

| Test Report | | | | |
|--|--------------------------------|---|---|------------------------------------|
| Energy consumption test for the AU energy labelling of household air-conditioner | | | | |
| Test Report No.: | | AU100006 | | Page 1 of 12 |
| Applicant Name: | | Gree Electric Appliances Inc. of Zhuhai | | |
| Address | | Jinji West Road, Qianshan, Zhuhai, Guangdong 519070, P.R.China | | |
| Manufacturer | | Gree Electric Appliances Inc. of Zhuhai | | |
| Address | | Jinji West Road, Qianshan, Zhuhai, Guangdong 519070, P.R.China | | |
| Product Name | | Split air conditioner | | |
| Trade Mark | | Gree | | |
| Model/ Type reference | | GJH12AD-K3MNB8A | | |
| Rated and characteristics | | 220-240V ~ 50Hz | | |
| Test specification: | | AS/NZS 3823.1.1:1998+A1:2001+A2:2002+A3:2006 AS/NZS 3823.2:2009 | | |
| Date of receipt of test item | | 2009-12-25 | Date of test | 2010-01-21 |
| Test Result: | Comparative Energy Consumption | Cooling mode(KWh per hr): 1.232 | | Heating code(KWh per hr): 1.044 |
| | SRI | Cooling mode: 1.0 | | Heating mode: 1.5 |
| | Measured cooling capacity (KW) | 3.684 | Measured heating capacity (KW) | 3.157 |
| | Measured EER: | 2.99 | Measured COP: | 3.02 |
| | Measured AEER: | 2.99 | Measured ACOP: | 3.02 |
| Test by: | | Chen xinyong |  | |
| Reviewed by: | | Tang weixin | | |
| Approved by: | | Chen Zancheng | | |
| Date of issue | | 2010-01-25 | | |
| Testing Laboratory: | | Test laboratory of Gree Electric Appliances Inc. of Zhuhai(GTL) | | |
| Testing location: | | Jinji West Road, Qianshan, Zhuhai, Guangdong 519070, P.R.China http://www.gree.com.cn Tel:086-756-8614883 Fax:086-756-8614998 | | |
| Abbreviations: P(ass) = passed F(ail) = failed N/A = not applicable N/T = not tested | | | | |
| This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. | | | | |

Summary of testing

1. The appliance was tested according to AS/NZS 3823.1.1 and AS/NZS 3823.2.
2. Test location:
 - The tests were performed at Gree Electric Appliances Inc. of Zhuhai

Energy consumption test for the AU energy labelling of household air-conditioner

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) |

General remarks

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.

The test report is invalid without the official stamp of GREE.

The test report is invalid without the signatures of author and reviewer.


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



| BRIEF DESCRIPTION OF THE TESTED SAMPLES: | | |
|--|--|--|
| 1 | Ratings | |
| | Rated voltage/Rated voltage range(V) | 220-240V~ |
| | Rated frequency (Hz) | 50 |
| | Rated input(KW)(cooling/Heating) | 1.230/1.060 |
| | Rated capacity(KW)(cooling/Heating) | 3.700/3.200 |
| 2 | Type power supply | <input checked="" type="checkbox"/> Single phase <input type="checkbox"/> Three phase |
| 3 | Construction of the unit | <input type="checkbox"/> Split type <input checked="" type="checkbox"/> Single packaged type <input type="checkbox"/> Multi-split type |
| 4 | Type of the unit considering if it has the air ducts | <input type="checkbox"/> Split type <input type="checkbox"/> Single packaged type <input type="checkbox"/> Multi-split type |
| 5 | The number of the indoor units if multi-split type | |
| 6 | Type of the indoor unit if split type | <input type="checkbox"/> Wall-mounted <input type="checkbox"/> Free-standing <input type="checkbox"/> Ceiling-mounted <input type="checkbox"/> Other type |
| 7 | Type of outdoor unit if split type | <input type="checkbox"/> Free-standing <input type="checkbox"/> Other type |
| 8 | Supplementary heating element | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| 9 | Type of the cooling method | <input checked="" type="checkbox"/> Air cooled <input type="checkbox"/> Water cooled |
| 10 | Operation function | <input checked="" type="checkbox"/> Cooling mode and Heating mode <input type="checkbox"/> Cooling mode only |
| 11 | Type of the refrigerant | R410A |
| 12 | Mass of refrigerant (Kg) | 0.81 |
| 13 | Series number | H10090041 |
| 14 | Variable output compressor used | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| 15 | Does this model have a crankcase heater? | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |

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|---------------------------------|
| NAMEPLATE OF THE TESTED SAMPLE: |
|---------------------------------|

Remark:

| | |
|---|-----------------|
|  | |
| WINDOW TYPE AIR CONDITIONER | |
| Model | GJH12AD-K3MNB8A |
| Rated Voltage | 220-240V~ |
| Rated Frequency | 50Hz |
| Climate Type | T1 |
| Comp. LRA | 17A |
| Cooling Capacity | 3700W |
| Heating Capacity | 3200W |
| Cooling Power Input | 1230W |
| Heating Power Input | 1060W |
| Cooling Rated Input | 1800W |
| Heating Rated Input | 1550W |
| Hi. Side Pressure | 3.0MPa |
| Low Side Pressure | 1.0MPa |
| Sound Pressure Level (Indoor/Outdoor) | 53/61dB(A) |
| Refrigerant | R410A |
| Refri. Charge | 0.81kg |
| Weight | 57kg |
| Isolation | I |
| Moisture Protection(Outdoor Part) | IP24 |
| Manufactured Date | |
| GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI | |
| TM413.GJH12ADK3MNB8A | |



1. Summary

One air conditioner unit, window-type air-cooled with cooling and heating function, model type was tested in the Balanced Ambient Room-type Calorimeter at Gree's laboratory according to the standard AS/NZS 3823.1.1:1998+A1:2001+A2:2002+A3:2006, operating condition T1 for cooling and for heating.

Star rating, comparative energy consumption (CEC) and Minimum energy performance standard (MEPS) was determined in accordance with AS/NZS 3823.2:2009.

The key results, in compliance with energy labeling requirements of AS/NZS 3823.2:2009 are presented on the followed pages.



| | | | |
|--|-------|---------------------------|---------|
| 2. Cooling Capacity and Energy Consumption Measurement Test for Cooling Condition T1 | | | |
| As required in AS/NZS 3823.1.1, APPENDIX ZZ, reading were taken at intervals of 5 minutes. | | | |
| 2.1 electrical quantities | | | |
| Tested current input (A) | | 5.42 | |
| Power factor | | 0.98 | |
| Tested effective power input(KW) | | 1.232 | |
| 2.2 cooling capacity | | | |
| Test sensible cooling capacity(KW) | | 3.086 | |
| Tested latent cooling capacity(KW) | | 0.598 | |
| Tested total cooling capacity(KW) | | 3.684 | |
| 2.3 Ratios | | | |
| Measured EER | | 2.99 | |
| 2.4 Annal efficiency | | | |
| Pnoc (W) | | \ | |
| Measured AEER | | 2.99 | |
| SRI cooling | | 1.48 | |
| Star rating | | 1.0 | |
| 2.5 Control air temperature: | | | |
| Dry bulb temperature, roomside (°C): | | 27±0.3 | |
| Wet bulb temperature, roomside (°C): | | 19±0.2 | |
| Dry bulb temperature, outside (°C): | | 35±0.3 | |
| Wet bulb temperature, outside (°C): | | 24±0.2 | |
| 2.6 Deviation | | | |
| Rated cooling capcity(KW): | 3.700 | Rated input(KW): | 1.230 |
| Measured cooling capcity(KW): | 3.684 | Measured rated input(KW): | 1.232 |
| Difference (%) | -0.4 | Difference (%) | +0.1 |
| Required Difference | ≥-5% | Required Difference | ≤10% |
| Minimum Energy Performance Standard(MEPS): | | | |
| Measured EER | | Required minimum EER | Verdict |
| 2.99 | | 2.84 | Pass |
| NOTE: | | | |
| AEER=(cooling capacityx2000)/(effective power inputx2000+ Pnocx6.76) | | | |
| SRI cooling= (AEERX8-18)/4 | | | |

3. Cooling Capacity Measurement Data

| | | | |
|---|----------------------|-----|-------|
| 1 | Supply Voltage | V | 230.5 |
| 2 | Frequency | Hz | 50 |
| 3 | Stabilization period | Min | 60 |
| 4 | Test period | Min | 120 |
| 5 | Indoor dry bulb | °C | 27.00 |
| 6 | Indoor wet bulb | °C | 19.01 |
| 7 | Outdoor dry bulb | °C | 35.02 |
| 8 | Outdoor wet bulb | °C | 24.00 |
| 9 | Indoor air discharge | °C | 14.94 |



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|--|----------------------|---------------------------|---------|
| 4. Heating Capacity and Energy Consumption Measurement Test for Heating Condition H1 | | | |
| As required in AS/NZS 3823.1.1, APPENDIX ZZ, reading were taken at intervals of 5 minutes. | | | |
| 4.1 electrical quantities | | | |
| Tested current input (A) | | 4.60 | |
| Power factor | | 0.98 | |
| Tested effective power input(KW) | | 1.044 | |
| 4.2 Heating capacity | | | |
| Tested total heating capacity(KW) | | 3.157 | |
| 4.3 Ratios | | | |
| Measured COP | | 3.02 | |
| 4.4 Annal efficiency | | | |
| Pnoh (W) | | \ | |
| Measured ACOP | | 3.02 | |
| SRI heating | | 1.54 | |
| Star rating | | 1.5 | |
| 4.5 Control air temperature: | | | |
| Dry bulb temperature, roomside (°C): | | 20±0.3 | |
| Wet bulb temperature, roomside (°C): | | 15±0.2 | |
| Dry bulb temperature, outside (°C): | | 7±0.3 | |
| Wet bulb temperature, outside (°C): | | 6±0.2 | |
| 4.6 Deviation | | | |
| Rated heating capcity(KW): | 3.200 | Rated input(KW): | 1.060 |
| Measured heating capcity(KW): | 3.157 | Measured rated input(KW): | 1.044 |
| Difference (%) | -1.3 | Difference (%) | -1.5 |
| Required difference | ≥-5% | Required Difference | ≤10% |
| Minimum Energy Performance Standard(MEPS): | | | |
| Measured COP | Required minimum COP | | Verdict |
| 3.02 | 2.84 | | Pass |
| Note: | | | |
| ACOP=(heating capacityx2000)/(effective power inputx2000+ Pnohx6.76) | | | |
| SRI heating=(ACOPX8-18)/4 | | | |

**5. Heating Capacity Measurement Data**

| | | | |
|---|----------------------|-----|-------|
| 1 | Supply Voltage | V | 230.4 |
| 2 | Frequency | Hz | 50 |
| 3 | Stabilization period | Min | 60 |
| 4 | Test period | Min | 120 |
| 5 | Indoor dry bulb | °C | 20.03 |
| 6 | Indoor wet bulb | °C | 15.03 |
| 7 | Outdoor dry bulb | °C | 6.99 |
| 8 | Outdoor wet bulb | °C | 6.00 |
| 9 | Indoor air discharge | °C | 32.68 |



| | |
|--|--------------------------|
| 6. Maximum cooling test: | |
| Test result | Pass |
| Parameter | Standard test conditions |
| Temperature of air entering indoor side | |
| Dry bulb (°C) | 32°C |
| Wet bulb(°C) | 23°C |
| Temperature of air entering outdoor side | |
| Dry bulb | 43°C |
| Wet bulb | 26°C |
| Frequency of power supply | 50Hz |
| Test voltage | 207V and 253V |
| <p>The controls of the air conditioner were set for maximum cooling. The unit was operated continuously for a period of 1 hour after the specified temperature and equilibrium condensate level was achieved. All power to the equipment was then cut off for a period of 3 minutes and then restarted for 1 hour.</p> <p>Performance Requirements:</p> <ul style="list-style-type: none"> a) during one entire test, the equipment shall operate without any indication of damage; b) the motors of the equipment shall operate continuously for the first hour of the test without tripping any protective device; and c) the shut down period of 3 minutes, the motor overload protective device shall restart no more than 5 minutes period after restart of the compressor. d) after the interruption of power the equipment shall resume operation within 30 minutes and run continuously for one hour | |

| 7. STANDBY POWER AND CRANK CASE HEATERS POWER MEASUREMENT | | | |
|---|---|--|---------------------------------------|
| Test method | Measurements of standby power and crank case heater power is undertaken in accordance with the procedures and instruments specified in AS/NZS 62301 | | |
| Test results | Non-operation power consumption according with clause 2.4 of AS/NZS3823.2:2009 | | ----- |
| | | | |
| | | | Passive standby power consumption (W) |
| | Non-operation mode description | The remote controller is off. The appliance is not operational and monitoring for a remote signal | \ |
| | | The remote controller is off. The appliance is not operational and the timer for auto start is on. | \ |
| | | | |
| | | | |
| | The average crank heater power consumption | at 7 °C(outdoor) | ----- |
| | | At 20°C(outdoor) | ----- |
| | | | |

8. APPENDIX — GREE CONTROLLED ENVIRONMENT CHAMBER

8.1 Operating Specifications

Indoor Side

| | |
|---|--------------|
| Dimensions (L×W×H,m): | 4.4×3.76×3.2 |
| Volume (m ³) | 52.94 |
| Maximum heating capacity(KW): | 8 |
| Maximum cooling capacity(KW): | 7 |
| humidification capacity (Kg/h): | 2 |
| Maximum air flow rate (m/s) | 0.8 |
| Maximum air changed (m ³ /min) | 80 |

Outdoor Side

| | |
|---|--------------|
| Dimensions (L×W×H,m): | 4.4×3.76×3.2 |
| Volume (m ³) | 52.94 |
| Maximum heating capacity(KW): | 9 |
| Maximum cooling capacity(KW): | 8 |
| humidification capacity (Kg/h): | 2 |
| Maximum air flow rate (m/s) | 0.85 |
| Maximum air changed (m ³ /min) | 115 |

8.2 Measuring instruments

| Item | Description | Accuracy |
|---------------------|------------------|----------|
| Indoor Side | | |
| Temperature control | YOKOGAWA/UT350 | ±0,1℃ |
| Temperature monitor | YOKOGAWA/HR2500E | ±0,1℃ |
| Outdoor Side | | |
| Temperature control | YOKOGAWA/UT350 | ±0,1℃ |
| Temperature monitor | YOKOGAWA/HR2500E | ±0,1℃ |
| Water flow | OVAL/LUS50C15 | ±0,5% |
| Water temperature | CHINO/SOLIDPOK | ±0,1℃ |

The drawing of the lab:

