than 30 K                                                                                               |                 | N       |
| 20            | Clearances, creepage distances and distances through insulation                                                                                                                                      |                 | --      |
|               | Applicable for creepage distances and clearances for live parts of different potential only, as stated in Table 18 for operational insulation, and across full disconnection and micro-disconnection |                 | N       |
| ZF            | ANNEX ZF, INFORMATIVE                                                                                                                                                                                |                 | --      |
|               | IEC and CENELEC code designations for flexible cords                                                                                                                                                 |                 | P       |



| 10              | TABLE: INPUT DEVIATION MEASUREMENTS |       |       |             |        | P |
|-----------------|-------------------------------------|-------|-------|-------------|--------|---|
| Input Condition | Prated (W)                          | P (W) | Dp    | required Dp | remark |   |
| 220V/50Hz       | 1450                                | 1425  | -1.7% | +10%        | P      |   |
| 220V/60Hz       | 1450                                | 1420  | -2.1% | +10%        | P      |   |
| 240V/50Hz       | 1450                                | 1428  | -1.5% | +10%        | P      |   |
| 240V/60Hz       | 1450                                | 1430  | -1.3% | +10%        | P      |   |

| 11.8                            | TABLE: TEMPERATURE RISE MEASUREMENTS |            | P               |
|---------------------------------|--------------------------------------|------------|-----------------|
|                                 | room temperature t1 ( °C.).....:     | 24.0°C     | --              |
|                                 | room temperature t2 ( °C.).....:     | 24.7°C     | --              |
|                                 | test condition .....                 | 1050-1450W | --              |
| temperature rise Dt of part/at: |                                      | Dt (K)     | required Dt (K) |
| Input wire                      |                                      | 32.5       | 80              |
| connector                       |                                      | 43.8       | 80              |
| Fuse holder                     |                                      | 42.7       | 80              |
| Transformer winding             |                                      | 52.3       | 105             |
| Transformer core                |                                      | 52.2       | 130             |
| Cap                             |                                      | 45.5       | 105             |
| PCB close T1                    |                                      | 42.9       | 130             |
| Infrared probe                  |                                      | 32.4       | 65              |
| Internal wire                   |                                      | 34.3       | 105             |
| Enclosure of adaptor            |                                      | 35.5       | 110             |
| Enclosure of Motor              |                                      | 61.3       | 90              |
| Metal shell                     |                                      | 33.5       | 100             |
| Switch                          |                                      | 28.7       | 60              |
| ambient                         |                                      | 26.5       | --              |

| 13.2                       | TABLE: LEAKAGE CURRENT MEASUREMENTS AT OPERATING TEMPERATURE                  |            | P            |
|----------------------------|-------------------------------------------------------------------------------|------------|--------------|
|                            | heating appliances: at 1,15 times maximum rated input (W) .....               | 1450W*1.15 | --           |
|                            | motor-operated and combined appliances: at 1,06 times rated voltage (V) ..... | --         | --           |
|                            | Heater (PTC)                                                                  | --         | --           |
| leakage current I between: |                                                                               | I (mA)     | Limited (mA) |
| L/N and metal shell        |                                                                               | 0.38       | 0.75         |
| L/N and screw              |                                                                               | 0.44       | 0.75         |



|                               |                                                                |                  |           |
|-------------------------------|----------------------------------------------------------------|------------------|-----------|
| 13.3                          | TABLE: ELECTRIC STRENGTH MEASUREMENTS AT OPERATING TEMPERATURE |                  | P         |
| test voltage applied between: |                                                                | test voltage (V) | breakdown |
| Input and metal shell         |                                                                | 3000             | No        |
| L and N (before fuse)         |                                                                | 1250             | No        |

|                                           |                                     |        |                 |
|-------------------------------------------|-------------------------------------|--------|-----------------|
| 16.2                                      | TABLE: LEAKAGE CURRENT MEASUREMENTS |        | P               |
|                                           | at 1,06 times rated voltage (V) :   | 254.4V | --              |
| leakage current I between:                |                                     | I (mA) | required I (mA) |
| L/N and Plastic Enclosure With Metal Foil |                                     | 0.37   | 0.75            |
| L/N and screw                             |                                     | 0.44   | 0.75            |

|                                  |                                                                |                  |           |
|----------------------------------|----------------------------------------------------------------|------------------|-----------|
| 16.3                             | TABLE: ELECTRIC STRENGTH MEASUREMENTS AT OPERATING TEMPERATURE |                  | P         |
| insulation resistance R between: |                                                                | test voltage (V) | breakdown |
| Live parts and metal shell       |                                                                | 3000             | No        |
| L and N (before fuse)            |                                                                | 1250             |           |

|                                 |                                 |        |                 |
|---------------------------------|---------------------------------|--------|-----------------|
| 19                              | TABLE: abnormal operation tests |        | N               |
|                                 | ambient temperature (°C) .....  | 25.2°C | —               |
| temperature rise Dt of part/at: |                                 | Dt (K) | required Dt (K) |
|                                 |                                 |        |                 |

|                   |                                           |                  |                             |          |                       |   |
|-------------------|-------------------------------------------|------------------|-----------------------------|----------|-----------------------|---|
| 24.1              | TABLE: Components                         |                  |                             |          |                       | P |
| Object / part No. | Manufacturer/ trademark                   | Type / model     | Technical data              | Standard | Mark(s) of conformity |   |
| transformer       | Taizhou Rongda electric co.,ltd           | EE16             | 12V/2W                      |          |                       |   |
| FUSE              | DONG GUAN HONGDA ELECTRONICS CO.,LTD      | 21T              | F10A 250V                   |          |                       |   |
| Relay             | Ningbo Song Le relay co., LTD             | SLA-12VDC-SL-A   | 30A 240VAC                  |          |                       |   |
| capacitor         | Changzhou defu electric co.,ltd           | MKP              | 0.1μF/275VAC                |          |                       |   |
| Power line        | Shangyu city Jingtao electronics co., LTD | HOSVV-F          | 3×1.0mm <sup>2</sup>        |          |                       |   |
| Power line        | Ningbo qiaopu electronics co.,ltd         | JT003            | 3×1.0mm <sup>2</sup>        |          |                       |   |
| plug              | Shangyu city Jingtao electronics co., LTD | 60245 IEC 03(YG) | 16A 250V                    |          |                       |   |
| plug              | Ningbo qiaopu electronics co.,ltd         | PSB-10 10A 250V~ | 10A 250V                    |          |                       |   |
| Inner line        | Yueqing Rimu cable technology co., LTD    | 60245 IEC 03(YG) | 300/500V 0.5mm <sup>2</sup> |          |                       |   |



| 24.1                                                                           | TABLE: Components                             |                  |                             |          |                       | P |
|--------------------------------------------------------------------------------|-----------------------------------------------|------------------|-----------------------------|----------|-----------------------|---|
| Object / part No.                                                              | Manufacturer/ trademark                       | Type / model     | Technical data              | Standard | Mark(s) of conformity |   |
| Inner line                                                                     | Yueqing Rimu cable technology co., LTD        | 60245 IEC 03(YG) | 300/500V 0.5mm <sup>2</sup> |          |                       |   |
| Inner line                                                                     | Shenzhen meier insulation materials co., LTD  | 60245 IEC 03(YG) | 300/500V 0.5mm <sup>2</sup> |          |                       |   |
| connector                                                                      | jiangxi jingbi electronics co., LTD           | PA10             | 2.5mm <sup>2</sup> 450V     |          |                       |   |
| connector                                                                      | jingbi (dongguan) electronics co., LTD        | PA10H            | 2.5mm <sup>2</sup> 450V     |          |                       |   |
| thermal protector                                                              | Foshan city zen icas technology co., LTD      | AMT              | 105℃                        |          |                       |   |
| Thermal links                                                                  | SiMa technology co., LTD                      | SF139E           | 10A 250V~ 142℃              |          |                       |   |
| Heater                                                                         | Shenzhen kechuang electronics co., LTD        | OCR25AL5         | 550W                        |          |                       |   |
| shell                                                                          | Ningbo yong Xing factory                      | ABS              | 121                         |          |                       |   |
| PCB                                                                            | TAIZHOU DIHOUR ELECTRICAL APPLIANCES CO.,LTD. | DHPCB1           |                             |          |                       |   |
| 1) An asterisk indicates a mark which assures the agreed level of surveillance |                                               |                  |                             |          |                       |   |

| 25.15                    | TABLE: SUPPLY CORD CONNECTION, STRAIN RELIEF TEST |                        |               |               |                         | N |
|--------------------------|---------------------------------------------------|------------------------|---------------|---------------|-------------------------|---|
| Mass of appliance ( Kg ) | Pull force ( N )                                  | Duration of time ( s ) | Times of Pull | Result ( mm ) | Limited distance ( mm ) |   |

| 29.1                                          | TABLE: CREEPAGE DISTANCE AND CLEARANCE THROUGH INSULATION MEASUREMENTS |              |                  |         |                   |          | P |
|-----------------------------------------------|------------------------------------------------------------------------|--------------|------------------|---------|-------------------|----------|---|
| clearance cl and creepage distance dcr at/of: | Up (V)                                                                 | U r.m.s. (V) | required cl (mm) | cl (mm) | required dcr (mm) | dcr (mm) |   |
| L to N                                        | 331                                                                    | 230          | 1.5              | >1.5    | 2.5               | >2.5     |   |
| Live parts to Accessible surface              | 325                                                                    | 230          | 3.0              | >3.0    | 5.0               | >5.0     |   |

| 30.1                 | TABLE: BALL-PRESSURE TESTS |  |                          |        | P |
|----------------------|----------------------------|--|--------------------------|--------|---|
| part                 | test temperature (°C)      |  | impression diameter (mm) | Limits |   |
| Enclosure of adaptor | 125                        |  | 0.85                     | 2.0    |   |

| 30.2                 | TABLE: GLOW WIRE TEST |  |             | P |
|----------------------|-----------------------|--|-------------|---|
| Part                 | Test temperature (°C) |  | Result      |   |
| Enclosure of adaptor | 750                   |  | Not burning |   |



## **Appendix**

### **Figure documentation**



**Fig.1 GENERAL APPEARANCE OF EUT**



**Fig.2 GENERAL APPEARANCE OF EUT**



**Fig.3 GENERAL APPEARANCE OF EUT**



**Fig.4 GENERAL APPEARANCE OF EUT**



## Test Report

**Applicant** : TAIZHOU DIHOUR ELECTRICAL APPLIANCES CO., LTD.

**Address** : North Dashi Class I highway, Daxi Town, Wenling City, ZheJiang Province, China.

**Testing Laboratory** : Shenzhen BST Technology Co., Ltd.

**Address** : Building No.23-24, Zhiheng Industrial Park, Guankouer Road, Nantou, Nanshan District, Shenzhen, Guangdong, China

**Report No.** : SHBST16040061903595ER-11

**Total Page** : 4 Pages

**Issue Date** : May. 06, 2016

**Sample Description**

**Product** : HAND DRYER

**Trademark** : DIHOUR

**Model No.** : DH9988H, ED360, DH2600, DH3601, FJD4, DH9988H-B

**Electrical Rating** : AC220-240V 50/60Hz Min(1050W) Max(1450W)

**Date of Received** : Apr. 25, 2016

**Date of Test Conducted** : May. 05, 2016

**Test Requested** : Compliance with EN 62233:2008

**Test Method** : Time domain evaluation, clause 4.2.4.1 of EN 62233. Independent of the type of signal, a time domain measurement of the value of the magnetic flux density can be carried out. For fields having several frequencies, the frequency characteristic of the transfer function takes into account the frequency dependency of the reference levels.

**Test Result** : Pass

**Note** : When determining of the test conclusion, measurement uncertainty of tests have been considered.



## Test Report

Tested by:

Test Engineer

Reviewed by:

Project Engineer

Approved by:

Manager

### 1) Test Summary:

The EMF (Electromagnetic Field) measurement at the highest level component for the **HAND DRYER**.

Model: **DH9988H** was shown as below:

Test Result Summary:

| Model   | Maximal test result (%) | Weighted result | Maximum Limit (%) | Pass / Fail |
|---------|-------------------------|-----------------|-------------------|-------------|
| DH9988H | 0.195                   | N/A             | 100               | Pass        |

### 2) Test condition:

Power Source of EUT: AC220-240V,

50/60Hz

Min(1050W)

Max(1450W)

Operation Condition: EUT continuously on .

Ambient Condition: 25 °C

Background Level: 0.033% of limit

Measuring Distance: 10 cm

Coupling Factor: 0.12

Sensor Locations: around

### 3) Test data:

| Measuring Positions | Front | Left  | Right | Rear  | Top | Bottom |
|---------------------|-------|-------|-------|-------|-----|--------|
| Test result         | 0.178 | 0.175 | 0.198 | 0.195 | --  | --     |

### 4) Notes:

- In accordance to EN 62233, the reference level of the magnetic flux density at frequency at 50Hz is 100μT.
- The test result is obtained from the following formula :

$$\text{Test result} = (B_{r.m.s} / B_{RL})$$

The weighted result is obtained from the following formula :

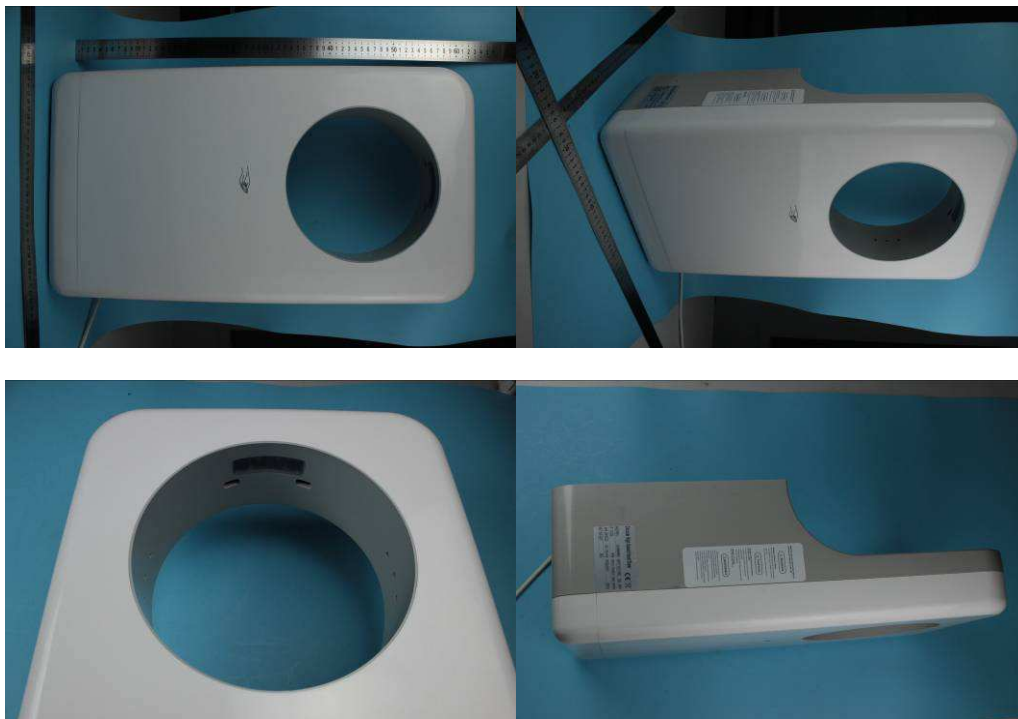
$$\text{Weighted result} = \{a_c(r1) B_{r.m.s}\} / B_{RL}$$

Where  $B_{r.m.s}$  is the r.m.s value of the magnetic flux density;  $B_{RL}$  is the reference level of the magnetic flux density at 50Hz;  $a_c(r1)$  is the coupling factor.

\*\*\*\*\* End of Page\*\*\*\*\*



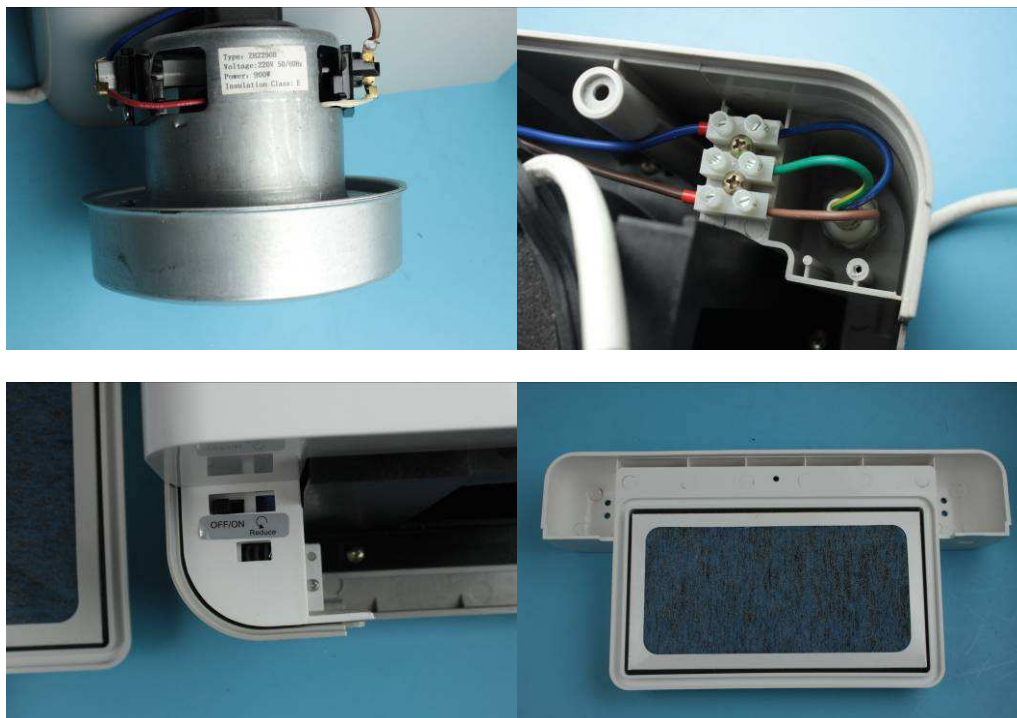
EUT photo and test configuration:



**Photo 1 General Appearance of the EUT**



**Photo 2 General Appearance of the EUT**



**Photo 3 General Appearance of the EUT**



**Photo 4 General Appearance of the EUT**

\*\*\*\*\* End of Report\*\*\*\*\*



## TAIZHOU DIHOUR ELECTRICAL APPLIANCES CO., LTD.

# CE EMC REPORT

|                  |                                                                                                                                                       |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| Prepared For :   | TAIZHOU DIHOUR ELECTRICAL APPLIANCES CO., LTD.<br><br>North Dashi Class I Highway, Daxi Town, Wenling City,<br>Zhejiang Province, China.              |
| Product Name:    | HAND DRYER                                                                                                                                            |
| Trade Name:      | DIHOUR                                                                                                                                                |
| Model :          | DH9988H, ED360, DH2600, DH3601, FJD4, DH9988H-B                                                                                                       |
| Prepared By :    | Shenzhen BST Technology Co., Ltd.<br><br>Building No.23-24,Zhiheng Industrial Park,Guankouer Road,<br>Nantou,NanshanDistrict,Shenzhen,Guangdong,China |
| Test Date:       | May. 04-06, 2016                                                                                                                                      |
| Date of Report : | May. 06, 2016                                                                                                                                         |
| Report No.:      | SHBST16040061903595ER-1                                                                                                                               |



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## TEST REPORT DECLARATION

Applicant : TAIZHOU DIHOUR ELECTRICAL APPLIANCES CO., LTD.  
Address : North Dashi Class I Highway, Daxi Town, Wenling City,  
Zhejiang Province, China.  
EUT Description : HAND DRYER  
Model Number : DH9988H, ED360, DH2600, DH3601, FJD4, DH9988H-B

### Test Standards:

EN55014-1:2006+A1:2009+A2:2011  
EN61000-3-2:2014  
EN61000-3-3:2013  
EN55014-2:1997+A1:2001+A2:2008

The EUT described above is tested by BST Technology Co., Ltd. EMC Laboratory to determine the maximum emissions from the EUT and ensure the EUT to be compliance with the immunity requirements of the EUT. BST Technology Co., Ltd. EMC Laboratory is assumed full responsibility for the accuracy of the test results. Also, this report shows that the EUT technically complies with the 2014/30/EU directive and its amendment requirements.

The test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory.

Prepared by :

Assistant

Reviewer :

Supervisor

Approved & Authorized Signer :

Christina / Manager



## 1. TEST RESULTS SUMMARY

Table 1 Test Results Summary

| Test Items                            | Test Results |
|---------------------------------------|--------------|
| Power Line Conducted Emission Test    | PASS         |
| Disturbance Power Test                | PASS         |
| Harmonic Current Emission Test        | PASS         |
| Voltage Fluctuations & Flicker Test   | PASS         |
| Electrostatic Discharge Test          | PASS         |
| RF Field Strength Susceptibility Test | PASS         |
| Electrical Fast Transient/Burst Test  | PASS         |
| Surge Test                            | PASS         |
| Injected Currents Susceptibility Test | PASS         |
| Voltage Dips And Interruptions Test   | PASS         |
|                                       |              |



## 2. GENERAL INFORMATION

### 2.1. Report information

- 2.1.1. This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that BST approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that BST in any way guarantees the later performance of the product/equipment.
- 2.1.2. The sample/s mentioned in this report is/are supplied by Applicant, BST therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.
- 2.1.3. Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through BST, unless the applicant has authorized BST in writing to do so.

### 2.2. Measurement Uncertainty

Available upon request.

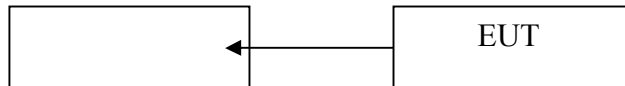


### 3. PRODUCT DESCRIPTION

#### 3.1. EUT Description

Description : HAND DRYER  
Applicant : TAIZHOU DIHOUR ELECTRICAL APPLIANCES CO., LTD.  
North Dashi Class I Highway, Daxi Town, Wenling City, Zhejiang Province, China..  
Manufacturer : TAIZHOU DIHOUR ELECTRICAL APPLIANCES CO., LTD.  
North Dashi Class I Highway, Daxi Town, Wenling City, Zhejiang Province, China..  
Model Number : DH9988H, ED360, DH2600, DH3601, FJD4, DH9988H-B  
(Note:The series products have the same circuit diagram, PCB layout and functionality. The differences are the appearance, so, we select DH9988H to test.)

#### 3.2. Block Diagram of EUT Configuration



#### 3.3. Operating Condition of EUT

Test mode 1: TX

#### 3.4. Test Conditions

Temperature: 23-26°C  
Relative Humidity: 55-68 %

#### 3.5. Modifications

No modification was made.



### 3.6. Abbreviations

|     |                                |
|-----|--------------------------------|
| AC  | Alternating Current            |
| AMN | Artificial Mains Network       |
| DC  | Direct Current                 |
| EM  | ElectroMagnetic                |
| EMC | ElectroMagnetic Compatibility  |
| EUT | Equipment Under Test           |
| IF  | Intermediate Frequency         |
| RF  | Radio Frequency                |
| rms | root mean square               |
| EMI | Electromagnetic Interference   |
| EMS | Electromagnetic Susceptibility |

### 3.7. Performance Criterion

**Criterion A:** The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended.

**Criterion B:** After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended.

**Criterion C:** Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions.



## 4. TEST EQUIPMENT USED

### 4.1. For Conducted Emission Test

| Item | Equipment      | Manufacturer    | Model No. | Serial No. | Last Cal.   | Cal. Interval |
|------|----------------|-----------------|-----------|------------|-------------|---------------|
| 1.   | Test Receiver  | Rohde & Schwarz | ESHS30    | 828985/018 | Jun. 01, 15 | 1 Year        |
| 2.   | Pulse Limiter  | Rohde & Schwarz | ESH3-Z2   | 100006     | Jun. 01, 15 | 1 Year        |
| 3.   | L.I.S.N.       | Rohde & Schwarz | ESH2-Z5   | 834549/005 | Jun. 01, 15 | 1 Year        |
| 4.   | Conical        | Emtek           | N/A       | N/A        | N/A         | N/A           |
| 5.   | Voltage Probe  | Schwarzbeck     | TK9416    | N/A        | Jun. 01, 15 | 1 Year        |
| 6.   | Coaxial Switch | Anritsu         | MP59B     | 6100214550 | Jun. 01, 15 | 1 Year        |

### 4.2. For Disturbance Power Test

| Item | Equipment      | Manufacturer    | Model No. | Serial No. | Last Cal.   | Cal. Interval |
|------|----------------|-----------------|-----------|------------|-------------|---------------|
| 1.   | Test Receiver  | Rohde & Schwarz | ESHS30    | 828985/018 | Jun. 01, 15 | 1 Year        |
| 2.   | Power Clamp    | Rohde & Schwarz | MDS21     | 833711/025 | Jun. 01, 15 | 1 Year        |
| 3.   | Coaxial Switch | Anritsu         | MP59B     | 6100214550 | Dec 01, 15  | 1 Year        |

### 4.3. For Harmonic / Flicker Test

| Item | Equipment                   | Manufacturer | Model No. | Serial No. | Last Cal.   | Cal. Interval |
|------|-----------------------------|--------------|-----------|------------|-------------|---------------|
| 1.   | Power Frequency test system | HAEFELY      | PHF555    | 080419-03  | Jun. 01, 15 | 1 Year        |

### 4.4. For Electrostatic Discharge Immunity Test

| Item | Equipment  | Manufacturer | Model No. | Serial No. | Last Cal.   | Cal. Interval |
|------|------------|--------------|-----------|------------|-------------|---------------|
| 1.   | ESD Tester | HAEFELY      | PSD 1600  | H911'292   | Jun. 02, 15 | 1 Year        |

### 4.5. For RF Strength Susceptibility Test

| Item | Equipment               | Manufacturer | Model No.   | Serial No. | Last Cal.   | Cal. Interval |
|------|-------------------------|--------------|-------------|------------|-------------|---------------|
| 1.   | Signal Generator        | HP           | 8648A       | 3633A02081 | Jun. 03, 15 | 1 Year        |
| 2.   | Amplifier               | A&R          | 500A100     | 17034      | NCR         | NCR           |
| 3.   | Amplifier               | A&R          | 100W/1000M1 | 17028      | NCR         | NCR           |
| 4.   | Isotropic Field Monitor | A&R          | FM2000      | 16829      | NCR         | NCR           |
| 5.   | Isotropic Field Probe   | A&R          | FLW220100   | 16755      | Jun. 03, 15 | 1 Year        |
| 6.   | Biconic Antenna         | EMCO         | 3108        | 9507-2534  | NCR         | NCR           |
| 7.   | Log-periodic Antenna    | A&R          | AT1080      | 16812      | NCR         | NCR           |
| 8.   | PC                      | N/A          | 486DX2      | N/A        | N/A         | N/A           |

### 4.6. For Electrical Fast Transient/Burst Immunity Test

| Item | Equipment    | Manufacturer | Model No. | Serial No. | Last Cal.   | Cal. Interval |
|------|--------------|--------------|-----------|------------|-------------|---------------|
| 1.   | Burst Tester | HAEFELY      | PEFT 4010 | 080981-16  | Jun. 01, 15 | 1 Year        |



#### 4.7. For Surge Test

| Item | Equipment    | Manufacturer | Model No. | Serial No. | Last Cal.   | Cal. Interval |
|------|--------------|--------------|-----------|------------|-------------|---------------|
| 1.   | Surge Tester | HAEFELY      | PSURGE4.1 | 080107-04  | Jun. 01, 15 | 1 Year        |

#### 4.8. For Injected Currents Susceptibility Test

| Item | Equipment       | Manufacturer | Model No.   | Serial No.   | Last Cal.   | Cal. Interval |
|------|-----------------|--------------|-------------|--------------|-------------|---------------|
| 1.   | Simulator       | EMTEST       | CWS 500C    | 0900-12      | Jun. 01, 15 | 1 Year        |
| 2.   | CDN             | EMTEST       | CDN-M2      | 510010010010 | Jun. 01, 15 | 1 Year        |
| 3.   | VDN             | EMTEST       | CDN-M3      | 0900-11      | Jun. 01, 15 | 1 Year        |
| 4.   | Injection Clamp | EMTEST       | F-2031-23MM | 368          | Jun. 01, 15 | 1 Year        |
| 5.   | Attenuator      | EMTEST       | ATT6        | 0010222a     | Jun. 01, 15 | 1 Year        |

#### 4.9. For Magnetic Field Immunity Test

| Item | Equipment             | Manufacturer | Model No. | Serial No. | Last Cal.   | Cal. Interval |
|------|-----------------------|--------------|-----------|------------|-------------|---------------|
| 1.   | Magnetic Field Tester | HEAFELY      | MAG100.1  | 083858-10  | Jun. 01, 15 | 1 Year        |

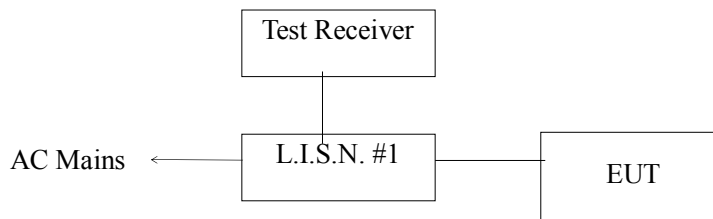
#### 4.10. For Voltage Dips and Interruptions Test

| Item | Equipment   | Manufacturer | Model No.  | Serial No. | Last Cal.   | Cal. Interval |
|------|-------------|--------------|------------|------------|-------------|---------------|
| 2.   | Dips Tester | HEAFELY      | PLINE 1610 | 083732-18  | Jun. 01, 15 | 1 Year        |



## 5. POWER LINE CONDUCTED EMISSION TEST

### 5.1. Block Diagram of Test Setup



### 5.2. Test Standard

EN55014-1:2006+A1:2009+A2:2011

### 5.3. Power Line Conducted Emission Limit

| Frequency<br>MHz | Limits dB(μV)    |               |
|------------------|------------------|---------------|
|                  | Quasi-peak Level | Average Level |
| 0.15 ~ 0.50      | 66 ~ 56*         | 59 ~ 46*      |
| 0.50 ~ 5.00      | 56               | 46            |
| 5.00 ~ 30.00     | 60               | 50            |

Notes: 1. \*Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

### 5.4. EUT Configuration on Test

The following equipments are installed on conducted emission test to meet EN55014 requirement and operating in a manner, which tends to maximize its emission characteristics in a normal application.

#### 5.4.1. EUT Information

Model Number : DH9988H  
Serial Number : N/A  
Manufacturer : TAIZHOU DIHOUR ELECTRICAL APPLIANCES CO., LTD.



## 5.5. Operating Condition of EUT

5.5.1. Setup the EUT and simulators as shown in Section 5.1.

5.5.2. Turn on the power of all equipments.

5.5.3. Let the EUT work in test modes (EUT WORKING) and test it.

## 5.6. Test Procedure

The EUT is put on the ground and connected to the AC mains through a Artificial Mains Network (AMN). This provided 50ohm-coupling impedance for the tested equipments. Both sides of AC line are checked to find out the maximum conducted emission levels according to the EN55014-1 regulations during conducted emission test.

The bandwidth of the test receiver (R&S Test Receiver ESHS30) is set at 10KHz.

The frequency range from 150 KHz to 30 MHz is investigated. and all the scanning waveform is put in **Appendix I**.

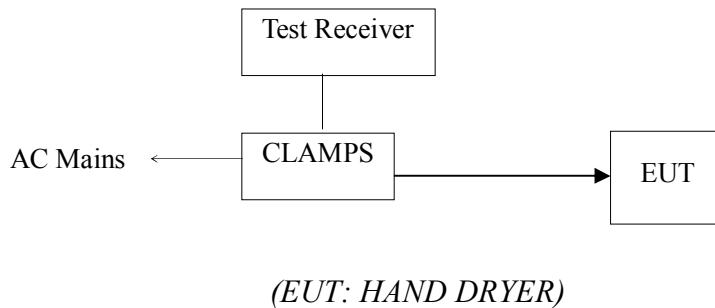
## 5.7. Test Result

**PASS.**



## 6. DISTURBANCE POWER TEST

### 6.1. Block Diagram of Test Setup



### 6.2. Disturbance Power Limit

All emanations from devices or system including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

| Frequency<br>MHz | Interference Power Limits dB(pW)                      |                                                       |
|------------------|-------------------------------------------------------|-------------------------------------------------------|
|                  | Quasi-peak Value                                      | Average Value                                         |
| 30 ~ 300         | 45 Increasing Linearly with<br>Frequency to 55 (Q.P.) | 35 Increasing Linearly with<br>Frequency to 45 (A.V.) |

### 6.3. EUT Configuration on Test

The EN55014 regulations test method must be used to find the maximum emission during radiated emission test.

The configuration of EUT is the same as used in conducted emission test. Please refer to Section 3.2

### 6.4. Operating Condition of EUT

Same as conducted emission test, which is listed in Section 5.1., except the test set up replaced as Section 6.1.



## 6.5. Test Procedure

The EUT is placed on the ground and away from other metallic surface at least 0.4m. It is connected to the power mains through an extension cord of 6m min. The absorber clamp clamps the cord and moves from the far end to the EUT to measure the disturbing energy emitted from the cord.

The bandwidth of the test receiver(R&S ESVS30) is set at 120kHz.

All the test results are listed in Section 6.6.

The frequency spectrum from 30 MHz to 300 MHz is investigated.

As the peak value is too low against the limit, so the quasi-peak value and average value have omitted. All the scanning waveforms are attached in **Appendix II**.

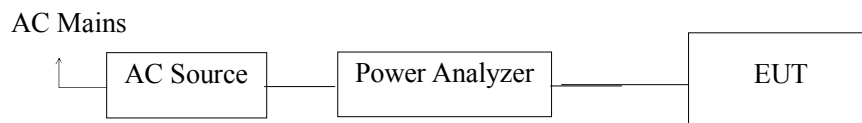
## 6.6. Disturbance Power Test Result

**PASS.**



## 7. HARMONIC CURRENT EMISSION TEST

### 7.1. Block Diagram of Test Setup



### 7.2. Test Standard and Limit

#### 7.2.1. Test Standard

EN61000-3-2:2014

#### 7.2.2. Limits

Table 12 Harmonic Current Test Limit (Class A)

| Harmonic order<br>(n) | Maximum permissible harmonic current<br>(A) |
|-----------------------|---------------------------------------------|
| Odd harmonics         |                                             |
| 3                     | 2.30                                        |
| 5                     | 1.14                                        |
| 7                     | 0.77                                        |
| 9                     | 0.40                                        |
| 11                    | 0.33                                        |
| 13                    | 0.21                                        |
| 15≤n≤39               | 0.15×15/n                                   |
| Even harmonics        |                                             |
| 2                     | 1.08                                        |
| 4                     | 0.43                                        |
| 6                     | 0.30                                        |
| 8≤n≤40                | 0.23×8/n                                    |



### 7.3. Test Procedure

The power cord of the EUT is connected to the output of the test system. Turn on the Power of the EUT and use the test system to test the harmonic current level.

### 7.4. Test Results

**PASS.**



## 8. VOLTAGE FLUCTUATIONS & FLICKER TEST

### 8.1. Block Diagram of Test Setup

Same as Section 7.1..

### 8.2. Test Standard

EN61000-3-3: 2013

### 8.3. Operating Condition of EUT

Same as Section 7.3.. The power cord of the EUT is connected to the output of the test system. Turn on the power of the EUT and use the test system to test the harmonic current level.

Flicker Test Limit

| Test items | Limits                    |
|------------|---------------------------|
| Pst        | 1.0                       |
| dc         | 3.3%                      |
| dmax       | 4.0%                      |
| dt         | Not exceed 3.3% for 500ms |

### 8.4. Test Data

Flicker test Data

| Model No.: DH9988H |         |                           |
|--------------------|---------|---------------------------|
| Test Mode: 1       |         |                           |
| Items              | Reading | Limit                     |
| dmax               | 0.04    | 4.0%                      |
| dc                 | 0.02    | 3.3%                      |
| dt                 | 0.05    | Not exceed 3.3% for 500ms |
| Pst                | 0.001   | 1.0                       |

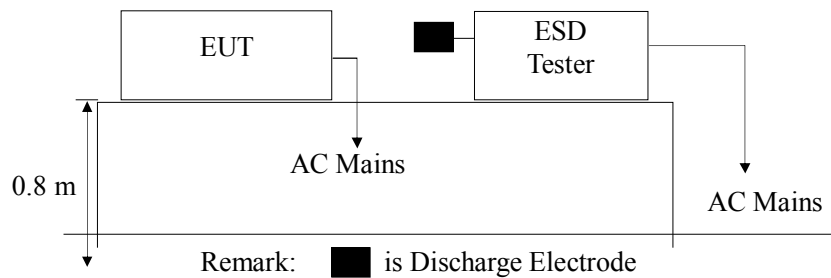
### 8.5. Test Results

**PASS.**



## 9. ELECTROSTATIC DISCHARGE TEST

### 9.1. Block Diagram of ESD Test Setup



### 9.2. Test Standard

EN55014-2:1997+A1:2001+A2:2008 (EN61000-4-2:2009)

Severity Level 3 for Air Discharge at 8KV

Severity Level 2 for Contact Discharge at 4KV

### 9.3. Severity Levels and Performance Criterion

#### 9.3.1. Severity level

| Level | Test Voltage<br>Contact Discharge (KV) | Test Voltage<br>Air Discharge (KV) |
|-------|----------------------------------------|------------------------------------|
| 1.    | 2                                      | 2                                  |
| 2.    | 4                                      | 4                                  |
| 3.    | 6                                      | 8                                  |
| 4.    | 8                                      | 15                                 |
| X.    | Special                                | Special                            |

#### 9.3.2. Performance criterion: B

### 9.4. EUT Configuration on Test

The configuration of EUT are listed in Section 3.2.



## 9.5. Operating Condition of EUT

- 9.5.1. Setup the EUT as shown in Section 9.1..
- 9.5.2. Turn on the power of all equipments.
- 9.5.3. Let the EUT work in test mode (full load) and test it.

## 9.6. Test Procedure

### 9.6.1. Air Discharge:

This test is done on a non-conductive surfaces. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT.  
After each discharge, the discharge electrode shall be removed from the EUT.  
The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

### 9.6.2. Contact Discharge:

All the procedure shall be same as Section 9.6.1. except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

### 9.6.3. Indirect discharge for horizontal coupling plane

At least 20 single discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.

### 9.6.4. Indirect discharge for vertical coupling plane

At least 20 single discharge shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

## 9.7. Test Results

**PASS.**

Please refer to the following page.



## Electrostatic Discharge Test Results

Shenzhen BST Technology Co., Ltd.

Date :05/04/2016

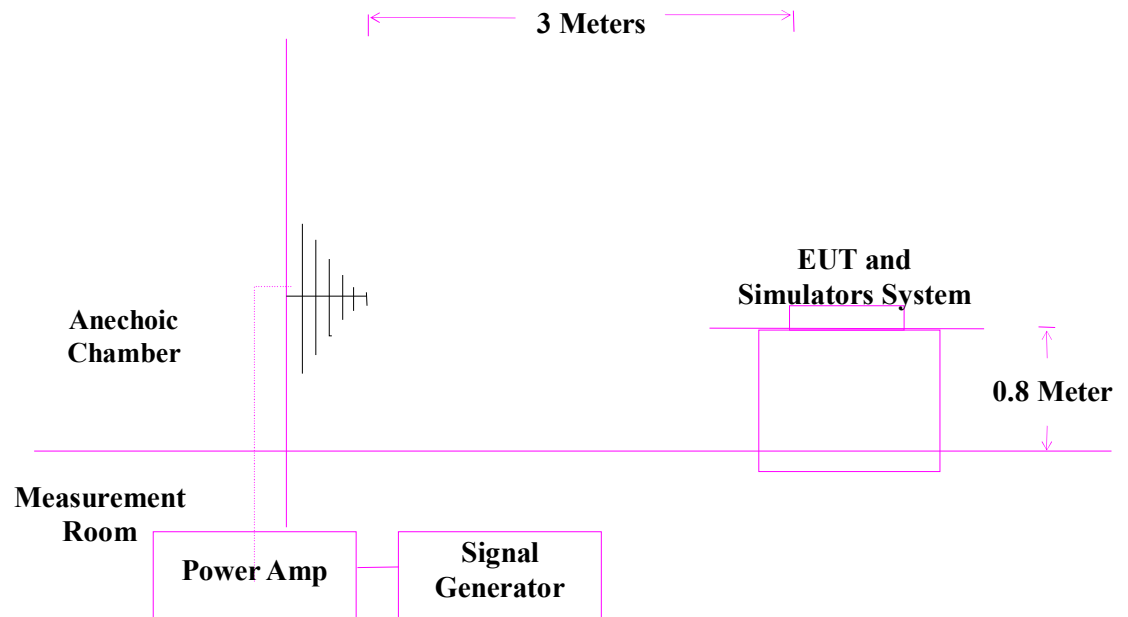
| Applicant                                                                                  | : TAIZHOU DIHOUR ELECTRICAL APPLIANCES CO., LTD. | Test Date   | : May. 04, 2016 |
|--------------------------------------------------------------------------------------------|--------------------------------------------------|-------------|-----------------|
| EUT                                                                                        | : HAND DRYER                                     | Temperature | : 22 °C         |
| M/N                                                                                        | : DH9988H                                        | Humidity    | : 50 %          |
| Power Supply                                                                               | : AC 230V / 50Hz                                 | Test Mode   | : Full load     |
| Test Engineer                                                                              | : Deng Yong                                      |             |                 |
| Air Discharge: $\pm 8KV$ For each point positive 10 times and negative 10 times discharge. |                                                  |             |                 |
| Contact Discharge: $\pm 4KV$                                                               |                                                  |             |                 |
| Location                                                                                   | Kind<br>A-Air Discharge<br>C-Contact Discharge   | Result      |                 |
| Slots                                                                                      | A                                                | PASS        |                 |
| Metal parts                                                                                | C                                                | PASS        |                 |
| HCP                                                                                        | C                                                | PASS        |                 |
| VCP                                                                                        | C                                                | PASS        |                 |

Discharge should be considered on Contact and Air and Horizontal Coupling Plane (HCP) and Vertical Coupling Plane (VCP).



## 10.RF FIELD STRENGTH SUSCEPTIBILITY TEST

### 10.1.R/S Test Setup



### 10.2.Test Standard

EN55014-2:1997+A1:2001+A2:2008 (EN61000-4-3:2006+A1:2008)  
Severity Level 2 at 3V / m

### 10.3.Severity Levels and Performance Criterion

#### 10.3.1.Severity level

| Level | Field Strength V/m |
|-------|--------------------|
| 1.    | 1                  |
| 2.    | 3                  |
| 3.    | 10                 |
| X.    | Special            |

#### 10.3.2.Performance criterion : A



#### 10.4.EUT Configuration on Test

The configuration of EUT are listed in Section 3.2..

#### 10.5.Operating Condition of EUT

Setup the EUT as shown in Section 10.1.. The operating condition of EUT are listed in section 3.3.

#### 10.6.Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above the ground. The EUT is set 3 meters away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna are set on test. Each of the four sides of EUT must be faced this transmitting antenna and measured individually.

In order to judge the EUT performance, a CCD camera is used to monitor the EUT. All the scanning conditions are as follows :

| Condition of Test            | Remarks                      |
|------------------------------|------------------------------|
| 1. Fielded Strength          | 3 V/m (Severity Level 2)     |
| 2. Radiated Signal           | Modulated                    |
| 3. Scanning Frequency        | 80 - 1000 MHz, 1.4GHZ-2.7GHZ |
| 4. Sweeping time of radiated | 0.0015 decade/s              |
| 5. Dwell Time                | 1 Sec.                       |

#### 10.7.Test Results

**PASS.**

Please refer to the following page.



## RF Field Strength Susceptibility Test Results

Shenzhen BST Technology Co., Ltd.

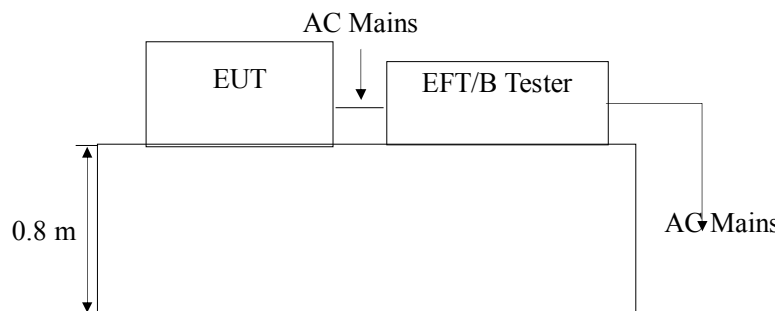
Date :05/04/2016

|                                                                                                                           |                                                     |                 |                                        |
|---------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|-----------------|----------------------------------------|
| Applicant                                                                                                                 | : TAIZHOU DIHOUR ELECTRICAL<br>APPLIANCES CO., LTD. | Test Date       | : May. 04, 2016                        |
| EUT                                                                                                                       | : HAND DRYER                                        | Temperature     | : 22 °C                                |
| M/N                                                                                                                       | : DH9988H                                           | Humidity        | : 50 %                                 |
| Power Supply                                                                                                              | : AC 230V / 50Hz                                    | Test Mode       | : Full load                            |
| Test Engineer                                                                                                             | : Deng Yong                                         | Frequency Range | : 80 MHz to 1000 MHz,<br>1.4GHZ-2.7GHZ |
| Modulation: <input checked="" type="checkbox"/> AM <input type="checkbox"/> Pulse <input type="checkbox"/> none 1 KHz 80% |                                                     |                 |                                        |
| Criterion : A                                                                                                             |                                                     |                 |                                        |
|                                                                                                                           | Frequency Rang :<br>80-1000                         |                 |                                        |
| Steps                                                                                                                     | 1%                                                  | 1%              |                                        |
|                                                                                                                           | Horizontal                                          | Vertical        |                                        |
| Front                                                                                                                     | Pass                                                | Pass            |                                        |
| Right                                                                                                                     | Pass                                                | Pass            |                                        |
| Rear                                                                                                                      | Pass                                                | Pass            |                                        |
| Left                                                                                                                      | Pass                                                | Pass            |                                        |



## 11.ELECTRICAL FAST TRANSIENT/BURST TEST

### 11.1.EFT Test Setup



### 11.2.Test Standard

EN55014-2:1997+A1:2001+A2:2008 (EN61000-4-4:2012)

Severity Level 2 at 1KV

### 11.3.Severity Levels and Performance Criterion

#### 11.3.1.Severity level

| Open Circuit Output Test Voltage $\pm 10\%$ |                       |                                                     |
|---------------------------------------------|-----------------------|-----------------------------------------------------|
| Level                                       | On Power Supply Lines | On I/O (Input/Output) Signal data and control lines |
| 1.                                          | 0.5 KV                | 0.25 KV                                             |
| 2.                                          | 1 KV                  | 0.5 KV                                              |
| 3.                                          | 2 KV                  | 1 KV                                                |
| 4.                                          | 4 KV                  | 2 KV                                                |
| X                                           | Special               | Special                                             |

#### 11.3.2.Performance criterion : B

### 11.4.EUT Configuration on Test

The configuration of EUT are listed in Section 3.2..

### 11.5.Operating Condition of EUT

Setup the EUT as shown in Section 11.1.. The operating condition of EUT are listed in section 3.3.



## 11.6.Test Procedure

The EUT is put on the table which is 0.8 meter high above the ground. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between the EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.

### 11.6.1.For input and output AC power ports:

The EUT is connected to the power mains by using a coupling device which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 2 mins.

### 11.6.2.For signal lines and control lines ports:

It's necessary to test.

### 11.6.3.For DC output line ports:

It's unnecessary to test.

## 11.7.Test Results

**PASS.**

Please refer to the following page.



## Electrical Fast Transient/Burst Test Results

Shenzhen BST Technology Co., Ltd.

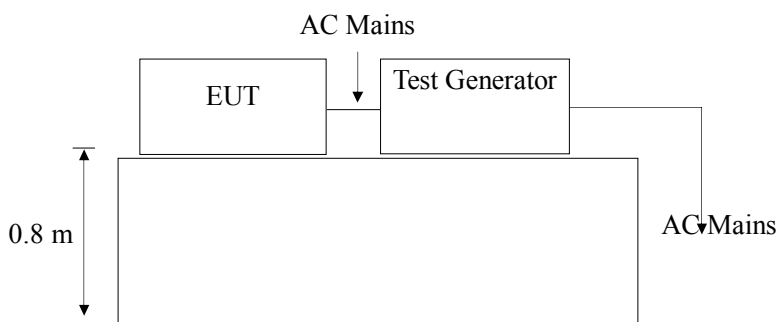
Date :05/04/2016

|                                                                 |               |                   |                  |         |                           |               |                   |                  |         |
|-----------------------------------------------------------------|---------------|-------------------|------------------|---------|---------------------------|---------------|-------------------|------------------|---------|
| Applicant : TAIZHOU DIHOUR ELECTRICAL<br>: APPLIANCES CO., LTD. |               |                   |                  |         | Test Date : May. 04, 2016 |               |                   |                  |         |
| EUT : HAND DRYER                                                |               |                   |                  |         | Temperature : 22 °C       |               |                   |                  |         |
| M/N : DH9988H                                                   |               |                   |                  |         | Humidity : 50 %           |               |                   |                  |         |
| Power Supply : AC 230V / 50Hz                                   |               |                   |                  |         | Test Mode : Full load     |               |                   |                  |         |
| Test Engineer : Deng Yong                                       |               |                   |                  |         |                           |               |                   |                  |         |
| Inject Place : AC Mains                                         |               |                   |                  |         |                           |               |                   |                  |         |
| Inject Line                                                     | Voltage<br>KV | Inject<br>Time(s) | Inject<br>Method | Results | Inject Line               | Voltage<br>KV | Inject<br>Time(s) | Inject<br>Method | Results |
| L                                                               | ±1            | 120               | Direct           | PASS    |                           |               |                   |                  |         |
| N                                                               | ±1            | 120               | Direct           | PASS    |                           |               |                   |                  |         |
| L N                                                             | ±1            | 120               | Direct           | PASS    |                           |               |                   |                  |         |
|                                                                 |               |                   |                  |         |                           |               |                   |                  |         |
|                                                                 |               |                   |                  |         |                           |               |                   |                  |         |
|                                                                 |               |                   |                  |         |                           |               |                   |                  |         |
|                                                                 |               |                   |                  |         |                           |               |                   |                  |         |
|                                                                 |               |                   |                  |         |                           |               |                   |                  |         |



## 12.SURGE TEST

### 12.1.Surge Test Setup



### 12.2.Test Standard

EN55014-2:1997+A1:2001+A2:2008 (EN61000-4-5:2006)  
Severity Level 2 for Line to Neutral at 1.0KV

### 12.3.Severity Levels and Performance Criterion

#### 12.3.1.Severity level

| Severity Level | Open-Circuit Test Voltage<br>KV |
|----------------|---------------------------------|
| 1              | 0.5                             |
| 2              | 1.0                             |
| 3              | 2.0                             |
| 4              | 4.0                             |
| *              | Special                         |

Performance criterion : **B**

### 12.4.EUT Configuration on Test

The configuration of EUT are listed in Section 3.2..

### 12.5.Operating Condition of EUT

12.5.1.Setup the EUT as shown in Section 12.1..

12.5.2.Turn on the power of all equipments.

12.5.3.Let the EUT work in test mode (Full load) and test it.



## 12.6.Test Procedure

- 1) Set up the EUT and test generator as shown on Section 12.1
- 2) For line to line coupling mode, provide a 0.5KV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.
- 3) At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
- 4) Different phase angles are done individually.
- 5) Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

## 12.7.Test Results

**PASS.**

Please refer to the following page.



## Surge Immunity Test Results

Shenzhen BST Technology Co., Ltd.

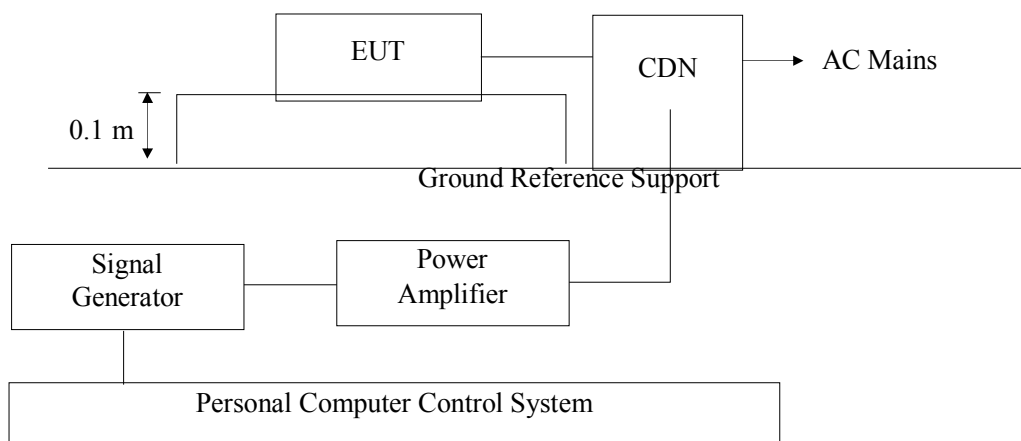
Date :05/04/2016

|                                                                          |                 |                    |                    |                                         |               |
|--------------------------------------------------------------------------|-----------------|--------------------|--------------------|-----------------------------------------|---------------|
| <i>Applicant</i> : <i>TAIZHOU DIHOUR ELECTRICAL APPLIANCES CO., LTD.</i> |                 |                    |                    | <i>Test Date</i> : <i>May. 04, 2016</i> |               |
| <i>EUT</i> : <i>HAND DRYER</i>                                           |                 |                    |                    | <i>Temperature</i> : <i>22 ℃</i>        |               |
| <i>M/N</i> : <i>DH9988H</i>                                              |                 |                    |                    | <i>Humidity</i> : <i>50 %</i>           |               |
| <i>Power Supply</i> : <i>AC 230V / 50Hz</i>                              |                 |                    |                    | <i>Test Mode</i> : <i>Full load</i>     |               |
| <i>Test Engineer</i> : <i>Deng Yong</i>                                  |                 |                    |                    |                                         |               |
| <i>Location</i>                                                          | <i>Polarity</i> | <i>Phase Angle</i> | <i>No of Pulse</i> | <i>Pulse Voltage (KV)</i>               | <i>Result</i> |
| <i>L-N</i>                                                               | <i>+</i>        | <i>0</i>           | <i>5</i>           | <i>1.0</i>                              | <i>PASS</i>   |
|                                                                          | <i>+</i>        | <i>90</i>          | <i>5</i>           | <i>1.0</i>                              | <i>PASS</i>   |
|                                                                          | <i>+</i>        | <i>180</i>         | <i>5</i>           | <i>1.0</i>                              | <i>PASS</i>   |
|                                                                          | <i>+</i>        | <i>270</i>         | <i>5</i>           | <i>1.0</i>                              | <i>PASS</i>   |
|                                                                          | <i>-</i>        | <i>0</i>           | <i>5</i>           | <i>1.0</i>                              | <i>PASS</i>   |
|                                                                          | <i>-</i>        | <i>90</i>          | <i>5</i>           | <i>1.0</i>                              | <i>PASS</i>   |
|                                                                          | <i>-</i>        | <i>180</i>         | <i>5</i>           | <i>1.0</i>                              | <i>PASS</i>   |
|                                                                          | <i>-</i>        | <i>270</i>         | <i>5</i>           | <i>1.0</i>                              | <i>PASS</i>   |



## 13.INJECTED CURRENTS SUSCEPTIBILITY TEST

### 13.1.Block Diagram of Test AC Mains Setup



### 13.2.Test Standard

EN55014-2:1997+A1:2001+A2:2008 (EN61000-4-6: 2009)

Severity Level 2 at 3 V (rms), 0.15MHz ~ 80MHz

### 13.3.Severity Levels and Performance Criterion

#### 13.3.1.Severity level

| Level | Field Strength V/m |
|-------|--------------------|
| 1.    | 1                  |
| 2.    | 3                  |
| 3.    | 10                 |
| X     | Special            |

#### 13.3.2.Performance criterion: A

### 13.4.EUT Configuration on Test

The configuration of EUT are listed in Section 3.2..

### 13.5.Operating Condition of EUT

Setup the EUT as shown in Section 13.1.. The operating condition of EUT are listed in section 3.3.



### 13.6.Test Procedure

- 1) Set up the EUT, CDN and test generators as shown on Section 13.1.
- 2) Let the EUT work in test mode and test it.
- 3) The EUT are placed on an insulating support 0.8m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).
- 4) The disturbance signal described below is injected to EUT through CDN.
- 5) The EUT operates within its operational mode(s) under intended climatic conditions after power on.
- 6) The frequency range is swept from 150KHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1KHz sine wave.
- 7) The rate of sweep shall not exceed  $1.5 \times 10^{-3}$  decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
- 8) Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

### 13.7.Test Results

**PASS.**

Please refer to the following page.



## Injected Currents Susceptibility Test Results

Shenzhen BST Technology Co., Ltd.

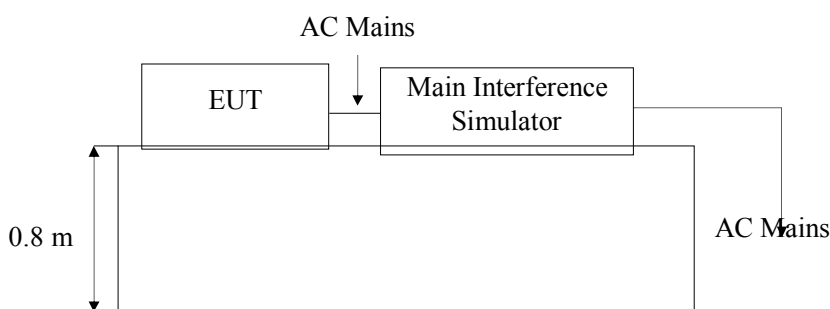
Date :05/04/2016

| <i>Applicant</i> : <i>TAIZHOU DIHOUR ELECTRICAL APPLIANCES CO., LTD.</i> |                          | <i>Test Date</i> : <i>May. 04, 2016</i> |                  |               |
|--------------------------------------------------------------------------|--------------------------|-----------------------------------------|------------------|---------------|
| <i>EUT</i> : <i>HAND DRYER</i>                                           |                          | <i>Temperature</i> : <i>22 °C</i>       |                  |               |
| <i>M/N</i> : <i>DH9988H</i>                                              |                          | <i>Humidity</i> : <i>50 %</i>           |                  |               |
| <i>Power Supply</i> : <i>AC 230V / 50Hz</i>                              |                          | <i>Test Mode</i> : <i>Full load</i>     |                  |               |
| <i>Test Engineer</i> : <i>Deng Yong</i>                                  |                          |                                         |                  |               |
| <i>Frequency Range (MHz)</i>                                             | <i>Injected Position</i> | <i>Strength</i>                         | <i>Criterion</i> | <i>Result</i> |
| <i>0.15 ~ 20</i>                                                         | <i>AC Line</i>           | <i>3V(rms), Unmodulated</i>             | <i>A</i>         | <i>PASS</i>   |
| <i>20 ~ 80</i>                                                           | <i>AC Line</i>           | <i>3V(rms), Unmodulated</i>             | <i>A</i>         | <i>PASS</i>   |



## 14.VOLTAGE DIPS AND INTERRUPTIONS TEST

### 14.1.Voltage Dips and Interruptions Test Setup



Remark: Combination wave generator and decoupling network are included in test generator.

### 14.2.Test Standard

EN55014-2:1997+A1:2001+A2:2008 (EN61000-4-11:2004)

### 14.3.Severity Levels and Performance Criterion

#### 14.3.1.Severity level

| Test Level<br>%U <sub>T</sub> | Voltage dip and short<br>interruptions<br>%U <sub>T</sub> | Duration<br>(in period) |
|-------------------------------|-----------------------------------------------------------|-------------------------|
| 0                             | 100                                                       | 250p                    |
| 40                            | 60                                                        | 5p                      |
| 70                            | 30                                                        | 0.5p                    |

#### 14.3.2.Performance criterion : C & B

### 14.4.EUT Configuration on Test

The configuration of EUT are listed in Section 3.2.

### 14.5.Operating Condition of EUT

14.5.1.Setup the EUT as shown in Section 14.1..

14.5.2.Turn on the power of all equipments.

14.5.3.Let the EUT work in test mode (SPEAKERS Playing) and test it.



#### 14.6.Test Procedure

- 1) Set up the EUT and test generator as shown on Section 14.1.
- 2) The interruptions is introduced at selected phase angles with specified duration.
- 3) Record any degradation of performance.

#### 14.7.Test Result

**PASS.**

Please refer to the following page.



## Voltage Dips And Interruptions Test Results

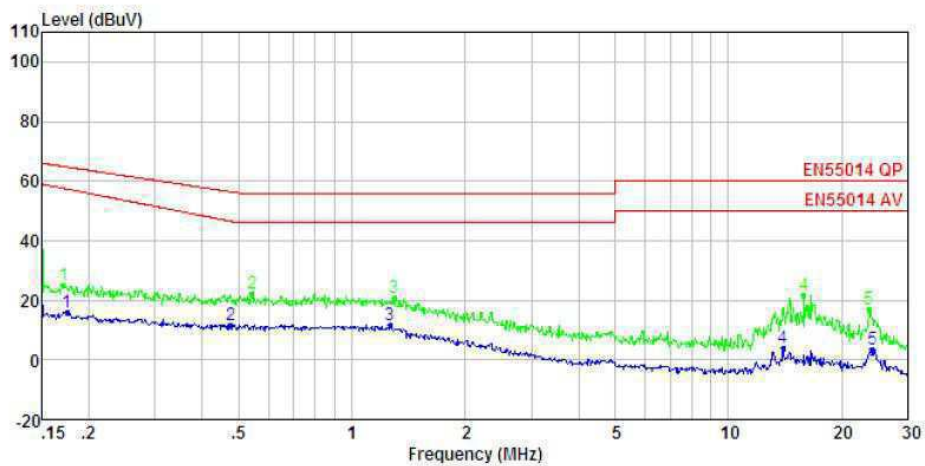
Shenzhen BST Technology Co., Ltd

Date :05/04/2016

| Applicant : TAIZHOU DIHOUR ELECTRICAL<br>APPLIANCES CO., LTD. |                                                  |                         | Test Date : May. 04, 2016 |           |        |
|---------------------------------------------------------------|--------------------------------------------------|-------------------------|---------------------------|-----------|--------|
| EUT : HAND DRYER                                              |                                                  |                         | Temperature : 22 °C       |           |        |
| M/N : DH9988H                                                 |                                                  |                         | Humidity : 50 %           |           |        |
| Power Supply : AC 230V / 50Hz                                 |                                                  |                         | Test Mode : Full load     |           |        |
| Test Engineer : Deng Yong                                     |                                                  |                         |                           |           |        |
| Test Level<br>% $U_T$                                         | Voltage Dips &<br>Short Interruptions<br>% $U_T$ | Duration (in<br>period) | Phase Angle               | Criterion | Result |
| 0                                                             | 100                                              | 250P                    | 0° ~360°                  | C         | PASS   |
| 40                                                            | 60                                               | 5P                      | 0° ~360°                  | C         | PASS   |
| 70                                                            | 30                                               | 0.5P                    | 0° ~360°                  | B         | PASS   |



## **APPENDIX I**



Site : Shenzhen BST Technology Co.,Ltd.

Condition:

: RBW:9.000KHz VBW:30.000KHz

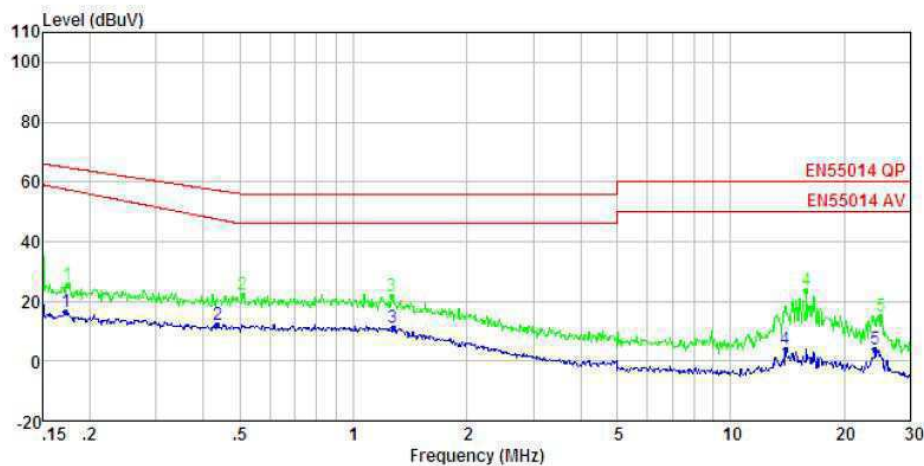
|       | Freq   | Level | Limit | Over  | Remark  | Pol/Phase |
|-------|--------|-------|-------|-------|---------|-----------|
|       | MHz    | dBuV  | dBuV  | dB    |         |           |
| 1     | 0.175  | 16.2  | 57.3  | -41.1 | Average | LINE      |
| 2 Max | 0.476  | 11.6  | 46.5  | -34.7 | Average | LINE      |
| 3     | 1.262  | 11.5  | 46.0  | -34.5 | Average | LINE      |
| 4     | 13.989 | 3.8   | 50.0  | -46.2 | Average | LINE      |
| 5     | 24.142 | 3.4   | 50.0  | -46.6 | Average | LINE      |

Site : Shenzhen BST Technology Co.,Ltd.

Condition:

: RBW:9.000KHz VBW:30.000KHz

|       | Freq   | Level | Limit | Over  | Remark | Pol/Phase |
|-------|--------|-------|-------|-------|--------|-----------|
|       | MHz    | dBuV  | dBuV  | dB    |        |           |
| 1     | 0.171  | 25.2  | 64.9  | -39.7 | Peak   | LINE      |
| 2 Max | 0.544  | 22.0  | 56.0  | -34.0 | Peak   | LINE      |
| 3     | 1.296  | 20.7  | 56.0  | -35.3 | Peak   | LINE      |
| 4     | 15.885 | 21.6  | 60.0  | -38.4 | Peak   | LINE      |
| 5     | 23.636 | 16.8  | 60.0  | -43.2 | Peak   | LINE      |



Site : Shenzhen BST Technology Co.,Ltd.

Condition:

: RBW:9.000KHz VBW:30.000KHz

|       | Freq   | Level | Limit | Over  | Remark  | Pol/Phase |
|-------|--------|-------|-------|-------|---------|-----------|
|       |        |       | Line  | Limit |         |           |
|       | MHz    | dBuV  | dBuV  | dB    |         |           |
| 1     | 0.173  | 16.7  | 57.5  | -40.8 | Average | NEUTRAL   |
| 2 Max | 0.437  | 12.3  | 47.4  | -35.1 | Average | NEUTRAL   |
| 3     | 1.276  | 11.3  | 46.0  | -34.7 | Average | NEUTRAL   |
| 4     | 13.989 | 3.9   | 50.0  | -46.1 | Average | NEUTRAL   |
| 5     | 24.142 | 4.0   | 50.0  | -46.0 | Average | NEUTRAL   |

Site : Shenzhen BST Technology Co.,Ltd.

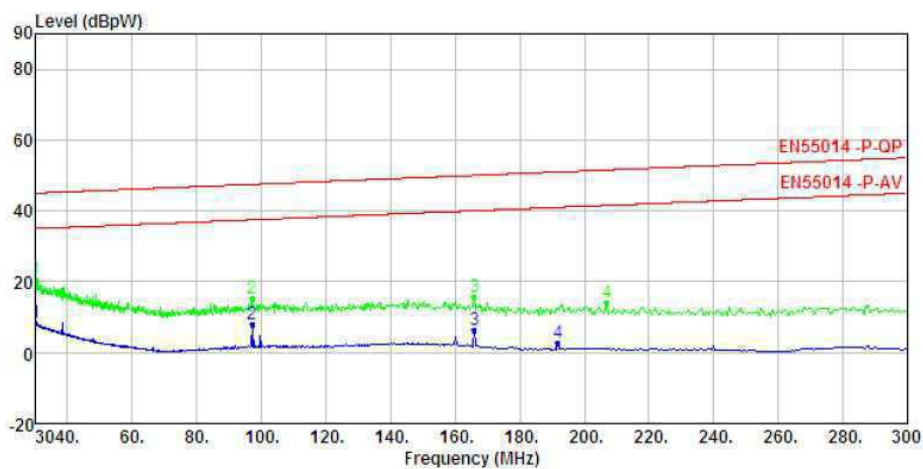
Condition:

: RBW:9.000KHz VBW:30.000KHz

|       | Freq   | Level | Limit | Over  | Remark | Pol/Phase |
|-------|--------|-------|-------|-------|--------|-----------|
|       |        |       | Line  | Limit |        |           |
|       | MHz    | dBuV  | dBuV  | dB    |        |           |
| 1     | 0.175  | 25.8  | 64.7  | -38.9 | Peak   | NEUTRAL   |
| 2 Max | 0.510  | 22.1  | 56.0  | -33.9 | Peak   | NEUTRAL   |
| 3     | 1.262  | 21.6  | 56.0  | -34.4 | Peak   | NEUTRAL   |
| 4     | 15.885 | 23.6  | 60.0  | -36.4 | Peak   | NEUTRAL   |
| 5     | 25.055 | 14.9  | 60.0  | -45.1 | Peak   | NEUTRAL   |



## **APPENDIX II**



Site : Shenzhen BST Technology Co.,Ltd.

Condition:

: RBW:120.000KHz VBW:300.000KHz

|   | Freq | Level   | Limit | Over | Remark        | Pol/Phase |
|---|------|---------|-------|------|---------------|-----------|
|   | MHz  | dBpW    | dBpW  | dB   |               |           |
| 1 | Max  | 30.000  | 8.5   | 35.0 | -26.5 Average |           |
| 2 |      | 97.078  | 7.9   | 37.5 | -29.6 Average |           |
| 3 |      | 166.005 | 6.2   | 40.0 | -33.8 Average |           |
| 4 |      | 191.921 | 2.6   | 41.0 | -38.4 Average |           |

Site : Shenzhen BST Technology Co.,Ltd.

Condition:

: RBW:120.000KHz VBW:300.000KHz

|   | Freq | Level   | Limit | Over | Remark     | Pol/Phase |
|---|------|---------|-------|------|------------|-----------|
|   | MHz  | dBpW    | dBpW  | dB   |            |           |
| 1 | Max  | 30.278  | 20.6  | 45.0 | -24.4 Peak |           |
| 2 |      | 97.078  | 15.4  | 47.5 | -32.1 Peak |           |
| 3 |      | 166.005 | 15.6  | 50.0 | -34.4 Peak |           |
| 4 |      | 207.072 | 14.1  | 51.6 | -37.5 Peak |           |



## **APPENDIX III**



**Photo 1 General Appearance of the EUT**



**Photo 2 General Appearance of the EUT**





**Photo 3 General Appearance of the EUT**



**Photo 4 General Appearance of the EUT**

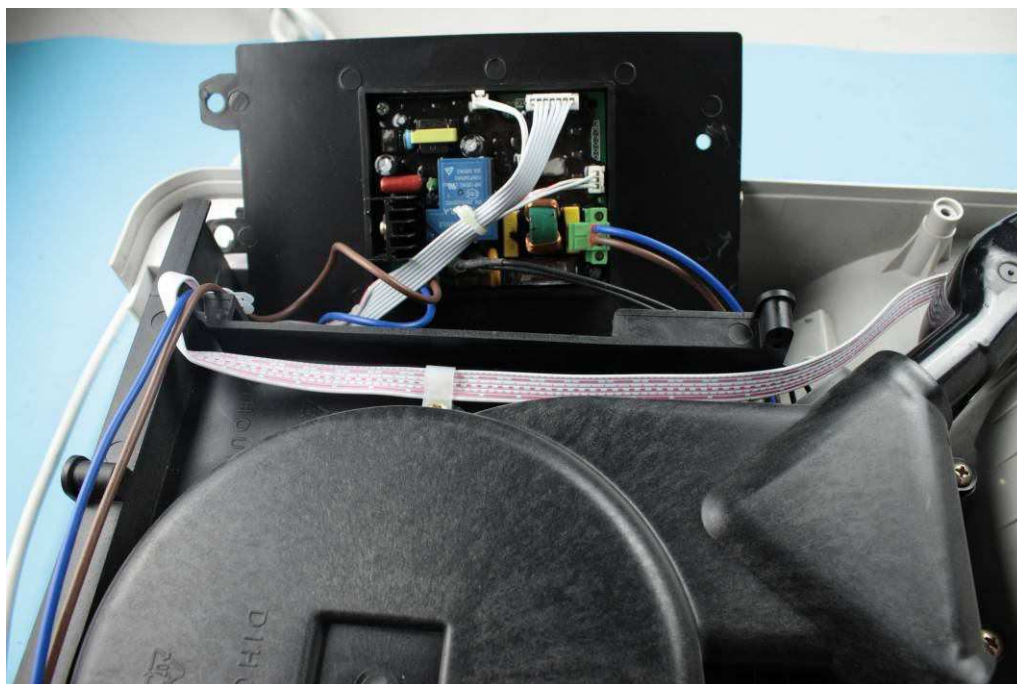




**Photo 5 General Appearance of the EUT**

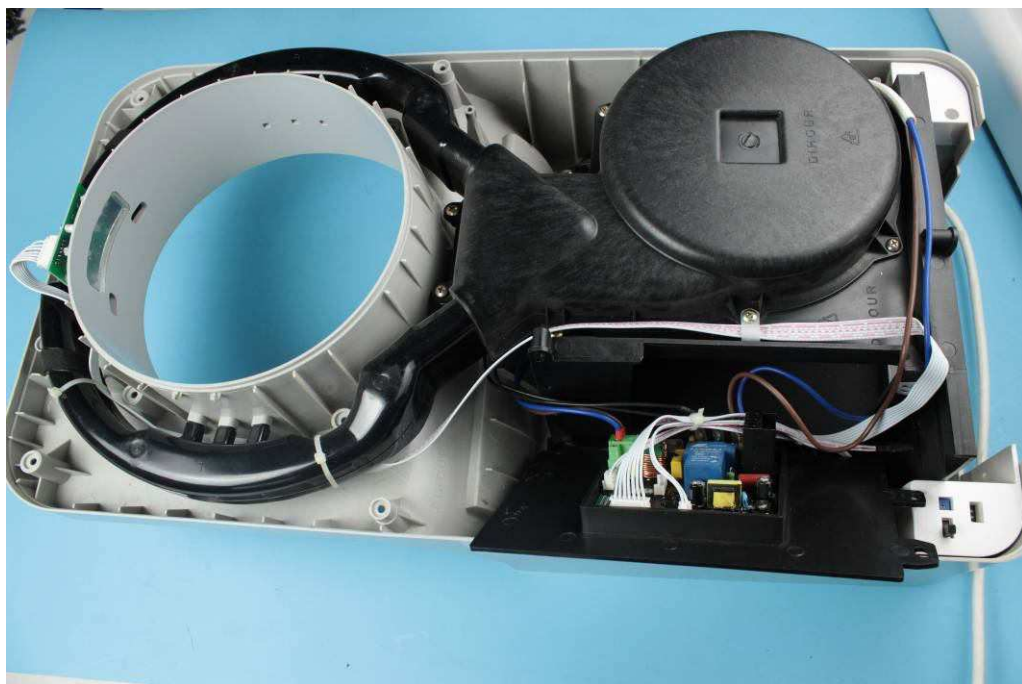


**Photo 6 General Appearance of the EUT (Inside)**

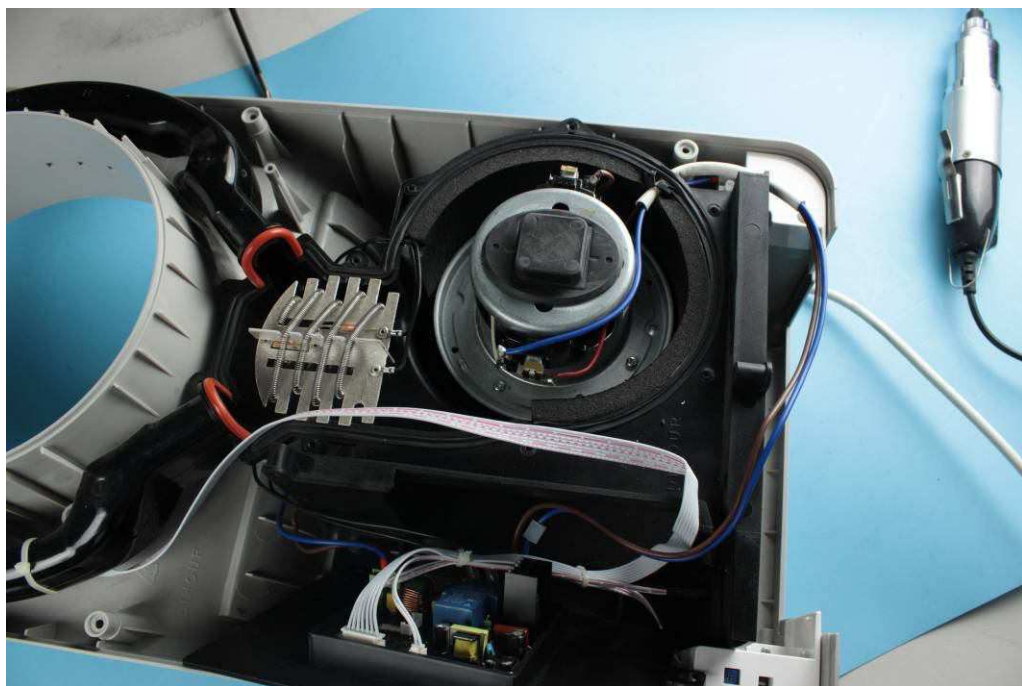




**Photo 7 General Appearance of the EUT(Inside)**



**Photo 8 General Appearance of the EUT (Inside)**

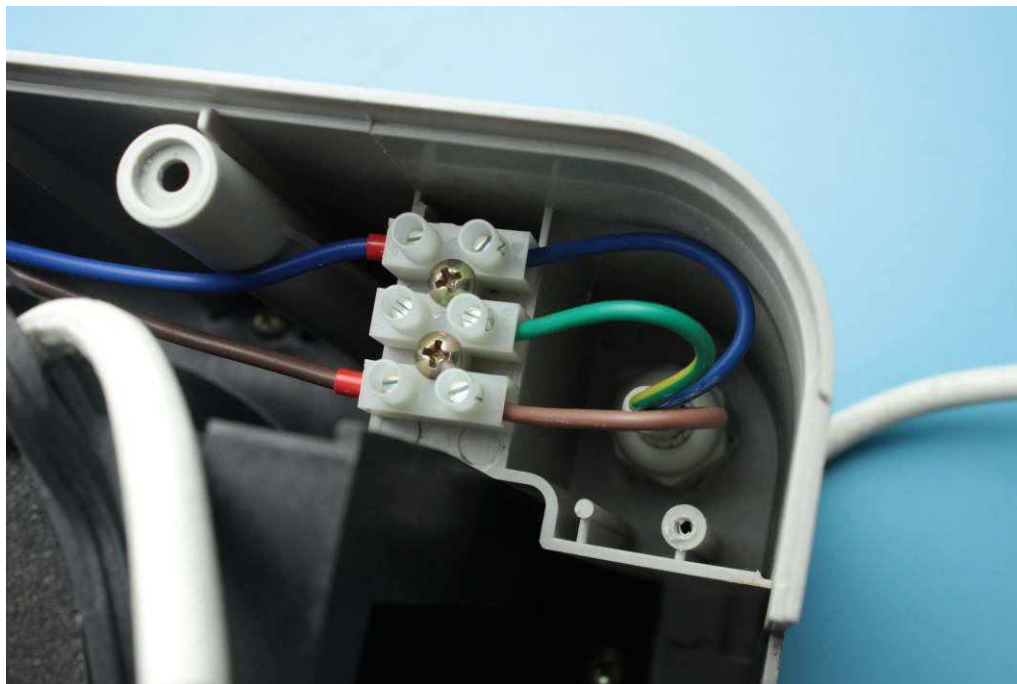




**Photo 9 General Appearance of the EUT**



**Photo 10 General Appearance of the EUT**





**Photo 11 General Appearance of the EUT**



**Photo 12 General Appearance of the EUT**





**Photo 13 General Appearance of the EUT**

