
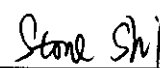


<b>Prüfbericht - Nr.: 02154072 018</b>		Seite 1 von 9	
Test Report No.:		Page 1 of 9	
<b>Auftraggeber:</b>	Gree Electric Appliances Inc. of Zhuhai		
<i>Client:</i>	Jinji West Road, Qianshan, Zhuhai, Guangdong 519070 P.R. China		
<b>Gegenstand der Prüfung:</b>	Split type room air conditioner		
<i>Test item:</i>			
<b>Bezeichnung:</b>	KFR-25GW/NA23	<b>Serien-Nr.:</b>	n.a.
<i>Identification:</i>	KF-25GW/NA23	<i>Serial No.:</i>	
<b>Wareneingangs-Nr.:</b>	173016018	<b>Eingangsdatum:</b>	2005.03.24
<i>Receipt No.:</i>		<i>Date of receipt:</i>	
<b>Prüfört:</b>	Gree Electric Appliances Inc. of Zhuhai		
<i>Testing location:</i>	Jinji West Road, Qianshan, Zhuhai, Guangdong 519070 P.R. China		
<b>Prüfgrundlage:</b>	EN 60335-1: 1994+A1+A2+A11-A16		
<i>Test specification:</i>	EN 60335-2-40: 1997+A1		
<b>Prüfergebnis:</b>	<b>Der vorstehend beschriebene Prüfgegenstand wurde geprüft und entspricht oben genannter Prüfgrundlage.</b>		
<i>Test Result:</i>	<i>The a. m. test item passed the test specification..</i>		
<b>Prüflaboratorium/</b>			
<i>Testing Laboratory:</i>	TÜV Rheinland (Guangdong) Co., Ltd.		
<b>zusammengestellt/ compiled by:</b>	<b>kontrolliert/ reviewed by:</b>		
2005.06.01	Leon Tan		2005.06.01
Datum	Name	Unterschrift	Datum
<i>Date</i>	<i>Name</i>	<i>Signature</i>	<i>Date</i>
			Stone Shi
			
			Unterschrift
			<i>Signature</i>
<b>Sonstiges/ Other Aspects:</b>			
 <b>Remark:</b> This report is for alternative compressor based on original report 02154072 011.			
 <b>Abkürzungen:</b> ok / P = entspricht Prüfgrundlage fail / F = entspricht nicht Prüfgrundlage n.a. / N = nicht anwendbar			
<b>Abbreviations:</b> ok / P = passed fail / F = failed n.a. / N = not applicable			
<b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b>			
<i>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. This test report does not entitle to carry any safety mark on this or similar products.</i>			

**Summary of testing:**

1. Test according to requirements of EN 60335-2-40;
2. All tests were performed on models KFR-25GW/NA23 to represent other similar models.
3. Input test, heating test and some abnormal tests made on enthalpy laboratory, which can imitate the condition needed.

**Test items particulars:**

Serial Number.....: **Pre-production without serial number**

Additional information.....: **N(.A.)**

**Test case verdicts**

Test case does not apply to the test object.....: **N(.A.)**

Test item does meet the requirement.....: **P(ass)**

Test item does not meet the requirement.....: **F(all)**

**Testing**

Date of receipt of test item.....: 2005.03.24

Date(s) of performance of test.....: 2005.03.24—2005.04.20

**General remarks**

**This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.**

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

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

Clause numbers between brackets refer to clauses in IEC 60335-1/EN 60335-1

"(see Enclosure #)" refers to an additional information appended to the report.

"(see appended table)" refers to a table appended to the report.

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

**Description of modification:**

This report is only for alternative compressor based on original models KFR-25GW/NA23 and KF-25GW/NA23 which test report is 02154072 011.

Model	Components	Manufacturer	Tech. Data	Original report
KFR-25GW/NA23 KF-25GW/NA23	Compressor QXC-16uA030	Zhuhai Landa	Main:3,69±5%Ω Aux : 5,98±5%Ω (at 20°C) Synthetic	02154072 011
	Running capacitor of compressor	Optional	25μF, AC 450V T mark: min. 70°C	

For the above modification, the following clause was considered to be necessary:

Clause	Testing	Result
Clause 10	Power input	P
Clause 11	Heating	P
Clause 13	Leakage current and electric strength at operating temperature	P
Clause 16	Leakage current and electric strength	P
Clause 19	Abnormal test	P
Clause 24	The voltage across the motor capacitor	P

EN 60 335-2-40			
Clause	Requirement - Test	Result - Remark	Verdict
<b>10</b>	<b>POWER INPUT AND CURRENT</b>		<b>P</b>
10.1	Power input at rated voltage and normal operating temperature not deviating from rated input by more than shown in table; measured power input (W); rated input (W); deviation .....	<b>See below</b>	<b>P</b>
	Measured after stabilisation of the input under the most severe operating condition within the operating temperature range specified by the manufacturer. Highest input was measured under the following conditions: Cooling mode: indoor temp.: 32/23 °C outdoor temp.: 43/26 °C Heating mode: indoor temp.: 27/-°C outdoor temp.: 24/18 °C		-
	Measured power input (W) .....	<b>See appended table</b>	<b>P</b>
	Rated power input (W) .....	<b>See appended table</b>	<b>P</b>
	Deviation .....	<b>See appended table</b>	<b>P</b>
	Maximum allowed deviation .....	<b>+15 %</b>	<b>P</b>
10.2	Current at normal operating temperature not deviating from rated current by more than shown in table; measured current at rated voltage under normal operation (A); rated current (A); deviation .....	<b>Not marked the current</b>	<b>N</b>
<b>11</b>	<b>HEATING</b>		<b>P</b>
11.8	Thermal cut-outs do not operate		<b>P</b>
	Temperatures not exceeding specified values (temperature measurement) of table 3	<b>See appended table</b>	<b>P</b>
	Sealing compound does not flow out		<b>P</b>
<b>13</b>	<b>LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE</b>		<b>P</b>
13.1	Leakage current not too excessive and electric strength adequate		<b>P</b>
13.2	Leakage current measured by means of circuit described in Annex G		<b>P</b>
	Leakage current measurements	<b>See appended table</b>	<b>P</b>
13.3	Electric strength test of insulation. See added Note in Interpretation Sheet I-SH 02, August 1994	<b>See appended table</b>	<b>P</b>
	No breakdown during the test		<b>P</b>
<b>16</b>	<b>LEAKAGE CURRENT AND ELECTRIC STRENGTH</b>		<b>P</b>
16.3	Electric strength tests (values in table 5). See added Note in Interpretation Sheet I-SH 02, August 1994	<b>See appended table</b>	<b>P</b>
<b>19</b>	<b>ABNORMAL OPERATION</b>		<b>P</b>

EN 60 335-2-40			
Clause	Requirement - Test	Result - Remark	Verdict
19.3	Motor-compressor lock test	<b>Motor compressors used have been separately approved complying EN 60335-2-34.</b>	<b>N</b>
	Complying with sub-clause 19.3 of IEC 60335-2-34		<b>N</b>
	50 cycles for manual reset overload protective systems	<b>Self-reset overload protector</b>	<b>N</b>
	Locked for 15 days or until 2 000 cycles are performed		<b>N</b>
	Test at lower voltage until stabilization is reached with minimum of 3 h (multiple-voltage only)	<b>Single voltage</b>	<b>N</b>
	Single-phase test for secondary side until stabilization is reached with minimum of 3 h (three-phase motor-compressors only)		<b>N</b>
	Single-phase test for primary side for 24 h		<b>N</b>
	Test at lower voltage until stabilization is reached with minimum of 3 h (multiple-voltage only)		<b>N</b>
	Motor overload protector operates reliably, no flames, sparks or molten metal, no enclosure deformation, 30 mA residual current device not operating		<b>N</b>
	Motor-compressor enclosure does not exceed 150 °C		<b>N</b>
	Leakage current at twice rated voltage between windings and enclosure not exceeding 3.5 mA		<b>N</b>
	Electric strength test of 16.3 after 72 h		<b>N</b>
	Measured enclosure temperature (°C) .....		<b>N</b>
	Measured leakage current (mA) .....		<b>N</b>
19.7	Air to air appliances at excessive ambient temperature		<b>P</b>
	Dry-bulb temperature reduced by 5 K below minimum value .....	<b>15/-°C (indoor unit) -10/-11°C (outdoor unit)</b>	<b>P</b>
	Dry-bulb temperature increased by 10 K above maximum value .....	<b>42 °C (indoor unit) 53 °C (outdoor unit)</b>	<b>P</b>
	Result: the appliance operated normally.		<b>-</b>
19.11.2	Fault conditions applied one at a time, the appliance operated under conditions specified in Cl. 11, but supplied at rated voltage, the duration of the tests as specified:		<b>P</b>

EN 60 335-2-40			
Clause	Requirement - Test	Result - Remark	Verdict
	a) short-circuit of creepage distances and clearances between live parts of different potential, if these distances are less than the values specified in 29.1, unless the relevant part is adequately encapsulated	The CI/Cr measured not less than the values specified in 29,1.	N
	b) open circuit at the terminals of any component	See appended table	P
	c) short-circuit of capacitors, unless they comply with IEC 60384-14 or subclause 14.2 of IEC 60065	See appended table	P
	d) short-circuit of any two terminals of an electronic component, other than integrated circuits. This fault condition is not applied between the circuits of an optocoupler	See appended table	P
	e) failure of triacs in the diode mode	No triacs used.	N
	f) failure of an integrated circuit. In this case the possible hazardous situations of the appliance are assessed to ensure that safety does not rely on the correct functioning of such a component		N
	During and after each test the following is checked:		P
	- the temperature rise of the windings do not exceed the values specified in table 6		P
	- the appliance complies with the conditions specified in 19.13		P
	- live parts not accessible to the test finger or test pin as specified in Cl. 8		P
	- any current flowing through protective impedance not exceeding the limits specified in 8.14		N
	If a conductor of a printed board becomes open circuited, the appliance is considered to have withstood the particular test, provided all three of the following conditions are met:		N
	- the material of the printed circuit board withstands the burning test of subclause 20.1 of IEC 60065		N
	- any loosened conductor does not reduce the creepage distances or clearances between live part and accessible metal parts		N
	- the appliance withstands the tests of 19.11.2 with open circuited conductor bridged		N
19.14	During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts	Not emitted.	P
	Temperature rises not exceeding the values shown in table 7	Well below the limits.	P

EN 60 335-2-40			
Clause	Requirement - Test	Result - Remark	Verdict
	Enclosures not deformed to such an extent that compliance with the standard is impaired	<b>No deformation.</b>	<b>P</b>
	Appliance, withstands the electric strength test of 16.3, however, the test voltage being:		<b>P</b>
	- basic insulation: 1 000 V	<b>Between supply and protective earth.</b>	<b>P</b>
	- supplementary insulation: 2 750 V		<b>P</b>
	- reinforced insulation: 3 750 V	<b>Between supply and enclosure.</b>	<b>P</b>
<b>24</b>	<b>COMPONENTS</b>		<b>P</b>
24.1.5	Voltage across capacitors in series with a motor winding does not exceed 1.1 times rated voltage, when the appliance is supplied at 1.1 times rated voltage under minimum load	<b>Across Compressor capacitor: 403V; Supply mains: 264V</b>	<b>P</b>
	List of components	<b>See appended table</b>	<b>P</b>

<b>10.1</b>	<b>TABLE: input power and current</b>						<b>P</b>
	Operation mode:.....		Cooling and heating			<b>P</b>	
	Test voltage (V): .....		230			—	
Model	Rated Cooling (W)	Rated Heating (W)	Measured cooling (W)	Measured Heating (W)	Deviation cooling	Deviation Heating	
KFR-25GW/NA23	1100	1100	950	800	-14,4%	-27,2%	

<b>11.8</b>	<b>TABLE: temperature rise measurements</b>				<b>P</b>
	Operation mode.....		Cooling and heating		<b>P</b>
	t1 (°C) .....		25,0		—
	t2 (°C) .....		Cooling: 32/23(IU), 43/26(OU) Heating: 27/19(IU), 24/18(OU)		—
	Test voltage (V) .....		244		—
Temperature rise dT of part/at:		Channel	Cooling/Heating		Limit T (°C)
Indoor unit			--		
Enclosure of fan motor		12	72,9		150
Surface of fan motor capacitor		10	36,3		T70
Ambient of relay (compressor)		11	48,6		T55
Power cord		6	34,4		75
Outdoor Unit			--		
Compressor enclosure		17	132,6		150
Compressor capacitor		1	48,5		T70
Fan motor enclosure		9	64,8		150

EN 60 335-2-40			
Clause	Requirement - Test	Result - Remark	Verdict

Fan motor capacitor	14	48,5	T70
4-way valve coil	13	109,4	120

## Remark:

1. The heating test is conducted at high speed and low speed of the indoor unit motor. The highest temperature result is considered;
2. Test performed at cooling and heating mode, the higher temperature is considered.

13.2	TABLE: leakage current measurements at operating temperature		P
	Heating appliances: at 1.15 times rated input (W) .:	N/A	—
	Motor-operated and combined appliances: at 1,06 times rated voltage (V) .....	254,4V	—
Leakage current I between:		I (mA)	Required I (mA)
L/N-enclosure (aluminium foil)		0,020	0,25
L/N-earthing part		0,23	3,5

13.3	TABLE: electric strength measurements at operating temperature		P
Test voltage applied between:		Test voltage (V)	Breakdown
L/N – GND		1000	No
L/N – enclosure of indoor unit (aluminium foil)		3750	No

16.2	TABLE: leakage current measurements		P
	At 1.06 times rated voltage (V) .....	254V	—
Leakage current I between:		I (mA)	Limit I (mA)
L/N – GND		0,24	3,5
Indoor unit, L/N – non-conductive enclosure (aluminium foil)		0,025	0,25

16.3	TABLE: electric strength measurements		P
Test voltage applied between:		Test voltage (V)	Breakdown
L/N – GND		1250	No
L/N - enclosure of indoor unit (aluminium foil)		3750	No
Point where motor winding connected with capacitor-protective earth		1900	No
Point where compressor winding connected with capacitor-protective earth		1900	No

19.11.2	TABLE: fault condition tests		P
	Ambient temperature (°C) .....	Cooling:32/23(IU),43/26(OU)	-

EN 60 335-2-40			
Clause	Requirement - Test	Result - Remark	Verdict
		Heating:27/-(IU),24/18(OU)	
	Test voltage (V) .....	240	-
Fault condition		Phenomenon	Hazard
1.SC indoor compressor capacitor (cooling)		Compressor stopped immediately.	No
2.OC indoor compressor capacitor (cooling)		Input increased and appliance operated normally.	No
3.SC indoor compressor capacitor (Heating)		Compressor stopped immediately.	No
4.OC indoor compressor capacitor (Heating)		Compressor stopped immediately.	No
Remark: the "SC" means "short-circuited", "OC" means " open-circuited"			

24.1	TABLE: COMPONENTS				P
Remark: Only the components deviated from original model are listed.					
Components	Manufacturer	Model	Technical data	Standard	Approval
Compressor	Zhuhai Landa	QXC-16uA030	Main:3,69±5%Ω Aux : 5,98±5%Ω (at 20°C) Synthetic	EN60335-2-34	TUV (R2156054)
Capacitor for compressor	Running capacitor of compressor	Optional	25µF, AC 450V T mark: min. 70°C	EN60252	TUV or any CENELEC

--End of report--