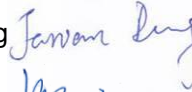




The following sample was submitted and identified on behalf of the client as:

| | |
|--|--|
| TEST REPORT COMMISSION REGULATION (EU) No 811/2013 of 18 February 2013 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to the energy labelling of space heaters, combination heaters, packages of space heater, temperature control and solar device and packages of combination heater, temperature control and solar device COMMISSION REGULATION (EU) No 813/2013 of 2 August 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for space heaters and combination heaters | |
| Report Reference No | AHEE231000218851 |
| Tested by (name + signature)..... | Jarvan Deng  |
| Approved by (+ signature) | Hunter Lin  |
| Date of issue..... | 2023-11-20  |
| Total number of pages | 34 pages |
| Testing Laboratory | SGS-CSTC Standards Technical Services Co., Ltd. Anhui Branch |
| Address | 1/F&2/F, West Building C12, Gongtuo Liheng Industrial Square, Fanhua Road, Economic & Technological Development Area, Hefei, 230601 Anhui, China |
| Applicant's name | Ningbo AUX Electric Co., Ltd. |
| Address | 1166 Mingguang North Road, Jiangshan Yinzhou District, Ningbo, 315191 Zhejiang, China |
| Test specification: | |
| Standard..... | COMMISSION REGULATION (EU) No 811/2013; (EU) No 813/2013 EN 14825: 2018 |
| Test procedure..... | STR: EU Directive 2009/125/EC |
| Non-standard test method..... | None |
| Test Report Form No. | 811/2013_01/ 813/2013_1 |
| Test Report Form(s) Originator..... | SGS-CSTC |
| Master TRF..... | 2015-04-27 |
| <p>This test report is issued under SGS general terms of delivery (available on request and accessible at www.sgs.com). Attention is drawn to the limitations of liability, indemnification and jurisdictional issues defined therein. Unless otherwise stated: (a) the results shown in this document refer only to the sample(s) tested and (b) such sample(s) are retained for three months. This document cannot be reproduced except in full, without prior approval of SGS.</p> <p>Any unauthorized alteration, forgery or falsification of the content or appearance of this report is unlawful and offenders may be prosecuted to the fullest extent of the law</p> | |
| Test item description | Air to Water Heat pump |
| Trade Mark | AUX |
| Manufacturer..... | Same as applicant |
| Model/Type reference | ACHP-H06/4R2HA-M, ACHP-H06/4R2HA-M(NE) |
| Ratings | Refer to marking plates |

Summary of testing:

Tests performed (name of test and test clause):

COMMISSION REGULATION (EU) No 811/2013
 COMMISSION REGULATION (EU) No 813/2013.
 EN 14825: 2018

Testing location:

Refer to p.1

Copy of marking plate

The marking plate is only the draft.

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|------------------------------------|------------------|------------------------|--------|------------------------|--------|---------------|-----------|-----------------|------|------------------|-------|-------------|-------------|----------------------|------------------------------------|------------|------|--------------------------|--------|-----------------------|--------|---------------------|--------|---------------------------|---------|------------------|------|-----------------|--|---------------|-----------|-------------|-------|------|---------|-----|--------------------|---|-------|----------------------|------------------------|--------|------------------------|--------|---------------|-----------|-----------------|------|------------------|-------|-------------|------------|----------------------|------------------------------------|------------|------|--------------------------|--------|-----------------------|--------|---------------------|--------|---------------------------|---------|------------------|------|------|---------|-----|--------------------|
| <p>Monobloc Heat Pump</p> <table border="1"> <tr><td>Model</td><td>ACHP-H06/4R2HA-M</td></tr> <tr><td>Rated Cooling Capacity</td><td>6.50kW</td></tr> <tr><td>Rated Heating Capacity</td><td>6.35kW</td></tr> <tr><td>Rated Voltage</td><td>220-240V~</td></tr> <tr><td>Rated Frequency</td><td>50Hz</td></tr> <tr><td>Max. Input Power</td><td>7230W</td></tr> <tr><td>Refrigerant</td><td>R290(GWP:3)</td></tr> <tr><td>Refrigerant Quantity</td><td>0.55kg/0.00165tCO₂eq.</td></tr> <tr><td>Net Weight</td><td>93kg</td></tr> <tr><td>Max. Discharged Pressure</td><td>3.2MPa</td></tr> <tr><td>Max. Suction Pressure</td><td>1.0MPa</td></tr> <tr><td>Max. Water Pressure</td><td>0.3MPa</td></tr> <tr><td>Electric Shock Prevention</td><td>Class I</td></tr> <tr><td>Resistance Class</td><td>IP24</td></tr> <tr><td>Electric Heater</td><td></td></tr> <tr><td>Rated Voltage</td><td>220-240V~</td></tr> <tr><td>Input Power</td><td>3000W</td></tr> <tr><td>Date</td><td>2023.09</td></tr> <tr><td>No.</td><td>G72206002309100001</td></tr> </table> <p>Contains fluorinated greenhouse gases Manufacturer:Ningbo AUX Electric Co., Ltd. Postal address:1166 Mingguang North Road, Jiangshan Yinzhou District, Ningbo, 315191 Zhejiang, China Importer:XXXXXXXXXX Postal address:XXXXXXXXXX</p> | Model | ACHP-H06/4R2HA-M | Rated Cooling Capacity | 6.50kW | Rated Heating Capacity | 6.35kW | Rated Voltage | 220-240V~ | Rated Frequency | 50Hz | Max. Input Power | 7230W | Refrigerant | R290(GWP:3) | Refrigerant Quantity | 0.55kg/0.00165tCO ₂ eq. | Net Weight | 93kg | Max. Discharged Pressure | 3.2MPa | Max. Suction Pressure | 1.0MPa | Max. Water Pressure | 0.3MPa | Electric Shock Prevention | Class I | Resistance Class | IP24 | Electric Heater | | Rated Voltage | 220-240V~ | Input Power | 3000W | Date | 2023.09 | No. | G72206002309100001 | <p>Monobloc Heat Pump</p> <table border="1"> <tr><td>Model</td><td>ACHP-H06/4R2HA-M(NE)</td></tr> <tr><td>Rated Cooling Capacity</td><td>6.50kW</td></tr> <tr><td>Rated Heating Capacity</td><td>6.35kW</td></tr> <tr><td>Rated Voltage</td><td>220-240V~</td></tr> <tr><td>Rated Frequency</td><td>50Hz</td></tr> <tr><td>Max. Input Power</td><td>4230W</td></tr> <tr><td>Refrigerant</td><td>R290(GWP3)</td></tr> <tr><td>Refrigerant Quantity</td><td>0.55kg/0.00165tCO₂eq.</td></tr> <tr><td>Net Weight</td><td>92kg</td></tr> <tr><td>Max. Discharged Pressure</td><td>3.2MPa</td></tr> <tr><td>Max. Suction Pressure</td><td>1.0MPa</td></tr> <tr><td>Max. Water Pressure</td><td>0.3MPa</td></tr> <tr><td>Electric Shock Prevention</td><td>Class I</td></tr> <tr><td>Resistance Class</td><td>IP24</td></tr> <tr><td>Date</td><td>2023.10</td></tr> <tr><td>No.</td><td>G70306002310100001</td></tr> </table> <p>Contains fluorinated greenhouse gases Manufacturer:Ningbo AUX Electric Co., Ltd. Postal address:1166 Mingguang North Road, Jiangshan Yinzhou District, Ningbo, 315191 Zhejiang, China Importer:XXXXXXXXXX Postal address:XXXXXXXXXX</p> | Model | ACHP-H06/4R2HA-M(NE) | Rated Cooling Capacity | 6.50kW | Rated Heating Capacity | 6.35kW | Rated Voltage | 220-240V~ | Rated Frequency | 50Hz | Max. Input Power | 4230W | Refrigerant | R290(GWP3) | Refrigerant Quantity | 0.55kg/0.00165tCO ₂ eq. | Net Weight | 92kg | Max. Discharged Pressure | 3.2MPa | Max. Suction Pressure | 1.0MPa | Max. Water Pressure | 0.3MPa | Electric Shock Prevention | Class I | Resistance Class | IP24 | Date | 2023.10 | No. | G70306002310100001 |
| Model | ACHP-H06/4R2HA-M | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rated Cooling Capacity | 6.50kW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rated Heating Capacity | 6.35kW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rated Voltage | 220-240V~ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rated Frequency | 50Hz | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Max. Input Power | 7230W | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Refrigerant | R290(GWP:3) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Refrigerant Quantity | 0.55kg/0.00165tCO ₂ eq. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Net Weight | 93kg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Max. Discharged Pressure | 3.2MPa | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Max. Suction Pressure | 1.0MPa | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Max. Water Pressure | 0.3MPa | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Electric Shock Prevention | Class I | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Resistance Class | IP24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Electric Heater | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rated Voltage | 220-240V~ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Input Power | 3000W | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Date | 2023.09 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | G72206002309100001 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Model | ACHP-H06/4R2HA-M(NE) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rated Cooling Capacity | 6.50kW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rated Heating Capacity | 6.35kW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rated Voltage | 220-240V~ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rated Frequency | 50Hz | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Max. Input Power | 4230W | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Refrigerant | R290(GWP3) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Refrigerant Quantity | 0.55kg/0.00165tCO ₂ eq. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Net Weight | 92kg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Max. Discharged Pressure | 3.2MPa | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Max. Suction Pressure | 1.0MPa | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Max. Water Pressure | 0.3MPa | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Electric Shock Prevention | Class I | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Resistance Class | IP24 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Date | 2023.10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | G70306002310100001 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| | |
|--|-----------------------------|
| Test item particulars | : Air to Water Heat pump |
| Classification of installation and use | : Fixed appliance |
| Supply Connection | : Connected to fixed wiring |
| | : |
| Possible test case verdicts: | |
| - test case does not apply to the test object..... | : N/A |
| - test object does meet the requirement..... | : P (Pass) |
| - test object does not meet the requirement | : F (Fail) |
| Testing | |
| Date of receipt of test item | : 2023-09-28 |
| Date (s) of performance of tests | : 2023-09-28 to 2023-10-16 |
| General remarks: | |
| <p>The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(see Enclosure #)" refers to additional information appended to the report. "(see appended table)" refers to a table appended to the report.</p> <p>Throughout this report a comma is used as the decimal separator.</p> <p>This document is issued by the company under its General Conditions of Service accessible at http://www.sgs.com/terms_and_conditions.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.</p> <p>Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.</p> <p>Unless otherwise stated: (a) the results shown in this document refer only to the sample(s) tested and (b) such sample(s) are retained for 30 days. This document cannot be reproduced except in full, without prior approval of the company.</p> | |
| General product information: | |
| The appliances are design for space heating used and with refrigerant R290. | |

| COMMISSION REGULATION (EU) No 813/2013 | | | |
|--|---|---------------|---------|
| Cl. | Requirement-Test | Result-Remark | Verdict |
| | Ecodesign requirements | | — |
| ANNEX I | Definitions applicable for Annexes II to V | | P |
| ANNEX II | Ecodesign requirements | | P |
| 1. (a) | From 26 September 2015 the seasonal space heating energy efficiency and useful efficiencies of heaters shall not fall below the following values: | | P |
| | Fuel boiler space heaters with rated heat output ≤ 70 kW and fuel boiler combination heaters with rated heat output ≤ 70 kW, with the exception of type B1 boilers with rated heat output ≤ 10 kW and type B1 combination boilers with rated heat output ≤ 30 kW: | | — |
| | The seasonal space heating energy efficiency shall not fall below 86 %. | | N/A |
| | Type B1 boilers with rated heat output ≤ 10 kW and type B1 combination boilers with rated heat output ≤ 30 kW: | | — |
| | The seasonal space heating energy efficiency shall not fall below 75 %. | | N/A |
| | Fuel boiler space heaters with rated heat output > 70 kW and ≤ 400 kW and fuel boiler combination heaters with rated heat output > 70 kW and ≤ 400 kW: | | — |
| | The useful efficiency at 100 % of the rated heat output shall not fall below 86 %, and the useful efficiency at 30 % of the rated heat output shall not fall below 94 %. | | N/A |
| | Electric boiler space heaters and electric boiler combination heaters: | | — |
| | The seasonal space heating energy efficiency shall not fall below 30 %. | | N/A |
| | Cogeneration space heaters: | | — |
| | The seasonal space heating energy efficiency shall not fall below 86 %. | | N/A |
| | Heat pump space heaters and heat pump combination heaters, with the exception of low-temperature heat pumps: | | — |
| | The seasonal space heating energy efficiency shall not fall below 100 %. | | P |
| | Low-temperature heat pumps: | | — |
| | The seasonal space heating energy efficiency shall not fall below 115 %. | | P |
| (b) | From 26 September 2017 the seasonal space heating energy efficiency of electric boiler space heaters, electric boiler combination heaters, cogeneration space heaters, heat pump space heaters and heat pump combination heaters shall not fall below the following values: | | — |
| | Electric boiler space heaters and electric boiler combination heaters: | | — |
| | The seasonal space heating energy efficiency shall not fall below 36 %. | | N/A |
| | Cogeneration space heaters: | | — |

| COMMISSION REGULATION (EU) No 813/2013 | | | | | | | | | | | | |
|--|---|--|---|--|---|--|---|--|------|------|---------|-----|
| Cl. | Requirement-Test | | | | | | Result-Remark | | | | Verdict | |
| | The seasonal space heating energy efficiency shall not fall below 100 %. | | | | | | | | | | N/A | |
| | Heat pump space heaters and heat pump combination heaters, with the exception of low-temperature heat pumps: | | | | | | | | | | — | |
| | The seasonal space heating energy efficiency shall not fall below 110 %. | | | | | | | | | | P | |
| | Low-temperature heat pumps: | | | | | | | | | | — | |
| | The seasonal space heating energy efficiency shall not fall below 125 %. | | | | | | | | | | P | |
| 2. | REQUIREMENTS FOR WATER HEATING ENERGY EFFICIENCY | | | | | | | | | | N/A | |
| (a) | From 26 September 2015 the water heating energy efficiency of combination heaters shall not fall below the following values: | | | | | | | | | | — | |
| | Declared load profile | 3XS | XXS | XS | S | M | L | XL | XXL | 3XL | 4XL | N/A |
| | Water heating energy efficiency | 22 % | 23 % | 26 % | 26 % | 30 % | 30 % | 30 % | 32 % | 32 % | 32 % | |
| (b) | From 26 September 2017 the water heating energy efficiency of combination heaters shall not fall below the following values: | | | | | | | | | | — | |
| | Declared load profile | 3XS | XXS | XS | S | M | L | XL | XXL | 3XL | 4XL | N/A |
| | Water heating energy efficiency | 32 % | 32 % | 32 % | 32 % | 36 % | 37 % | 38 % | 60 % | 64 % | 64 % | |
| 3 | REQUIREMENTS FOR SOUND POWER LEVEL | | | | | | | | | | — | |
| | From 26 September 2015 the sound power level of heat pump space heaters and heat pump combination heaters shall not exceed the following values: | | | | | | | | | | — | |
| | Rated heat output ≤ 6 kW | | Rated heat output > 6 kW and ≤ 12 kW | | Rated heat output > 12 kW and ≤ 30 kW | | Rated heat output > 30 kW and ≤ 70 kW | | | | P | |
| | Sound power level (L_{WA}), indoors | Sound power level (L_{WA}), outdoors | Sound power level (L_{WA}), indoors | Sound power level (L_{WA}), outdoors | Sound power level (L_{WA}), indoors | Sound power level (L_{WA}), outdoors | Sound power level (L_{WA}), indoors | Sound power level (L_{WA}), outdoors | | | | |
| | 60 dB | 65 dB | 65 dB | 70 dB | 70 dB | 78 dB | 80 dB | 88 dB | | | | |
| 4. | REQUIREMENTS FOR EMISSIONS OF NITROGEN OXIDES | | | | | | | | | | N/A | |
| 5 | REQUIREMENTS FOR PRODUCT INFORMATION | | | | | | | | | | — | |
| | From 26 September 2015 the following product information on heaters shall be provided: | | | | | | | | | | P | |
| (a) | the instruction manuals for installers and end-users, and free access websites of manufacturers, their authorised representatives and importers shall contain the following elements: | | | | | | | | | | P | |

| COMMISSION REGULATION (EU) No 813/2013 | | | |
|---|--|---------------|---------|
| Cl. | Requirement-Test | Result-Remark | Verdict |
| | for boiler space heaters, boiler combination heaters and cogeneration space heaters, the technical parameters set out in Table 1, measured and calculated in accordance with Annex III; | | N/A |
| | for heat pump space heaters and heat pump combination heaters, the technical parameters set out in Table 2, measured and calculated in accordance with Annex III; | | P |
| | any specific precautions that shall be taken when the heater is assembled, installed or maintained; | | P |
| | for type B1 boilers and type B1 combination boilers, their characteristics and the following standard text: 'This natural draught boiler is intended to be connected only to a flue shared between multiple dwellings in existing buildings that evacuates the residues of combustion to the outside of the room containing the boiler. It draws the combustion air directly from the room and incorporates a draught diverter. Due to lower efficiency, any other use of this boiler shall be avoided and would result in higher energy consumption and higher operating costs; | | N/A |
| | for heat generators designed for heaters, and heater housings to be equipped with such heat generators, their characteristics, the requirements for assembly, to ensure compliance with the ecodesign requirements for heaters and, where appropriate, the list of combinations recommended by the manufacturer; | | N/A |
| | information relevant for disassembly, recycling and/or disposal at end-of-life; | | P |
| (b) | the technical documentation for the purposes of conformity assessment pursuant to Article 4 shall contain the following elements: | | P |
| | the elements specified in point (a); | | P |
| | for heat pump space heaters and heat pump combination heaters where the information relating to a specific model comprising a combination of indoor and outdoor units has been obtained by calculation on the basis of design and/or extrapolation from other combinations, the details of such calculations and/or extrapolations, and of any tests undertaken to verify the accuracy of the calculations, including details of the mathematical model for calculating the performance of such combinations and details of the measurements taken to verify this model; | | P |
| (c) | the following information shall be durably marked on the heater: | | N/A |

| COMMISSION REGULATION (EU) No 813/2013 | | | |
|--|---|---|---------|
| Cl. | Requirement-Test | Result-Remark | Verdict |
| | if applicable, 'type B1 boiler' or 'type B1 combination boiler'; | | N/A |
| | for cogeneration space heaters, the electrical capacity. | | N/A |
| ANNEX III | Measurements and calculations | | — |
| 1 | For the purposes of compliance and verification of compliance with the requirements of this Regulation, measurements and calculations shall be made using harmonised standards the reference numbers of which have been published in the Official Journal of European Union , or other reliable, accurate and reproducible method, which takes into account the generally recognised state of the art methods, and whose results are deemed to be of low uncertainty. They shall fulfil all of the following technical parameters. | EN 14825:2018, EN 14511-2:2018, EN 14511-3:2018, EN 12102-1:2017 were used. | P |
| 2 | General conditions for measurements and calculations | | P |
| | (a) For the purposes of the measurements set out in points 2 to 5, the indoor ambient temperature shall be set at 20 °C ± 1 °C. | | P |
| | (b) For the purposes of the calculations set out in points 3 to 5, consumption of electricity shall be multiplied by a conversion coefficient CC of 2,5. | | P |
| | (c) Emissions of nitrogen oxides shall be measured as the sum of nitrogen monoxide and nitrogen dioxide, and expressed in nitrogen dioxide. | | N/A |
| | (d) For heaters equipped with supplementary heaters, the measurement and calculation of rated heat output, seasonal space heating energy efficiency, water heating energy efficiency, sound power level and emissions of nitrogen oxides shall take account of the supplementary heater. | | N/A |
| | (e) Declared values for rated heat output, seasonal space heating energy efficiency, water heating energy efficiency, sound power level and emissions of nitrogen oxides shall be rounded to the nearest integer. | | P |
| | (f) Any heat generator designed for a heater, and any heater housing to be equipped with such a heat generator, shall be tested with an appropriate heater housing and heat generator, respectively. | | N/A |
| 3 | Seasonal space heating energy efficiency of boiler space heaters, boiler combination heaters and cogeneration space heaters | | N/A |
| | The seasonal space heating energy efficiency η_s shall be calculated as the seasonal space heating energy efficiency in active mode η_{son} , corrected by contributions accounting for temperature controls, auxiliary electricity consumption, standby heat loss, ignition burner power consumption (if applicable) and, for cogeneration space heaters, corrected by adding the electrical efficiency multiplied by a conversion coefficient CC of 2,5. | | N/A |

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| Cl. | Requirement-Test | Result-Remark | Verdict |
| 4 | Seasonal space heating energy efficiency of heat pump space heaters and heat pump combination heaters | | P |
| | (a)For establishing the rated coefficient of performance COP rated or rated primary energy ratio PER rated , the sound power level or emissions of nitrogen oxides, the operating conditions shall be the standard rating conditions set out in Table 3 and the same declared capacity for heating shall be used. | | P |
| | (b)The active mode coefficient of performance SCOP on or active mode primary energy ratio SPER on shall be calculated on the basis of the part load for heating $P_h(T_j)$, the supplementary capacity for heating $sup(T_j)$ (if applicable) and the bin-specific coefficient of performance $COP_{bin}(T_j)$ or bin-specific primary energy ratio $PER_{bin}(T_j)$, weighted by the bin-hours for which the bin conditions apply, using the following conditions: | | P |
| | — the reference design conditions set out in Table 4; | | P |
| | — the European reference heating season under average climate conditions set out in Table 5; | | P |
| | — if applicable, the effects of any degradation of energy efficiency caused by cycling depending on the type of control of the heating capacity. | | P |
| | (c)The reference annual heat demand Q_H shall be the design load for heating $P_{designh}$ multiplied by the annual equivalent active mode hours H_{HE} of 2 066. | | P |
| | (d)The annual energy consumption Q_{HE} shall be calculated as the sum of: | | P |
| | — the ratio of the reference annual heating demand Q_H and the active mode coefficient of performance SCOP on or active mode primary energy ratio SPER on and | | P |
| | — the energy consumption for off, thermostat-off, standby, and crankcase heater mode during the heating season. | | P |
| | (e)The seasonal coefficient of performance SCOP or seasonal primary energy ratio SPER shall be calculated as the ratio of the reference annual heat demand Q_H and the annual energy consumption Q_{HE} . | | P |
| | (f)The seasonal space heating energy efficiency η_s shall be calculated as the seasonal coefficient of performance SCOP divided by the conversion coefficient CC or the seasonal primary energy ratio SPER, corrected by contributions accounting for temperature controls and, for water-/brine-to-water heat pump space heaters and heat pump combination heaters, the electricity consumption of one or more ground water pumps. | | P |
| 5 | Water heating energy efficiency of combination heaters | | N/A |

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|--|---|--|--------------------|----------------------------|--------------------|------------------------------|------------------------|-----------------------------|---------------|-----------|-----|---------------------------------------|--|----------------|----------------------------|--|-------------------|--------------------|-------------------|--------------------|-------------|-----------------|---------|---------|---------|---------|-------------|-------------------|--|--------------------------|--|--|--|--|-------|----------------|--|--|--|--|-------|-------------|--|--|--|--|---|
| Cl. | Requirement-Test | | | Result-Remark | | Verdict | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | The water heating energy efficiency η_{wh} of a combination heater shall be calculated as the ratio between the reference energy Q_{ref} of the declared load profile and the energy required for its generation under the following conditions: | | | | | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (a) measurements shall be carried out using the load profiles set out in Table 7; | | | | | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (b) measurements shall be carried out using a 24-hour measurement cycle as follows: — 00:00 to 06:59: no water draw-off; — from 07:00: water draw-offs according to the declared load profile; — from end of last water draw-off until 24:00: no water draw-off; | | | | | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (c) the declared load profile shall be the maximum load profile or the load profile one below the maximum load profile; | | | | | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (d) for heat pump combination heaters, the following additional conditions apply: — heat pump combination heaters shall be tested under the conditions set out in Table 3; — heat pump combination heaters which use ventilation exhaust air as the heat source shall be tested under the conditions set out in Table 6. | | | | | N/A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Table 3 | <p style="text-align: center;"><i>Table 3</i></p> <p style="text-align: center;">Standard rating conditions for heat pump space heaters and heat pump combination heaters</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="3">Heat source</th> <th>Outdoor heat exchanger</th> <th colspan="4">Indoor heat exchanger</th> </tr> <tr> <th rowspan="2">Inlet dry bulb (wet bulb) temperature</th> <th colspan="2">Heat pump space heaters and heat pump combination heaters, except low-temperature heat pumps</th> <th colspan="2">Low-temperature heat pumps</th> </tr> <tr> <th>Inlet temperature</th> <th>Outlet temperature</th> <th>Inlet temperature</th> <th>Outlet temperature</th> </tr> </thead> <tbody> <tr> <td>Outdoor air</td> <td>+ 7 °C (+ 6 °C)</td> <td rowspan="2">+ 47 °C</td> <td rowspan="2">+ 55 °C</td> <td rowspan="2">+ 30 °C</td> <td rowspan="2">+ 35 °C</td> </tr> <tr> <td>Exhaust air</td> <td>+ 20 °C (+ 12 °C)</td> </tr> <tr> <td></td> <td>Inlet/outlet temperature</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Water</td> <td>+ 10 °C/+ 7 °C</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Brine</td> <td>0 °C/- 3 °C</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> | | | | | Heat source | Outdoor heat exchanger | Indoor heat exchanger | | | | Inlet dry bulb (wet bulb) temperature | Heat pump space heaters and heat pump combination heaters, except low-temperature heat pumps | | Low-temperature heat pumps | | Inlet temperature | Outlet temperature | Inlet temperature | Outlet temperature | Outdoor air | + 7 °C (+ 6 °C) | + 47 °C | + 55 °C | + 30 °C | + 35 °C | Exhaust air | + 20 °C (+ 12 °C) | | Inlet/outlet temperature | | | | | Water | + 10 °C/+ 7 °C | | | | | Brine | 0 °C/- 3 °C | | | | | P |
| Heat source | Outdoor heat exchanger | Indoor heat exchanger | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Inlet dry bulb (wet bulb) temperature | Heat pump space heaters and heat pump combination heaters, except low-temperature heat pumps | | Low-temperature heat pumps | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Inlet temperature | Outlet temperature | Inlet temperature | Outlet temperature | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Outdoor air | + 7 °C (+ 6 °C) | + 47 °C | + 55 °C | + 30 °C | + 35 °C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Exhaust air | + 20 °C (+ 12 °C) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Inlet/outlet temperature | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Water | + 10 °C/+ 7 °C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Brine | 0 °C/- 3 °C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Table 4 | <p style="text-align: center;"><i>Table 4</i></p> <p style="text-align: center;">Reference design conditions for heat pump space heaters and heat pump combination heaters, temperatures in dry bulb air temperature (wet bulb air temperature indicated in brackets)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Reference design temperature</th> <th>Bivalent temperature</th> <th>Operation limit temperature</th> </tr> </thead> <tbody> <tr> <td>$T_{designh}$</td> <td>T_{biv}</td> <td>TOL</td> </tr> <tr> <td>- 10 (- 11) °C</td> <td>maximum + 2 °C</td> <td>maximum - 7 °C</td> </tr> </tbody> </table> | | | | | Reference design temperature | Bivalent temperature | Operation limit temperature | $T_{designh}$ | T_{biv} | TOL | - 10 (- 11) °C | maximum + 2 °C | maximum - 7 °C | P | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Reference design temperature | Bivalent temperature | Operation limit temperature | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $T_{designh}$ | T_{biv} | TOL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - 10 (- 11) °C | maximum + 2 °C | maximum - 7 °C | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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|---|---|-----|--------------|-----|-----|-----------------|---------------|-------|-------|---------|
| Cl. | Requirement-Test | | | | | | Result-Remark | | | Verdict |
| Table 5 | Table 5 European reference heating season under average climate conditions for heat pump space heaters and heat pump combination heaters | | | | | | | | | P |
| | bin_i | | T_i [°C] | | | H_i [h/annum] | | | | |
| | 1 to 20 | | - 30 to - 11 | | | 0 | | | | |
| | 21 | | - 10 | | | 1 | | | | |
| | 22 | | - 9 | | | 25 | | | | |
| | 23 | | - 8 | | | 23 | | | | |
| | 24 | | - 7 | | | 24 | | | | |
| | 25 | | - 6 | | | 27 | | | | |
| | 26 | | - 5 | | | 68 | | | | |
| | 27 | | - 4 | | | 91 | | | | |
| | 28 | | - 3 | | | 89 | | | | |
| | 29 | | - 2 | | | 165 | | | | |
| | 30 | | - 1 | | | 173 | | | | |
| | 31 | | 0 | | | 240 | | | | |
| | 32 | | 1 | | | 280 | | | | |
| | 33 | | 2 | | | 320 | | | | |
| | 34 | | 3 | | | 357 | | | | |
| | 35 | | 4 | | | 356 | | | | |
| | 36 | | 5 | | | 303 | | | | |
| | 37 | | 6 | | | 330 | | | | |
| | 38 | | 7 | | | 326 | | | | |
| | 39 | | 8 | | | 348 | | | | |
| | 40 | | 9 | | | 335 | | | | |
| | 41 | | 10 | | | 315 | | | | |
| | 42 | | 11 | | | 215 | | | | |
| | 43 | | 12 | | | 169 | | | | |
| | 44 | | 13 | | | 151 | | | | |
| 45 | | 14 | | | 105 | | | | | |
| 46 | | 15 | | | 74 | | | | | |
| Total hours: | | | | | | 4 910 | | | | |
| Table | Table 6 Maximum ventilation exhaust air available [m ³ /h], at humidity of 5,5 g/m ³ | | | | | | | | | N/A |
| | Declared load profile | XXS | XS | S | M | L | XL | XXL | 3XL | |
| Maximum ventilation exhaust air available | | 109 | 128 | 128 | 159 | 190 | 870 | 1 021 | 2 943 | 8 830 |

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|--|---|---------------|--|--|------------------|-------------------|-----------------|-------------------------|----------------|------------------------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|---|---------------|---|
| Cl. | Requirement-Test | Result-Remark | Verdict | | | | | | | | | | | | | | | | | | | | | | |
| ANNEX II | Energy efficiency classes | | P | | | | | | | | | | | | | | | | | | | | | | |
| 1 | SEASONAL SPACE HEATING ENERGY EFFICIENCY CLASSES | | — | | | | | | | | | | | | | | | | | | | | | | |
| | The seasonal space heating energy efficiency class of a heater, with the exception of low-temperature heat pumps and heat pump space heaters for low-temperature application, shall be determined on the basis of its seasonal space heating energy efficiency as set out in Table 1. | | P | | | | | | | | | | | | | | | | | | | | | | |
| | The seasonal space heating energy efficiency classes of a low-temperature heat pump and a heat pump space heater for low-temperature application shall be determined on the basis of its seasonal space heating energy efficiency as set out in Table 2. | | N/A | | | | | | | | | | | | | | | | | | | | | | |
| | The seasonal space heating energy efficiency of a heater shall be calculated in accordance with points 3 and 4 of Annex VII, for heat pump space heaters, heat pump combination heaters and low-temperature heat pumps under average climate conditions. | | P | | | | | | | | | | | | | | | | | | | | | | |
| Table1 | <p style="text-align: center;"><i>Table 1</i></p> <p style="text-align: center;">Seasonal space heating energy efficiency classes of heaters, with the exception of low-temperature heat pumps and heat pump space heaters for low-temperature application</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Seasonal space heating energy efficiency class</th> <th style="width: 50%;">Seasonal space heating energy efficiency η_s in %</th> </tr> </thead> <tbody> <tr> <td>A⁺⁺⁺</td> <td>$\eta_s \geq 150$</td> </tr> <tr> <td>A⁺⁺</td> <td>$125 \leq \eta_s < 150$</td> </tr> <tr> <td>A⁺</td> <td>$98 \leq \eta_s < 125$</td> </tr> <tr> <td>A</td> <td>$90 \leq \eta_s < 98$</td> </tr> <tr> <td>B</td> <td>$82 \leq \eta_s < 90$</td> </tr> <tr> <td>C</td> <td>$75 \leq \eta_s < 82$</td> </tr> <tr> <td>D</td> <td>$36 \leq \eta_s < 75$</td> </tr> <tr> <td>E</td> <td>$34 \leq \eta_s < 36$</td> </tr> <tr> <td>F</td> <td>$30 \leq \eta_s < 34$</td> </tr> <tr> <td>G</td> <td>$\eta_s < 30$</td> </tr> </tbody> </table> | | Seasonal space heating energy efficiency class | Seasonal space heating energy efficiency η_s in % | A ⁺⁺⁺ | $\eta_s \geq 150$ | A ⁺⁺ | $125 \leq \eta_s < 150$ | A ⁺ | $98 \leq \eta_s < 125$ | A | $90 \leq \eta_s < 98$ | B | $82 \leq \eta_s < 90$ | C | $75 \leq \eta_s < 82$ | D | $36 \leq \eta_s < 75$ | E | $34 \leq \eta_s < 36$ | F | $30 \leq \eta_s < 34$ | G | $\eta_s < 30$ | - |
| Seasonal space heating energy efficiency class | Seasonal space heating energy efficiency η_s in % | | | | | | | | | | | | | | | | | | | | | | | | |
| A ⁺⁺⁺ | $\eta_s \geq 150$ | | | | | | | | | | | | | | | | | | | | | | | | |
| A ⁺⁺ | $125 \leq \eta_s < 150$ | | | | | | | | | | | | | | | | | | | | | | | | |
| A ⁺ | $98 \leq \eta_s < 125$ | | | | | | | | | | | | | | | | | | | | | | | | |
| A | $90 \leq \eta_s < 98$ | | | | | | | | | | | | | | | | | | | | | | | | |
| B | $82 \leq \eta_s < 90$ | | | | | | | | | | | | | | | | | | | | | | | | |
| C | $75 \leq \eta_s < 82$ | | | | | | | | | | | | | | | | | | | | | | | | |
| D | $36 \leq \eta_s < 75$ | | | | | | | | | | | | | | | | | | | | | | | | |
| E | $34 \leq \eta_s < 36$ | | | | | | | | | | | | | | | | | | | | | | | | |
| F | $30 \leq \eta_s < 34$ | | | | | | | | | | | | | | | | | | | | | | | | |
| G | $\eta_s < 30$ | | | | | | | | | | | | | | | | | | | | | | | | |

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| Cl. | Requirement-Test | Result-Remark | Verdict | | | | | | | | | | | | | | | | | | | | | | |
| Table 2 | <p style="text-align: center;"><i>Table 2</i></p> <p style="text-align: center;">Seasonal space heating energy efficiency classes of low-temperature heat pumps and heat pump space heaters for low-temperature application</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Seasonal space heating energy efficiency class</th> <th style="width: 50%;">Seasonal space heating energy efficiency η_s in %</th> </tr> </thead> <tbody> <tr> <td>A⁺⁺⁺</td> <td>$\eta_s \geq 175$</td> </tr> <tr> <td>A⁺⁺</td> <td>$150 \leq \eta_s < 175$</td> </tr> <tr> <td>A⁺</td> <td>$123 \leq \eta_s < 150$</td> </tr> <tr> <td>A</td> <td>$115 \leq \eta_s < 123$</td> </tr> <tr> <td>B</td> <td>$107 \leq \eta_s < 115$</td> </tr> <tr> <td>C</td> <td>$100 \leq \eta_s < 107$</td> </tr> <tr> <td>D</td> <td>$61 \leq \eta_s < 100$</td> </tr> <tr> <td>E</td> <td>$59 \leq \eta_s < 61$</td> </tr> <tr> <td>F</td> <td>$55 \leq \eta_s < 59$</td> </tr> <tr> <td>G</td> <td>$\eta_s < 55$</td> </tr> </tbody> </table> | | Seasonal space heating energy efficiency class | Seasonal space heating energy efficiency η_s in % | A ⁺⁺⁺ | $\eta_s \geq 175$ | A ⁺⁺ | $150 \leq \eta_s < 175$ | A ⁺ | $123 \leq \eta_s < 150$ | A | $115 \leq \eta_s < 123$ | B | $107 \leq \eta_s < 115$ | C | $100 \leq \eta_s < 107$ | D | $61 \leq \eta_s < 100$ | E | $59 \leq \eta_s < 61$ | F | $55 \leq \eta_s < 59$ | G | $\eta_s < 55$ | - |
| Seasonal space heating energy efficiency class | Seasonal space heating energy efficiency η_s in % | | | | | | | | | | | | | | | | | | | | | | | | |
| A ⁺⁺⁺ | $\eta_s \geq 175$ | | | | | | | | | | | | | | | | | | | | | | | | |
| A ⁺⁺ | $150 \leq \eta_s < 175$ | | | | | | | | | | | | | | | | | | | | | | | | |
| A ⁺ | $123 \leq \eta_s < 150$ | | | | | | | | | | | | | | | | | | | | | | | | |
| A | $115 \leq \eta_s < 123$ | | | | | | | | | | | | | | | | | | | | | | | | |
| B | $107 \leq \eta_s < 115$ | | | | | | | | | | | | | | | | | | | | | | | | |
| C | $100 \leq \eta_s < 107$ | | | | | | | | | | | | | | | | | | | | | | | | |
| D | $61 \leq \eta_s < 100$ | | | | | | | | | | | | | | | | | | | | | | | | |
| E | $59 \leq \eta_s < 61$ | | | | | | | | | | | | | | | | | | | | | | | | |
| F | $55 \leq \eta_s < 59$ | | | | | | | | | | | | | | | | | | | | | | | | |
| G | $\eta_s < 55$ | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | WATER HEATING ENERGY EFFICIENCY CLASSES | | — | | | | | | | | | | | | | | | | | | | | | | |
| | The water heating energy efficiency class of a combination heater shall be determined on the basis of its water heating energy efficiency as set out in Table 3. | | N/A | | | | | | | | | | | | | | | | | | | | | | |
| 3 | ENERGY EFFICIENCY CLASSES OF SOLAR HOT WATER STORAGE TANKS, IF (PART OF) A SOLAR DEVICE | | — | | | | | | | | | | | | | | | | | | | | | | |
| | The energy efficiency class of a solar hot water storage tank, if (part of) a solar device, shall be determined on the basis of its standing loss as set out in Table 4. | | N/A | | | | | | | | | | | | | | | | | | | | | | |
| ANNEX III | The labels | | — | | | | | | | | | | | | | | | | | | | | | | |
| | The energy label of the product should be designed according to Annex III of REGULATION (EU) No 811/2013 | | P | | | | | | | | | | | | | | | | | | | | | | |
| ANNEX IV | Product fiche | | — | | | | | | | | | | | | | | | | | | | | | | |
| 1 | SPACE HEATER | | — | | | | | | | | | | | | | | | | | | | | | | |
| 1.1 | The information in the product fiche of the space heater shall be provided in the following order and shall be included in the product brochure or other literature provided with the product: | | P | | | | | | | | | | | | | | | | | | | | | | |

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|--|--|---------------|---------|
| Cl. | Requirement-Test | Result-Remark | Verdict |
| | <p>(a) supplier's name or trademark;</p> <p>(b) supplier's model identifier;</p> <p>(c) the seasonal space heating energy efficiency class of the model, determined in accordance with point 1 of Annex II;</p> <p>(d) the rated heat output, including the rated heat output of any supplementary heater, in kW, rounded to the nearest integer (for heat pump space heaters under average climate conditions);</p> <p>(e) the seasonal space heating energy efficiency in %, rounded to the nearest integer and calculated in accordance with points 3 and 4 of Annex VII (for heat pump space heaters under average climate conditions);</p> <p>(f) the annual energy consumption in kWh in terms of final energy and/or in GJ in terms of GCV, rounded to the nearest integer and calculated in accordance with points 3 and 4 of Annex VII (for heat pump space heaters under average climate conditions);</p> <p>(g) the sound power level L_{WA}, indoors, in dB, rounded to the nearest integer (for heat pump space heaters if applicable);</p> <p>(h) any specific precautions that shall be taken when the space heater is assembled, installed or maintained;</p> <p>in addition, for cogeneration space heaters:</p> <p>(i) the electrical efficiency in %, rounded to the nearest integer;</p> <p>in addition, for heat pump space heaters:</p> <p>(j) the rated heat output, including the rated heat output of any supplementary heater, in kW, under colder and warmer climate conditions, rounded to the nearest integer;</p> <p>(k) the seasonal space heating energy efficiency in %, under colder and warmer climate conditions, rounded to the nearest integer and calculated in accordance with point 4 of Annex VII;</p> <p>(l) the annual energy consumption in kWh in terms of final energy and/or in GJ in terms of GCV, under colder and warmer climate conditions, rounded to the nearest integer and calculated in accordance with point 4 of Annex VII;</p> <p>(m) the sound power level L_{WA}, outdoors, in dB, rounded to the nearest integer.</p> | | P |
| 1.2 | One fiche may cover a number of space heater models supplied by the same supplier. | | P |

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|---|--|---------------|---------|
| Cl. | Requirement-Test | Result-Remark | Verdict |
| 1.3 | The information contained in the fiche may be given in the form of a copy of the label, either in colour or in black and white. Where this is the case, the information listed in point 1.1 not already displayed on the label shall also be provided. | | P |
| 2 | COMBINATION HEATERS | | N/A |
| 3 | TEMPERATURE CONTROLS | | N/A |
| 4 | SOLAR DEVICES | | N/A |
| 5 | PACKAGES OF SPACE HEATER, TEMPERATURE CONTROL AND SOLAR DEVICE | | N/A |
| 6 | PACKAGES OF COMBINATION HEATER, TEMPERATURE CONTROL AND SOLAR DEVICE | | N/A |
| ANNEX V | Technical documentation | | — |
| 1 | SPACE HEATERS | | — |
| | For space heaters, the technical documentation referred to in Article 3(1)(c) shall include: | | P |
| | (a) the name and address of the supplier; (b) a description of the space heater model sufficient for its unambiguous identification; (c) where appropriate, the references of the harmonised standards applied; (d) where appropriate, the other technical standards and specifications used; (e) the identification and signature of the person empowered to bind the supplier; (f) technical parameters: — for boiler space heaters and cogeneration space heaters, the technical parameters set out in Table 7, measured and calculated in accordance with Annex VII; — for heat pump space heaters, the technical parameters set out in Table 8, measured and calculated in accordance with Annex VII; — for heat pump space heaters where the information relating to a specific model comprising a combination of indoor and outdoor units has been obtained by calculation on the basis of design and/or extrapolation from other combinations, the details of such calculations and/or extrapolations, and of any tests undertaken to verify the accuracy of the calculations, including details of the mathematical model for calculating the performance of such combinations and details of the measurements taken to verify this model; (g) any specific precautions that shall be taken when the space heater is assembled, installed or maintained. | | P |
| 2 | COMBINATION HEATERS | | N/A |
| 3 | TEMPERATURE CONTROLS | | N/A |
| 4 | SOLAR DEVICES | | N/A |

| COMMISSION REGULATION (EU) No 811/2013 | | | |
|---|---|---------------|---------|
| Cl. | Requirement-Test | Result-Remark | Verdict |
| 5 | PACKAGES OF SPACE HEATER, TEMPERATURE CONTROL AND SOLAR DEVICE | | N/A |
| 6 | PACKAGES OF COMBINATION HEATER, TEMPERATURE CONTROL AND SOLAR DEVICE | | N/A |

| Table 1: Technical parameters/Information requirements for heat pump space heaters and heat pump combination heaters | | | | | | | P | |
|---|--------|-------|------|---|------------------|-------|------|--|
| Models: refer to p.1 | | | | | | | | |
| Air-to-water heat pump: [yes/no] | | | | Yes | | | | |
| Water-to-water heat pump: [yes/no] | | | | No | | | | |
| Brine-to-water heat pump: [yes/no] | | | | No | | | | |
| Low-temperature heat pump: [yes/no] | | | | No | | | | |
| Equipped with a supplementary heater: [yes/no] | | | | No | | | | |
| Heat pump combination heater: [yes/no] | | | | No | | | | |
| Declared climate condition | | | | Average | | | | |
| Declared temperature application | | | | Medium | | | | |
| Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application. | | | | Parameters shall be declared for average climate conditions (the parameters of colder and warmer climate conditions should be shown in final product fiche and technical documentation) | | | | |
| Item | symbol | value | unit | item | symbol | value | unit | |
| Rated heat output (*) | Prated | 6.3 | kW | Seasonal space heating energy efficiency | η_s | 151 | % | |
| Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T_j | | | | Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T_j | | | | |
| $T_j = -7\text{ °C}$ | Pdh | 5.57 | kW | $T_j = -7\text{ °C}$ | COPd | 2.40 | - | |
| $T_j = +2\text{ °C}$ | Pdh | 3.39 | kW | $T_j = +2\text{ °C}$ | COPd | 3.72 | - | |
| $T_j = +7\text{ °C}$ | Pdh | 2.18 | kW | $T_j = +7\text{ °C}$ | COPd | 5.26 | - | |
| $T_j = +12\text{ °C}$ | Pdh | 2.07 | kW | $T_j = +12\text{ °C}$ | COPd | 7.91 | - | |
| $T_j = \text{bivalent temperature}$ | Pdh | 5.57 | kW | $T_j = \text{bivalent temperature}$ | COPd | 2.40 | - | |
| $T_j = \text{operation limit temperature}$ | Pdh | 6.00 | kW | $T_j = \text{operation limit temperature}$ | COPd | 2.06 | - | |
| For air-to-water heat pumps: $T_j = -15\text{ °C}$ (if TOL < -20°C) | Pdh | N/A | kW | For air-to-water heat pumps: $T_j = -15\text{ °C}$ (if TOL < -20°C) | COPd | N/A | - | |
| Bivalent temperature | T biv | -7 | °C | For air-to-water heat pumps: Operation limit temperature | TOL | -10 | °C | |
| Cycling interval capacity for heating | Pcyc | N/A | kW | Cycling interval efficiency | COPcyc | N/A | kW | |
| Degradation coefficient (**) | Cdh | 0,9 | — | Heating water operating limit temperature | W _{TOL} | 75 | °C | |
| Power consumption in modes other than active | | | | Supplementary heater | | | | |

| | | | | | | | |
|--|--|-------|--------|--|-------------|------|-------------------|
| mode | | | | | | | |
| Off mode | P_{OFF} | 0.002 | kW | Rated heat output (*) | P_{sup} | 0.3 | kW |
| Thermostat-off mode | P_{TO} | 0.030 | kW | Type of energy input | Electric | | |
| Standby mode | P_{SB} | 0.002 | kW | | | | |
| Crankcase heater mode | P_{CK} | 0.000 | kW | | | | |
| Other items | | | | | | | |
| Capacity control | Variable | | | For air-to-water heat pumps: Rated air flow rate, outdoors | — | 2800 | m ³ /h |
| Sound power level | L_{WA} | 56 | dB | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger | — | N/A | m ³ /h |
| Emissions of nitrogen oxides | NO_x | N/A | mg/kWh | | | | |
| Annual energy consumption | Q_{HE} | 3381 | KWh | | | | |
| For heat pump combination heater: | | | | | | | |
| Declared load profile | N/A | | | Water heating energy efficiency | η_{wh} | N/A | % |
| Daily electricity consumption | Q_{elec} | N/A | kWh | Daily fuel consumption | Q_{fuel} | N/A | kWh |
| Contact details | Ningbo AUX Electric Co., Ltd. 1166 Mingguang North Road, Jiangshan Yinzhou District, Ningbo, 315191 Zhejiang, China | | | | | | |
| (*) For heat pump space heaters and heat pump combination heaters, the rated heat output P_{rated} is equal to the design load for heating $P_{designh}$, and the rated heat output of a supplementary heater P_{sup} is equal to the supplementary capacity for heating $sup(T_j)$. | | | | | | | |
| (**) If C_{dh} is not determined by measurement then the default degradation coefficient is $C_{dh} = 0,9$. | | | | | | | |

| | | |
|---|--|---|
| Table 2: Technical parameters/Information requirements for heat pump space heaters and heat pump combination heaters | | P |
| Models: refer to p.1 | | |
| Air-to-water heat pump: [yes/no] | Yes | |
| Water-to-water heat pump: [yes/no] | No | |
| Brine-to-water heat pump: [yes/no] | No | |
| Low-temperature heat pump: [yes/no] | Yes | |
| Equipped with a supplementary heater: [yes/no] | No | |
| Heat pump combination heater: [yes/no] | No | |
| Declared climate condition | Average | |
| Declared temperature application | Low | |
| Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low- | Parameters shall be declared for average climate conditions (the parameters of colder and warmer climate conditions should be shown in final product | |

| temperature application. | | | | fiche and technical documentation) | | | |
|---|-----------|-------|--------|---|-----------|-------|-------------------|
| Item | symbol | value | unit | item | symbol | value | unit |
| Rated heat output (*) | Prated | 6.8 | kW | Seasonal space heating energy efficiency | η_s | 194 | % |
| Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T_j | | | | Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T_j | | | |
| $T_j = -7\text{ °C}$ | Pdh | 6.02 | kW | $T_j = -7\text{ °C}$ | COPd | 2.85 | - |
| $T_j = +2\text{ °C}$ | Pdh | 3.66 | kW | $T_j = +2\text{ °C}$ | COPd | 4.98 | - |
| $T_j = +7\text{ °C}$ | Pdh | 2.35 | kW | $T_j = +7\text{ °C}$ | COPd | 6.64 | - |
| $T_j = +12\text{ °C}$ | Pdh | 2.17 | kW | $T_j = +12\text{ °C}$ | COPd | 9.67 | - |
| $T_j =$ bivalent temperature | Pdh | 6.02 | kW | $T_j =$ bivalent temperature | COPd | 2.85 | - |
| $T_j =$ operation limit temperature | Pdh | 5.42 | kW | $T_j =$ operation limit temperature | COPd | 2.90 | - |
| For air-to-water heat pumps: $T_j = -15\text{ °C}$ (if TOL < -20 °C) | Pdh | N/A | kW | For air-to-water heat pumps: $T_j = -15\text{ °C}$ (if TOL < -20 °C) | COPd | N/A | - |
| Bivalent temperature | T biv | -7 | °C | For air-to-water heat pumps: Operation limit temperature | TOL | -10 | °C |
| Cycling interval capacity for heating | Pcyc | N/A | kW | Cycling interval efficiency | COPcyc | N/A | kW |
| Degradation coefficient (**) | Cdh | 0,9 | — | Heating water operating limit temperature | W_{TOL} | 75 | °C |
| Power consumption in modes other than active mode | | | | Supplementary heater | | | |
| Off mode | P_{OFF} | 0.002 | kW | Rated heat output (*) | P_{sup} | 1.38 | kW |
| Thermostat-off mode | P_{TO} | 0.030 | kW | Type of energy input | Electric | | |
| Standby mode | P_{SB} | 0.002 | kW | | | | |
| Crankcase heater mode | P_{CK} | 0.000 | kW | | | | |
| Other items | | | | | | | |
| Capacity control | Variable | | | For air-to-water heat pumps: Rated air flow rate, outdoors | — | 2800 | m ³ /h |
| Sound power level | L_{WA} | — | dB | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger | — | N/A | m ³ /h |
| Emissions of nitrogen oxides | NO_x | N/A | mg/kWh | | | | |
| Annual energy consumption | Q_{HE} | 2818 | KWh | | | | |

| | | | | | | | |
|--|--|-----|-----|---------------------------------|-------------|-----|-----|
| For heat pump combination heater: | | | | | | | |
| Declared load profile | N/A | | | Water heating energy efficiency | η_{wh} | N/A | % |
| Daily electricity consumption | Q elec | N/A | kWh | Daily fuel consumption | Q fuel | N/A | kWh |
| Contact details | Ningbo AUX Electric Co., Ltd. 1166 Mingguang North Road, Jiangshan Yinzhou District, Ningbo, 315191 Zhejiang, China | | | | | | |
| (*) For heat pump space heaters and heat pump combination heaters, the rated heat output P_{rated} is equal to the design load for heating $P_{designh}$, and the rated heat output of a supplementary heater P_{sup} is equal to the supplementary capacity for heating $sup(T_j)$. | | | | | | | |
| (**) If C_{dh} is not determined by measurement then the default degradation coefficient is $C_{dh} = 0,9$. | | | | | | | |

| Table 3: Technical parameters/Information requirements for heat pump space heaters and heat pump combination heaters | | | | | | | P |
|---|-------------|-------|------|---|----------|-------|------|
| Models: refer to p.1 | | | | | | | |
| Air-to-water heat pump: [yes/no] | | | | Yes | | | |
| Water-to-water heat pump: [yes/no] | | | | No | | | |
| Brine-to-water heat pump: [yes/no] | | | | No | | | |
| Low-temperature heat pump: [yes/no] | | | | No | | | |
| Equipped with a supplementary heater: [yes/no] | | | | No | | | |
| Heat pump combination heater: [yes/no] | | | | No | | | |
| Declared climate condition | | | | Warmer | | | |
| Declared temperature application | | | | Medium | | | |
| Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application. | | | | Parameters shall be declared for average climate conditions (the parameters of colder and warmer climate conditions should be shown in final product fiche and technical documentation) | | | |
| Item | symbol | value | unit | item | symbol | value | unit |
| Rated heat output (*) | P_{rated} | 8.1 | kW | Seasonal space heating energy efficiency | η_s | 176 | % |
| Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T_j | | | | Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T_j | | | |
| $T_j = -7\text{ °C}$ | P_{dh} | — | kW | $T_j = -7\text{ °C}$ | COPd | — | - |
| $T_j = +2\text{ °C}$ | P_{dh} | 7.35 | kW | $T_j = +2\text{ °C}$ | COPd | 2.60 | - |
| $T_j = +7\text{ °C}$ | P_{dh} | 5.13 | kW | $T_j = +7\text{ °C}$ | COPd | 3.69 | - |
| $T_j = +12\text{ °C}$ | P_{dh} | 2.70 | kW | $T_j = +12\text{ °C}$ | COPd | 6.37 | - |
| $T_j = \text{bivalent temperature}$ | P_{dh} | 7.35 | kW | $T_j = \text{bivalent temperature}$ | COPd | 2.60 | - |
| $T_j = \text{operation limit temperature}$ | P_{dh} | 5.13 | kW | $T_j = \text{operation limit temperature}$ | COPd | 3.69 | - |

| | | | | | | | |
|--|--|-------|--------|--|--------------------|------|-------------------|
| For air-to-water heat pumps: $T_j = -15^\circ\text{C}$ (if TOL < -20°C) | P _{dh} | N/A | kW | For air-to-water heat pumps: $T_j = -15^\circ\text{C}$ (if TOL < -20°C) | COP _d | N/A | - |
| Bivalent temperature | T _{biv} | 7 | °C | For air-to-water heat pumps: Operation limit temperature | TOL | 2 | °C |
| Cycling interval capacity for heating | P _{cych} | N/A | kW | Cycling interval efficiency | COP _{cyc} | N/A | kW |
| Degradation coefficient (**) | C _{dh} | 0.9 | — | Heating water operating limit temperature | W _{TOL} | 75 | °C |
| Power consumption in modes other than active mode | | | | Supplementary heater | | | |
| Off mode | P _{OFF} | 0.002 | kW | Rated heat output (*) | P _{sup} | 0.25 | kW |
| Thermostat-off mode | P _{TO} | 0.030 | kW | Type of energy input | Electric | | |
| Standby mode | P _{SB} | 0.002 | kW | | | | |
| Crankcase heater mode | P _{CK} | 0.000 | kW | | | | |
| Other items | | | | | | | |
| Capacity control | Variable | | | For air-to-water heat pumps: Rated air flow rate, outdoors | — | 2800 | m ³ /h |
| Sound power level | L _{WA} | — | dB | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger | — | N/A | m ³ /h |
| Emissions of nitrogen oxides | NO _x | N/A | mg/kWh | | | | |
| Annual energy consumption | Q _{HE} | 2413 | KWh | | | | |
| For heat pump combination heater: | | | | | | | |
| Declared load profile | N/A | | | Water heating energy efficiency | η _{wh} | N/A | % |
| Daily electricity consumption | Q _{elec} | N/A | kWh | Daily fuel consumption | Q _{fuel} | N/A | kWh |
| Contact details | Ningbo AUX Electric Co., Ltd. 1166 Mingguang North Road, Jiangshan Yinzhou District, Ningbo, 315191 Zhejiang, China | | | | | | |
| (*) For heat pump space heaters and heat pump combination heaters, the rated heat output Prated is equal to the design load for heating Pdesignh, and the rated heat output of a supplementary heater Psup is equal to the supplementary capacity for heating sup(Tj). | | | | | | | |
| (**) If Cdh is not determined by measurement then the default degradation coefficient is Cdh = 0,9. | | | | | | | |

| Table 4: Technical parameters/Information requirements for heat pump space heaters and heat pump combination heaters | | | | | | | P |
|---|--------|-------|------|---|------------------|-------|------|
| Models: refer to p.1 | | | | | | | |
| Air-to-water heat pump: [yes/no] | | | | Yes | | | |
| Water-to-water heat pump: [yes/no] | | | | No | | | |
| Brine-to-water heat pump: [yes/no] | | | | No | | | |
| Low-temperature heat pump: [yes/no] | | | | Yes | | | |
| Equipped with a supplementary heater: [yes/no] | | | | No | | | |
| Heat pump combination heater: [yes/no] | | | | No | | | |
| Declared climate condition | | | | Warmer | | | |
| Declared temperature application | | | | Low | | | |
| Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application. | | | | Parameters shall be declared for average climate conditions (the parameters of colder and warmer climate conditions should be shown in final product fiche and technical documentation) | | | |
| Item | symbol | value | unit | item | symbol | value | unit |
| Rated heat output (*) | Prated | 6.1 | kW | Seasonal space heating energy efficiency | η_s | 256 | % |
| Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T_j | | | | Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T_j | | | |
| $T_j = -7\text{ °C}$ | Pdh | — | kW | $T_j = -7\text{ °C}$ | COPd | — | - |
| $T_j = +2\text{ °C}$ | Pdh | 5.85 | kW | $T_j = +2\text{ °C}$ | COPd | 3.91 | - |
| $T_j = +7\text{ °C}$ | Pdh | 3.92 | kW | $T_j = +7\text{ °C}$ | COPd | 5.89 | - |
| $T_j = +12\text{ °C}$ | Pdh | 1.93 | kW | $T_j = +12\text{ °C}$ | COPd | 8.31 | - |
| $T_j =$ bivalent temperature | Pdh | 3.92 | kW | $T_j =$ bivalent temperature | COPd | 5.89 | - |
| $T_j =$ operation limit temperature | Pdh | 5.85 | kW | $T_j =$ operation limit temperature | COPd | 3.91 | - |
| For air-to-water heat pumps: $T_j = -15\text{ °C}$ (if TOL < -20 °C) | Pdh | N/A | kW | For air-to-water heat pumps: $T_j = -15\text{ °C}$ (if TOL < -20 °C) | COPd | N/A | - |
| Bivalent temperature | T biv | 7 | °C | For air-to-water heat pumps: Operation limit temperature | TOL | 2 | °C |
| Cycling interval capacity for heating | Pcyc | N/A | kW | Cycling interval efficiency | COPcyc | N/A | kW |
| Degradation coefficient (**) | Cdh | 0.9 | — | Heating water operating limit temperature | W _{TOL} | 75 | °C |
| Power consumption in modes other than active | | | | Supplementary heater | | | |

| | | | | | | | |
|--|--|-------|--------|--|-------------|------|-------------------|
| mode | | | | | | | |
| Off mode | P_{OFF} | 0.002 | kW | Rated heat output (*) | P_{sup} | 0.25 | kW |
| Thermostat-off mode | P_{TO} | 0.030 | kW | Type of energy input | Electric | | |
| Standby mode | P_{SB} | 0.002 | kW | | | | |
| Crankcase heater mode | P_{CK} | 0.000 | kW | | | | |
| Other items | | | | | | | |
| Capacity control | Variable | | | For air-to-water heat pumps: Rated air flow rate, outdoors | — | 2800 | m ³ /h |
| Sound power level | L_{WA} | — | dB | For water-/brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger | — | N/A | m ³ /h |
| Emissions of nitrogen oxides | NO_x | N/A | mg/kWh | | | | |
| Annual energy consumption | Q_{HE} | 1258 | KWh | | | | |
| For heat pump combination heater: | | | | | | | |
| Declared load profile | N/A | | | Water heating energy efficiency | η_{wh} | N/A | % |
| Daily electricity consumption | Q_{elec} | N/A | kWh | Daily fuel consumption | Q_{fuel} | N/A | kWh |
| Contact details | Ningbo AUX Electric Co., Ltd. 1166 Mingguang North Road, Jiangshan Yinzhou District, Ningbo, 315191 Zhejiang, China | | | | | | |
| (*) For heat pump space heaters and heat pump combination heaters, the rated heat output P_{rated} is equal to the design load for heating $P_{designh}$, and the rated heat output of a supplementary heater P_{sup} is equal to the supplementary capacity for heating $sup(T)$. | | | | | | | |
| (**) If C_{dh} is not determined by measurement then the default degradation coefficient is $C_{dh} = 0,9$. | | | | | | | |

Test condition (Heating function / Average heating season in medium temperature application):

Voltage: 230 V / frequency: 50 Hz

Indoor heat exchanger: variable outlet ;

Tj (bivalent temperature): -7 °C; operating limit (TOL): -10 °C;

Table 10 — Part load conditions for air-to-water(brine) units in medium temperature application for the reference heating seasons “A” = average, “W” = warmer and “C” = colder

| Condition | Part Load Ratio in % | | | | Outdoor heat exchanger | | Indoor heat exchanger | | | |
|-----------|---|-----|-----|----|--|-------------|-----------------------|------------------------------------|-------------------|-------------------|
| | | | | | Inlet dry (wet) bulb temperature °C | | Fixed outlet °C | Variable outlet ^d °C | | |
| | Formula | A | W | C | Outdoor air | Exhaust air | All climates | A | W | C |
| A | $\frac{(-7 - 16)}{(T_{designh} - 16)}$ | 88 | n/a | 61 | -7(-8) | 20(12) | ^a / 55 | ^a / 52 | n/a | ^a / 44 |
| B | $\frac{(+2 - 16)}{(T_{designh} - 16)}$ | 54 | 100 | 37 | 2(1) | 20(12) | ^a / 55 | ^a / 42 | ^a / 55 | ^a / 37 |
| C | $\frac{(+7 - 16)}{(T_{designh} - 16)}$ | 35 | 64 | 24 | 7(6) | 20(12) | ^a / 55 | ^a / 36 | ^a / 46 | ^a / 32 |
| D | $\frac{(+12 - 16)}{(T_{designh} - 16)}$ | 15 | 29 | 11 | 12(11) | 20(12) | ^a / 55 | ^a / 30 | ^a / 34 | ^a / 28 |
| E | $(TOL - 16) / (T_{designh} - 16)$ | | | | TOL | 20(12) | ^a / 55 | ^a / b | ^a / b | ^a / b |
| F | $(T_{biv} - 16) / (T_{designh} - 16)$ | | | | T _{biv} | 20(12) | ^a / 55 | ^a / c | ^a / c | ^a / c |
| G | $\frac{(-15 - 16)}{(T_{designh} - 16)}$ | n/a | n/a | 82 | -15 | 20(12) | ^a / 55 | n/a | n/a | ^a / 49 |

^a With the flow rate as determined at the standard rating conditions given in EN 14511-2 at 47/55 conditions for units with a fixed flow rate, and with a fixed delta T of 8 K for units with a variable flow rate. If for any of the test conditions the resulting flow rate is below the minimum flow rate then this minimum flow rate is used as a fixed flow rate with the outlet temperature for this test condition.

^b Variable outlet shall be calculated by interpolation from T_{designh} and the temperature which is closest to the TOL.

^c Variable outlet shall be calculated by interpolation between the upper and lower temperatures which are closest to the bivalent temperature.

^d If the variable outlet temperature is below the minimum of the operation range of the unit, this minimum should be considered.

Remark: With the flow rate as determined at the standard rating conditions given in EN 14511-2 at 47/55 conditions.

Test data (Average):

| General test conditions | | Heating capacity (kW) | Power input (kW) | COP |
|-------------------------|---------------|-----------------------|------------------|-------|
| A | A(-7) (88%) | 5.549 | 2.317 | 2.39 |
| B | A2 (54%) | 3.618 | 0.951 | 3.81 |
| C | A7 (35%) | 2.406 | 0.453 | 5.31 |
| D | A12 (15%) | 2.066 | 0.257 | 11.01 |
| E | A(-10) (100%) | 5.954 | 2.891 | 2.06 |
| F | A(-7) (88%) | 5.549 | 2.317 | 2.39 |

| Summary result of tested value: | | |
|--|-------------|--------------|
| | Unit | Value |
| SCOP _{on} : | kWh/kWh | 4.04 |
| SCOP: | kWh/kWh | 4.03 |
| Q _H : | kWh | 13016 |
| Q _{HE} : | kWh | 3229 |
| η _{s,h} | % | 158.3 |

Test condition (Heating function / Average heating season in low temperature application):

Voltage: 230 V / frequency: 50 Hz ;

Indoor heat exchanger: variable outlet

Tj (bivalent temperature): -7 °C ; operating limit (TOL): -10 °C ;

Table 8 — Part load conditions for air-to-water(brine) units in low temperature application for the reference heating seasons “A” = average, “W” = warmer and “C” = colder

| Condition | Part Load Ratio in % | | | | Outdoor heat exchanger | | Indoor heat exchanger | | | |
|-----------|---------------------------------------|-----|-----|----|-------------------------------------|-------------|-----------------------|---------------------------------|-------------------|-------------------|
| | | | | | Inlet dry (wet) bulb temperature °C | | Fixed outlet °C | Variable outlet ^d °C | | |
| | Formula | A | W | C | Outdoor air | Exhaust air | All climates | A | W | C |
| A | $\frac{-7 - 16}{(T_{designh} - 16)}$ | 88 | n/a | 61 | -7(-8) | 20(12) | ^a / 35 | ^a / 34 | n/a | ^a / 30 |
| B | $\frac{+2 - 16}{(T_{designh} - 16)}$ | 54 | 100 | 37 | 2(1) | 20(12) | ^a / 35 | ^a / 30 | ^a / 35 | ^a / 27 |
| C | $\frac{+7 - 16}{(T_{designh} - 16)}$ | 35 | 64 | 24 | 7(6) | 20(12) | ^a / 35 | ^a / 27 | ^a / 31 | ^a / 25 |
| D | $\frac{+12 - 16}{(T_{designh} - 16)}$ | 15 | 29 | 11 | 12(11) | 20(12) | ^a / 35 | ^a / 24 | ^a / 26 | ^a / 24 |
| E | $(TOL - 16) / (T_{designh} - 16)$ | | | | TOL | 20(12) | ^a / 35 | ^a / b | ^a / b | ^a / b |
| F | $(T_{biv} - 16) / (T_{designh} - 16)$ | | | | T _{biv} | 20(12) | ^a / 35 | ^a / c | ^a / c | ^a / c |
| G | $\frac{-15 - 16}{(T_{designh} - 16)}$ | n/a | n/a | 82 | -15 | 20(12) | ^a / 35 | n/a | n/a | ^a / 32 |

^a With the flow rate as determined at the standard rating conditions given in EN 14511-2 at 30/35 conditions for units with a fixed flow rate, and with a fixed delta T of 5 K for units with a variable flow rate. If for any of the test conditions the resulting flow rate is below the minimum flow rate then this minimum flow rate is used as a fixed flow rate with the outlet temperature for this test condition.

^b Variable outlet shall be calculated by interpolation from T_{designh} and the temperature which is closest to the TOL.

^c Variable outlet shall be calculated by interpolation between the upper and lower temperatures which are closest to the bivalent temperature.

^d If the variable outlet temperature is below the minimum of the operation range of the unit, this minimum should be considered.

Remark: With the flow rate as determined at the standard rating conditions given in EN 14511-2 at 30/35 conditions.

Test data (Average):

| General test conditions | | Heating capacity (kW) | Power input (kW) | COP |
|-------------------------|------------------|-----------------------|------------------|-------|
| A | A(-7)/W34 (88%) | 6.120 | 1.938 | 3.16 |
| B | A2/W30 (54%) | 4.184 | 0.828 | 5.05 |
| C | A7/W27 (35%) | 2.547 | 0.360 | 7.08 |
| D | A12/W24 (15%) | 2.169 | 0.197 | 11.01 |
| E | A(-10)/W35(100%) | 6.60 | 2.388 | 2.76 |
| F | A(-7)/W34 (88%) | 6.120 | 1.938 | 3.16 |

| Summary result of tested value: | | |
|--|-------------|--------------|
| | Unit | Value |
| SCOP _{on} : | kWh/kWh | 5.25 |
| SCOP: | kWh/kWh | 5.24 |
| Q _H : | kWh | 14049 |
| Q _{HE} : | kWh | 2683 |
| η _{s,h} | % | 206.4 |

Test condition (Heating function / warmer heating season in medium temperature application):

Voltage: 230 V / frequency: 50 Hz ;

Indoor heat exchanger: variable outlet ;

Tj (bivalent temperature): 7 °C; operating limit (TOL): 2 °C;

Table 10 — Part load conditions for air-to-water(brine) units in medium temperature application for the reference heating seasons “A” = average, “W” = warmer and “C” = colder

| Condition | Part Load Ratio in % | | | | Outdoor heat exchanger | | Indoor heat exchanger | | | |
|-----------|---|-----|-----|----|--|-------------|-----------------------|------------------------------------|--------|--------|
| | | | | | Inlet dry (wet) bulb temperature °C | | Fixed outlet °C | Variable outlet ^d °C | | |
| | Formula | A | W | C | Outdoor air | Exhaust air | | All climates | A | W |
| A | $\frac{(-7 - 16)}{(T_{designh} - 16)}$ | 88 | n/a | 61 | -7(-8) | 20(12) | a / 55 | a / 52 | n/a | a / 44 |
| B | $\frac{(+2 - 16)}{(T_{designh} - 16)}$ | 54 | 100 | 37 | 2(1) | 20(12) | a / 55 | a / 42 | a / 55 | a / 37 |
| C | $\frac{(+7 - 16)}{(T_{designh} - 16)}$ | 35 | 64 | 24 | 7(6) | 20(12) | a / 55 | a / 36 | a / 46 | a / 32 |
| D | $\frac{(+12 - 16)}{(T_{designh} - 16)}$ | 15 | 29 | 11 | 12(11) | 20(12) | a / 55 | a / 30 | a / 34 | a / 28 |
| E | $(TOL - 16) / (T_{designh} - 16)$ | | | | TOL | 20(12) | a / 55 | a / b | a / b | a / b |
| F | $(T_{biv} - 16) / (T_{designh} - 16)$ | | | | T _{biv} | 20(12) | a / 55 | a / c | a / c | a / c |
| G | $\frac{(-15 - 16)}{(T_{designh} - 16)}$ | n/a | n/a | 82 | -15 | 20(12) | a / 55 | n/a | n/a | a / 49 |

^a With the flow rate as determined at the standard rating conditions given in EN 14511-2 at 47/55 conditions for units with a fixed flow rate, and with a fixed delta T of 8 K for units with a variable flow rate. If for any of the test conditions the resulting flow rate is below the minimum flow rate then this minimum flow rate is used as a fixed flow rate with the outlet temperature for this test condition.

^b Variable outlet shall be calculated by interpolation from T_{designh} and the temperature which is closest to the TOL.

^c Variable outlet shall be calculated by interpolation between the upper and lower temperatures which are closest to the bivalent temperature.

^d If the variable outlet temperature is below the minimum of the operation range of the unit, this minimum should be considered.

Remark: With the flow rate as determined at the standard rating conditions given in EN 14511-2 at 47/55 conditions.

Test data (Warmer):

| General test conditions | | Heating capacity (kW) | COP | Power input (kW) |
|-------------------------|------------|-----------------------|-------|------------------|
| A | W(-7) | — | — | — |
| B | W2 (100%) | 7.358 | 2.601 | 2.829 |
| C | W7 (64%) | 5.137 | 3.693 | 1.391 |
| D | W12 (29%) | 2.702 | 6.373 | 0.424 |
| E | W(2)(100%) | 7.358 | 2.601 | 2.829 |
| F | W(7)(64%) | 5.137 | 3.693 | 1.391 |

| Summary result of tested value: | | |
|--|-------------|--------------|
| | Unit | Value |
| SCOP _{on} : | kWh/kWh | 4.53 |
| SCOP: | kWh/kWh | 4.48 |
| Q _H : | kWh | 10822 |
| Q _{HE} : | kWh | 2413 |
| η _{s,h} | % | 176.4 |

Test condition (Heating function / warmer heating season in Low temperature application):

Voltage: 230 V / frequency: 50 Hz;

Indoor heat exchanger: variable outlet;

T_j (bivalent temperature): 7 °C; operating limit (TOL): 2 °C;

Table 8 — Part load conditions for air-to-water(brine) units in low temperature application for the reference heating seasons “A” = average, “W” = warmer and “C” = colder

| Condition | Part Load Ratio in % | | | | Outdoor heat exchanger | | Indoor heat exchanger | | | |
|-----------|---------------------------------------|-----|-----|----|-------------------------------------|-------------|-----------------------|---------------------------------|-----------------------------|-----------------------------|
| | | | | | Inlet dry (wet) bulb temperature °C | | Fixed outlet °C | Variable outlet ^d °C | | |
| | Formula | A | W | C | Outdoor air | Exhaust air | All climates | A | W | C |
| A | $(-7 - 16) / (T_{designh} - 16)$ | 88 | n/a | 61 | -7(-8) | 20(12) | ^a / 35 | ^a / 34 | n/a | ^a / 30 |
| B | $(+2 - 16) / (T_{designh} - 16)$ | 54 | 100 | 37 | 2(1) | 20(12) | ^a / 35 | ^a / 30 | ^a / 35 | ^a / 27 |
| C | $(+7 - 16) / (T_{designh} - 16)$ | 35 | 64 | 24 | 7(6) | 20(12) | ^a / 35 | ^a / 27 | ^a / 31 | ^a / 25 |
| D | $(+12 - 16) / (T_{designh} - 16)$ | 15 | 29 | 11 | 12(11) | 20(12) | ^a / 35 | ^a / 24 | ^a / 26 | ^a / 24 |
| E | $(TOL - 16) / (T_{designh} - 16)$ | | | | TOL | 20(12) | ^a / 35 | ^a / ^b | ^a / ^b | ^a / ^b |
| F | $(T_{biv} - 16) / (T_{designh} - 16)$ | | | | T _{biv} | 20(12) | ^a / 35 | ^a / ^c | ^a / ^c | ^a / ^c |
| G | $(-15 - 16) / (T_{designh} - 16)$ | n/a | n/a | 82 | -15 | 20(12) | ^a / 35 | n/a | n/a | ^a / 32 |

^a With the flow rate as determined at the standard rating conditions given in EN 14511-2 at 30/35 conditions for units with a fixed flow rate, and with a fixed delta T of 5 K for units with a variable flow rate. If for any of the test conditions the resulting flow rate is below the minimum flow rate then this minimum flow rate is used as a fixed flow rate with the outlet temperature for this test condition.

^b Variable outlet shall be calculated by interpolation from T_{designh} and the temperature which is closest to the TOL.

^c Variable outlet shall be calculated by interpolation between the upper and lower temperatures which are closest to the bivalent temperature.

^d If the variable outlet temperature is below the minimum of the operation range of the unit, this minimum should be considered.

Remark: With the flow rate as determined at the standard rating conditions given in EN 14511-2 at 47/55 conditions.

Test data (Warmer):

| General test conditions | | Heating capacity (kW) | COP | Power input (kW) |
|-------------------------|------------|-----------------------|------|------------------|
| A | W(-7) | — | — | — |
| B | W2 (100%) | 6.004 | 4.23 | 1.420 |
| C | W7 (64%) | 4.193 | 5.92 | 0.709 |
| D | W12 (29%) | 1.931 | 9.79 | 0.197 |
| E | W(2)(100%) | 6.004 | 4.23 | 1.420 |
| F | W(7)(64%) | 4.193 | 5.92 | 0.709 |

| Summary result of tested value: | | |
|--|-------------|--------------|
| | Unit | Value |
| SCOP _{on} : | kWh/kWh | 7.27 |
| SCOP: | kWh/kWh | 7.13 |
| Q _H : | kWh | 8150 |
| Q _{HE} : | kWh | 1144 |
| η _{s,h} | % | 282.0 |

| Information of efficiency class according to (EU) No 811/2013 | | |
|---|---------------------------|------------------------|
| Climate conditions.....: | Average (mandatory) | |
| Declared temperature application.....: | Medium-temperature | Low-temperature |
| Rated heat output (kW).....: | 6.3 | 6.8 |
| seasonal space heating energy efficiency η_s ; %.....: | 151 | 194 |
| Energy efficiency class.....: | A+++ | A+++ |
| Annual energy consumption Q_{HE} ;(KWh) | 3381 | 2818 |
| Sound power level (L_{WA}), indoor/outdoor.....: | 56 | 56 |
| Climate conditions.....: | Warmer | |
| Declared temperature application.....: | Medium-temperature | Low-temperature |
| Rated heat output (kW).....: | 8.1 | 6.1 |
| seasonal space heating energy efficiency η_s ; %.....: | 176 | 256 |
| Energy efficiency class.....: | A+++ | A+++ |

Table 1

Seasonal space heating energy efficiency classes of heaters, with the exception of low-temperature heat pumps and heat pump space heaters for low-temperature application

| Seasonal space heating energy efficiency class | Seasonal space heating energy efficiency η_s in % |
|--|--|
| A+++ | $\eta_s \geq 150$ |
| A++ | $125 \leq \eta_s < 150$ |
| A+ | $98 \leq \eta_s < 125$ |
| A | $90 \leq \eta_s < 98$ |
| B | $82 \leq \eta_s < 90$ |
| C | $75 \leq \eta_s < 82$ |
| D | $36 \leq \eta_s < 75$ |
| E | $34 \leq \eta_s < 36$ |
| F | $30 \leq \eta_s < 34$ |
| G | $\eta_s < 30$ |

Information of efficiency class according to (EU) No 811/2013

Table 2

Seasonal space heating energy efficiency classes of low-temperature heat pumps and heat pump space heaters for low-temperature application

| Seasonal space heating energy efficiency class | Seasonal space heating energy efficiency η_s in % |
|--|--|
| A ⁺⁺⁺ | $\eta_s \geq 175$ |
| A ⁺⁺ | $150 \leq \eta_s < 175$ |
| A ⁺ | $123 \leq \eta_s < 150$ |
| A | $115 \leq \eta_s < 123$ |
| B | $107 \leq \eta_s < 115$ |
| C | $100 \leq \eta_s < 107$ |
| D | $61 \leq \eta_s < 100$ |
| E | $59 \leq \eta_s < 61$ |
| F | $55 \leq \eta_s < 59$ |
| G | $\eta_s < 55$ |

| Ecodesign requirements according to (EU) No 813/2013 | | | | | | | |
|---|--|--|--|---|--|--|--|
| Average (mandatory) | | | | | | | |
| Declared temperature application | | | | Exception of low-temperature | | | |
| Items | Value | Stage 1 | | Stage 2 | | Verdict | |
| seasonal space heating energy efficiency η_s , | 151 | <input checked="" type="checkbox"/> $\geq 100\%$ (from 2015.09.26) | | <input checked="" type="checkbox"/> $\geq 110\%$ (from 2017.09.26) | | P | |
| Sound power level (L_{WA}), indoor/outdoor | 56 | <input checked="" type="checkbox"/> ≤ 70 dBA / 78 dBA (from 2015.09.26) | | | | P | |
| Declared temperature application | | | | Low-temperature | | | |
| Items | Value | Stage 1 | | Stage 2 | | Verdict | |
| seasonal space heating energy efficiency η_s | 194 | <input checked="" type="checkbox"/> $\geq 115\%$ (from 2015.09.26) | | <input checked="" type="checkbox"/> $\geq 125\%$ (from 2017.09.26) | | P | |
| Sound power level (L_{WA}), indoor/outdoor | 56 | <input checked="" type="checkbox"/> ≤ 70 dBA / 78 dBA (from 2015.09.26) | | | | P | |
| <p>(a) From 26 September 2015 the seasonal space heating energy efficiency and useful efficiencies of heaters shall not fall below the following values:</p> <p>Heat pump space heaters and heat pump combination heaters, with the exception of low-temperature heat pumps: The seasonal space heating energy efficiency shall not fall below 100 %.</p> <p>Low-temperature heat pumps: The seasonal space heating energy efficiency shall not fall below 115 %.</p> <p>(b) From 26 September 2017 the seasonal space heating energy efficiency of electric boiler space heaters, electric boiler combination heaters, cogeneration space heaters, heat pump space heaters and heat pump combination heaters shall not fall below the following values:</p> <p>Heat pump space heaters and heat pump combination heaters, with the exception of low-temperature heat pumps: The seasonal space heating energy efficiency shall not fall below 110 %.</p> <p>Low-temperature heat pumps: The seasonal space heating energy efficiency shall not fall below 125 %.</p> | | | | | | | |
| From 26 September 2015 the sound power level of heat pump space heaters and heat pump combination heaters shall not exceed the following values: | | | | | | | |
| Rated heat output ≤ 6 kW | | Rated heat output > 6 kW and ≤ 12 kW | | Rated heat output > 12 kW and ≤ 30 kW | | Rated heat output > 30 kW and ≤ 70 kW | |
| Sound power level (L_{WA}), indoors | Sound power level (L_{WA}), outdoors | Sound power level (L_{WA}), indoors | Sound power level (L_{WA}), outdoors | Sound power level (L_{WA}), indoors | Sound power level (L_{WA}), outdoors | Sound power level (L_{WA}), indoors | Sound power level (L_{WA}), outdoors |
| 60 dB | 65 dB | 65 dB | 70 dB | 70 dB | 78 dB | 80 dB | 88 dB |

Photo documents:

| Products General | Products General |
|---|--|
|  |  |
| Compressor | |
|  | |

--- End of Report ---