

Test Report				
Energy consumption test for the AU energy labelling of household air-conditioner				
Test Report No.:		AU100011		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		Window-type air conditioner		
Trade Mark		Gree		
Model/ Type reference		See the name panel		
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		2009-12-23	Date of test	2010-1-13
Test Result:	Comparative Energy Consumption	Cooling mode(KWh per hr): 1.746		Heating code(KWh per hr): 1.599
	Star Rating	Cooling mode:1.5		Heating mode:1.5
	Measured cooling capacity (KW)	5.289	Measured heating capacity (KW)	4.860
	Measured EER:	3.030	Measured COP:	3.04
	Measured AEER:	3.018	Measured ACOP:	3.027
Test by:		Sun Zhaohan		
Reviewed by:		Chen Zancheng		
Approved by:		Xiao Biao		
Date of issue		2009-10-21		
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)	1.760/1.590
	Rated capacity(KW)(cooling/Heating)	5.300/4.800
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 checked="" type="checkbox"/> Other type
7	Type of outdoor unit if split type	<input type="checkbox"/> Free-standing <input checked="" 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)	1.27
13	Series number	H0908189
14	Variable output compressor used	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No



NAMEPLATE OF THE TESTED SAMPLE:

	
WINDOW TYPE AIR CONDITIONER	
Model	GJH18AC-K3MNB8A
Rated Voltage	220-240V~
Rated Frequency	50Hz
Climate Type	T1
Comp. LRA	40A
Cooling Capacity	5300W
Heating Capacity	4800W
Cooling Power Input	1760W
Heating Power Input	1590W
Cooling Rated Input	2380W
Heating Rated Input	2310W
Hi. Side Pressure	3.0MPa
Low Side Pressure	1.0MPa
Sound Pressure Level (Indoor/Outdoor)	61/63dB(A)
Refrigerant	R410A
Refri. Charge	1.27kg
Weight	66kg
Isolation	I
Moisture Protection(Outdoor Part)	IP24
Manufactured Date	
GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI TM413.GJH18ACK3MNB8A	



1. Summary

One air conditioner unit, window-type air-cooled with cooling and heating function, model type **GJH18AC-K3MNB8A** 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)		7.7	
Power factor		0.98	
Tested effective power input(KW)		1.746	
2.2 cooling capacity			
Test sensible cooling capacity(KW)		3.717	
Tested latent cooling capacity(KW)		1.572	
Tested total cooling capacity(KW)		5.289	
2.3 Ratios			
Measured EER		3.03	
2.4 Annal efficiency			
Pnoc (W)		1.80	
Measured AEER		3.019	
SRI cooling		1,537	
Star rating		1.5	
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):	5.300	Rated input(KW):	1.760
Measured cooling capcity(KW):	5.289	Measured rated input(KW):	1.746
Difference (%)	-0.21	Difference (%)	-0.80
Required Difference	≥-5	Required Difference	≤5
Minimum Energy Performance Standard(MEPS):			
Measured EER	Required minimum EER	Verdict	
3.03	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	230.1
2	Frequency	Hz	50
3	Stabilization period	Min	60
4	Test period	Min	120
5	Indoor dry bulb	°C	27.02
6	Indoor wet bulb	°C	19.01
7	Outdoor dry bulb	°C	35.02
8	Outdoor wet bulb	°C	24.00

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)		7.7	
Power factor		0.981	
Tested effective power input(KW)		1.599	
4.2 Heating capacity			
Tested total heating capacity(KW)		4,860	
4.3 Ratios			
Measured COP		3.04	
4.4 Annal efficiency			
Pnoh (W)		1.8	
Measured ACOP		3.028	
SRI heating		1.556	
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):	4800	Rated input(KW):	1.590
Measured heating capcity(KW):	4860	Measured rated input(KW):	1.599
Difference (%)	1.25	Difference (%)	-0.57
Required difference	≥-5	Required Difference	≤5
Note:			
ACOP=(heating capacityx2000)/(effective power inputx2000+ Pnohx6.76)			
SRI heating=(ACOPX8-18)/4			

**5. Heating Capacity Measurement Data**

1	Supply Voltage	V	230.1
2	Frequency	Hz	50
3	Stabilization period	Min	60
4	Test period	Min	120
5	Indoor dry bulb	°C	20.01
6	Indoor wet bulb	°C	15.03
7	Outdoor dry bulb	°C	7.01
8	Outdoor wet bulb	°C	6.02



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	198V and 264V
<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	1,7
		The remote controller is off. The appliance is not operational and the timer for auto start is on.	1,7
	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):	4.8×4.3×3.2
Volume (m ³)	66
Maximum heating capacity(KW):	14
Maximum cooling capacity(KW):	12
humidification capacity (Kg/h):	5.5
Maximum air flow rate (m/s)	0.72
Maximum air changed (m ³ /min)	138

Outdoor Side

Dimensions (L×W×H,m):	4.8×4.3×3.2
Volume (m ³)	66
Maximum heating capacity(KW):	17
Maximum cooling capacity(KW):	10
humidification capacity (Kg/h):	4
Maximum air flow rate (m/s)	0.9
Maximum air changed (m ³ /min)	159

8.2 Measuring instruments

Item	Description	Accuracy
Indoor Side		
Temperature control	YOKOGAWA/UT550	±0,1℃
Temperature monitor	YOKOGAWA/DR240	±0,1℃
Outdoor Side		
Temperature control	YOKOGAWA/UT550	±0,1℃
Temperature monitor	YOKOGAWA/DR240	±0,1℃
Water flow	OVAL/LUS-52C11-7112	±0,5%
Water temperature	CHINO/SOLIDPOK	±0,1℃

The drawing of the lab:

