



Ref. Certif. No.

JPTUV-012833-M2

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST  
CERTIFICATES FOR ELECTRICAL EQUIPMENT  
(IECEE) CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE  
CERTIFICATS D'ESSAIS DES EQUIPEMENTS  
ELECTRIQUES (IECEE) METHODE OC

**CB TEST CERTIFICATE**  
**CERTIFICAT D'ESSAI OC**

Product  
Produit

Room air conditioner indoor unit

Name and address of the applicant  
Nom et adresse du demandeur

Electra Air-conditioning (Shenzhen) Co., Ltd.  
2 WUHE AVENUE S.,  
BANTIAN, BUJI, Shenzhen, Guangdong, P.R. China

Name and address of the manufacturer  
Nom et adresse du fabricant

Electra Air-conditioning (Shenzhen) Co., Ltd.  
2 WUHE AVENUE S.,  
BANTIAN, BUJI, Shenzhen, Guangdong, P.R. China

Name and address of the factory  
Nom et adresse de l'usine

Electra Air-conditioning (Shenzhen) Co., Ltd.  
2 WUHE AVENUE S.,  
BANTIAN, BUJI, Shenzhen, Guangdong, P.R. China

Rating and principal characteristics  
Valeurs nominales et caractéristiques principales

AC 220-230V; 50Hz; Class I  
rated power input: refer to the test report  
IP20; Refrigerant: R410A

Trade mark (if any)  
Marque de fabrique (si elle existe)

ELECTRA

Model/type Ref.  
Ref. de type

Alpha series  
OMEGA series  
Delta series

Additional information (if necessary)  
Information complémentaire (si nécessaire)

For model differences, refer to the test report.  
Re-issue of JPTUV-012833-M1 dated 17.01.2006,  
due to second modification.

A sample of the product was tested and found  
to be in conformity with  
Un échantillon de ce produit a été essayé et a été  
considéré conforme à la

IEC 60335-2-40:1995 + A1  
IEC 60335-1:1991 + A1 + A2

As shown in the Test Report Ref. No. which forms part  
of this Certificate  
Comme indiqué dans le Rapport d'essais numéro de  
référence qui constitue une partie de ce Certificat

12012453 003

This CB Test Certificate is issued by the National Certification Body  
Ce Certificat d'essai OC est établi par l'Organisme National de Certification



TÜV Rheinland Group

TÜV Rheinland Japan Ltd.  
Shin Yokohama Daini Center Bldg.  
3-19-5, Shin Yokohama, Kohoku-ku  
Yokohama 222-0033 Japan  
Phone + 81 45 470-1850  
Fax + 81 45 473-5221  
Mail: info@jpn.tuv.com  
Web: www.tuv.com

Signature:

Dipl.-Ing. W. Herlitschke

Date: 08.03.2006

**TEST REPORT****IEC 60335-2-40****Safety of household and similar electrical appliances  
Part 2: Particular requirements for electrical heat pumps, air-conditioners and  
dehumidifiers**

Report Reference No.....: 12012453 003

Compiled by (+ signature) .....: S. Kischka

Approved by (+ signature) .....: M. Kera

Contents.....: 6 pages

Date of issue.....: 2006-03-03

CB Testing laboratory Name.....: TÜV Rheinland Japan Ltd., Yokohama Laboratory

Address.....: 4-25-2 Kita-Yamata, Tsuzuki-ku, Yokohama 224-0021, Japan

Testing location/procedure.....: CBTL  SMT  TMP 

Address.....: Same as above

Applicant's Name.....: Electra Air-Conditioning (Shenzhen) Co.,Ltd.

Address.....: 2 Wuhe Avenue S., Bantian, Buji, Shenzhen, Guangdong, P. R. China

**Test specification**Standard.....: IEC 60335-2-40:1995 + A1:2000 used in conjunction with  
IEC 60335-1:1991 + A1:1994 + A2:1999

Test procedure .....: CB

Non-standard test method.....: N.A.

Test Report Form No.....: IEC60335\_2\_40C

TRF originator.....: AENOR

Master TRF.....: Dated 2002-02

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Test item description.....: Room air conditioner indoor unit

Trademark .....: ELECTRA

Model and/or type reference.....: Alpha series indoor unit

OMEGA series indoor unit

Manufacturer.....: Same as applicant

Factory.....: Same as applicant

Rating(s).....: 220-230V~ 50Hz

Rated Power input: see rating label for details

Refrigerant: R410A

IP20

**Summary of testing**

The clause 17 and clause 29 are considered and check on the appliance.

**Test items particulars**

Serial Number ..... : Prototype samples

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(ail)

**Testing**

Date of receipt of test item ..... : 2006-02-21

Date(s) of performance of test..... : N/A

**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 IEC 60335-1.**

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

"(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.

**History of amendments and modifications:**

Ref. No. 12012453 001, dated 2005-11-19 (original report);

Ref. No. 12012453 002, dated 2006-01-13 (modification report);

Ref. No. 12012453 003, dated 2006-03-03 (modification report);

**Description of modification:**

This report is for alternate components for Alpha and OMEGA series, details please refer to table 24.1  
The alternate controller are identical with original controller except the manufacturer is different, they have same layout, same silkscreen and same components as previous controller.

IEC 60335-2-40			
Clause	Requirement - Test	Result - Remark	Verdict
<b>17</b>	<b>OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS</b>		<b>P</b>
	No excessive temperatures in transformer or associated circuits in event of short-circuits likely to occur in normal use	Approved transformer	N
	Appliance supplied with 1,06 or 0,94 times rated voltage and the most unfavourable short-circuit or overload likely to occur in normal use applied		N
	Temperature rise of insulation of the conductors of safety extra-low voltage circuits not exceeding the relevant value specified in table 3 by more than 15 K		N
	Temperature of the winding not exceeding the value specified in table 6		N
	Except fail-safe transformer complying 15.5 of IEC 61558-1 (IEC 60335-1/A2:1999)		N
<b>29</b>	<b>CREEPAGE DISTANCES, CLEARANCES AND DISTANCES THROUGH INSULATION</b>		<b>P</b>
29.1	Creepage distances and clearances not less than specified in table 13	(See appended table)	P
	Values increased by 4 mm in case of reinforced insulation when resonance voltage		N
	Creepage distances and clearances for circuits with voltages greater than 250 V r.m.s. (345 V peak) comply with table (IEC 60335-2-40:1995)		P
	For motor-compressors with working voltages $\leq 250$ V, 29.1 of IEC 60335-2-34 applies (IEC 60335-2-40:1995)		N
	Creepage distances and clearances for motor-compressors with working voltages $> 250$ V r.m.s. and $\leq 600$ V r.m.s. not less than stated in Table 101 (IEC 60335-2-40:1995)		P
29.2	Distances through insulation not less than 1,0 mm for supplementary insulation, and 2,0 mm for reinforced insulation. Interpretation of this requirement: see Interpretation Sheet I-SH 02, August, 1994		N
29.2.1	Supplementary insulation applied in thin sheet form, other than mica or similar scaly material, consists of at least two layers, each of the layers withstands the electric strength test of 16.3 for supplementary insulation		N
	Reinforced insulation applied in thin sheet form, other than mica or similar scaly material, consists of at least three layers, and any two of the layers together withstand the electric strength test of 16.3 for reinforced insulation		N

IEC 60335-2-40			
Clause	Requirement - Test	Result - Remark	Verdict
29.2.2	Supplementary or reinforced insulation inaccessible and does not exceed the maximum permissible temperature values		N
	Supplementary or reinforced insulation, after conditioning as specified, withstands the electric strength test as specified in 16.3, both at the oven temperature and room temperature		N

24.1	TABLE: COMPONENTS					P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity	
Remark 1: For thermal cut-outs, thermal links of fan motors and transformers which have been approved according to relevant IEC standards, the manufacturer, types and characters not listed in the CDF but should be in this scope authorized by original certification bodies.						
<b>Built-in components with windings: (motors, transformers, magnetic coils etc.)</b>						
Transformer	YINLI	YL-41-120300B	Pri.: 230VAC, 50/60Hz Sec.: 12VAC 300mA Class: B	IEC 61558	TUV 50076114	
<b>Built-in components:(switches, thermostats, heater, plugs, wires, capacitors, sockets, rfi-filters etc.)</b>						
Controller for Alpha 7* Alpha 9* Alpha 12*	H&T	Delta fixed	--	IEC 60335-2-40	Tested with appliance	
Controller for Alpha 17*	H&T	Delta 17 fixed	--	IEC 60335-2-40	Tested with appliance	

29.1	TABLE: MINIMUM CREEPAGE DISTANCES AND CLEARANCES								P	
creepage (cr) and clearance (cl) distance (mm):		Class III appliances		Other appliances, working voltage:						remark
				< 130 V		130-250 V		250-440 V		
		cr	cl	cr	cl	cr	cl	cr	cl	
Between live parts of different potential										
- if protected against deposition of dirt		1,0	1,0	1,0	1,0	<u>3,0</u>	<u>3,0</u>	2,0	2,0	P
- if not protected against deposition of dirt		2,0	1,5	2,0	1,5	<u>4,0</u>	<u>4,0</u>	4,0	3,0	P
- if lacquered or enameled windings		1,0	1,0	1,5	1,5	<u>4,0</u>	<u>4,0</u>	3,0	3,0	P
- for positive temperature coefficient (PTC) resistors including their connecting wires, if protected against deposition of moisture or dirt		—	—	1,0	1,0	1,0	1,0	—	—	N

IEC 60335-2-40										
Clause	Requirement - Test								Result - Remark	Verdict

**CI and Cr measured between:**

1. **L and N on PCB;**
  2. **Input of transformer**
- The shortest value is considered.**

Between live parts and other metal parts over basic insulation:

- if protected against deposition of dirt:										N
- if of ceramic material, pure mica and similar material	1,0	1,0	1,0	1,0	2,5	2,5	—	—		N
- if of other material	1,5	1,0	1,5	1,0	3,0	2,5	—	—		N
- if not protected against deposition of dirt	2,0	1,5	2,0	1,5	<u>4,0</u>	<u>4,0</u>	—	—		P
- if the live parts are lacquered or enamelled windings	1,0	1,0	1,5	1,5	<u>4,0</u>	<u>4,0</u>	—	—		P
- at the end of tubular sheathed-type heating elements	—	—	1,0	1,0	1,0	1,0	—	—		N

**CI and Cr measured between:**

1. **Live part on PCB and earthing metal part;**
  2. **Winding of transformer and enclosure/body;**
  3. **Live part on PCB and lower voltage parts;**
- The shortest value is considered.**

Between live parts and other metal parts over reinforced insulation

- if the live parts are lacquered or enamelled windings	—	—	6,0	6,0	6,0	6,0	—	—		N
- for other live parts	—	—	8,0	8,0	<u>10,0</u>	<u>10,0</u>	—	—		P

**CI and Cr measured between:**

1. **Test finger and internal live part through the gap of enclosure.**
- The shortest value is considered.**

between metal parts separated by supplementary insulation	—	—	4,0	4,0	4,0	4,0	—	—		N
between live parts in recesses in the mounting face of the appliance and the surface to which it is fixed	2,0	2,0	6,0	6,0	6,0	6,0	—	—		N

--End of report--