ETICS OD ECS 040-1 April 2023	Responsible CB TÜVRheinland®

TEST REPORT SUMMARY

Report Number..... :	CN24DK2F 001
Date of issue..... :	2024-03-20
Tested by (name, function, signature):	Ken Ou, PE
Witnessed by (name, function, signature):	N/A
Approved by (name, function, signature):	Mars Yan, Authorizer
Supervised by (name, function, signature):	N/A

Testing Laboratory..... :	TÜV Rheinland (GuangDong) Co., Ltd.
Address..... :	No.199 Kezhu Road, GZ Science City, Guangzhou 510663, P.R.China
Testing procedure..... :	☐ ENEC ☐ CCA NTR
	☒ ENEC based on IECEE CBTC with number: DE 2-041342
Customer Testing Procedure..... :	☐ TMP/CTF Stage 1 ☐ WMT/CTF Stage 2 ☐ SMT/CTF Stage 3
Applicant..... :	TIANCHANG FUAN ELECTRONIC CO., LTD.
Address..... :	286, Renmin East Road, Renhe Town, Tianchang City, 239331 Anhui, P.R. China
Manufacturer..... :	TIANCHANG FUAN ELECTRONIC CO., LTD.
Address..... :	286, Renmin East Road, Renhe Town, Tianchang City, 239331 Anhui, P.R. China
Product..... :	Constant Current LED Driver
Model/Type reference..... :	AAB015-C0350
Trademark..... :	PAIRUI (PAIRUI)
Ratings..... :	I/P: 220-240VAC, 50/60Hz; O/P: Max. 16.8W; SELV; Independent; class II; IP20; ta:50°C, tc:80°C Other information see 'General product information'.
Certification Scheme..... :	☒ ENEC ☐ CCA ☐ Other: _____
Standard(s)..... :	EN 61347-2-13:2014+A1:2017 used in conjunction with EN 61347-1:2015+A1:2021 and EN IEC 62384:2020

☒ The text of the a.m. European Standard was approved by CENELEC is equivalent with the corresponding IEC Publication.

☐ The text of the a.m. European Standard was approved by CENELEC with agreed common modifications and is not equivalent with the corresponding IEC Publication. An EU Deviation Addendum has to be issued.

This EN test report consists of the following parts:

☒ IEC Test Report Number..... :	CN24448P 001 and CN24DK2F 001
☐ EU Deviation Addendum..... :	
☒ OSM Decision Sheets.....	See in page 2

OSM Decision Sheet(s) taken into consideration:

Clause	Subject	OSM Decision Sheet No.
15	varistor (VDR) and gas discharge tube (GDT)	DSH 2183
General	Insulation in SELV transformer	DSH 1069
9	Provision for earthing	DSH 2090A
18.2	Acceptance of Printed circuit boards (PCB)	DSH 2033A
10.4	No-load output voltage	DSH 2120A

Test Report issued under the responsibility of:

TÜVRheinland®

TEST REPORT
IEC 62384
DC or AC supplied electronic controlgear for LED modules – Performance requirements

Report Number..... :	**CN24DK2F 001**
Date of issue..... :	See cover page
Total number of pages..... :	10 pages
Name of Testing Laboratory preparing the Report..... :	**TÜV Rheinland (GuangDong) Ltd.**
Applicant's name..... :	TIANCHANG FUAN ELECTRONIC CO., LTD.
Address..... :	286, Renmin East Road, Renhe Town, Tianchang City, 239331 Anhui, P.R. China
Test specification:	
Standard..... :	IEC 62384:2020
Test procedure..... :	ENEC
Non-standard test method..... :	N/A
TRF template used..... :	IECEE OD-2020-F1:2022, Ed.1.5
Test Report Form No..... :	IEC62384E
Test Report Form(s) Originator... :	IMQ S.p.A.
Master TRF..... :	Dated 2022-12-02

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

General disclaimer:

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 NCB. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test item description..... :	Constant Current LED Driver
Trade Mark(s)..... :	PAIRUI (PAIRUI)
Manufacturer ..... :	Same as applicants
Model/Type reference..... :	AAB015-C0350
Ratings..... :	I/P: 220-240VAC, 50/60Hz; O/P: Max. 16.8W; SELV; Independent; class II; IP20; ta:50°C, tc:80°C Other information see 'General product information'.

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):			
☒	**Testing Laboratory:**	TÜV Rheinland (GuangDong) Ltd.	
Testing location/ address..... :		No.199 Kezhu Road, GZ Science City, Guangzhou 510663, P.R.China	
Tested by (name, function, signature) .... :		See cover page	
Approved by (name, function, signature) :		See cover page	
☐	**Testing procedure: CTF Stage 1:**		
Testing location/ address..... :		N/A	
Tested by (name, function, signature) .... :		N/A	
Approved by (name, function, signature) :		N/A	
☐	**Testing procedure: CTF Stage 2:**		
Testing location/ address..... :		N/A	
Tested by (name + signature) ..... :		N/A	
Witnessed by (name, function, signature):		N/A	
Approved by (name, function, signature) :		N/A	
☐	**Testing procedure: CTF Stage 3:**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address..... :		N/A	
Tested by (name, function, signature) .... :		N/A	
Witnessed by (name, function, signature):		N/A	
Approved by (name, function, signature) :		N/A	
Supervised by (name, function, signature):		N/A	

Summary of testing:

Tests performed (name of test, test clause and date test performed	**Testing location: (CBTL, SPTL, CTF, Subcontractor)**
Performance requirements has been evaluated according to IEC 62384:2020 and EN IEC 62384:2020. This report should be used in conjunction with CB report: CN24448P 001 issued by TÜV Rheinland (Shanghai) Co., Ltd.. All tests performed and passed.	**TÜV Rheinland (GuangDong) Ltd.** No.199 Kezhu Road, GZ Science City, Guangzhou 510663, P.R. China

Summary of compliance with National Differences (List of countries addressed):

EU Group Differences

☒ **The product fulfils the requirements of EN IEC 62384:2020 .**

Use of uncertainty of measurement for decisions on conformity (decision rule) :

☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").

☐ Other:… (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)

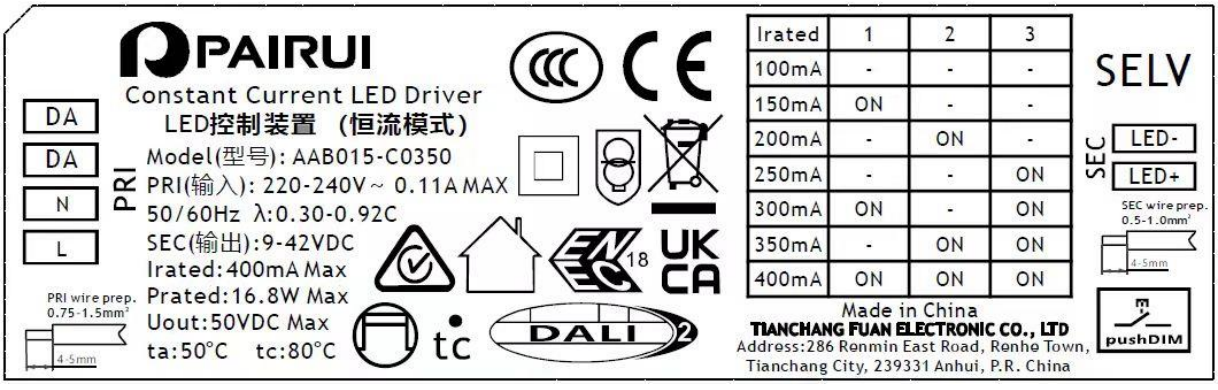
Information on uncertainty of measurement:

The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.

IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

Copy of marking plate:



Test item particulars .....:	LED driver
Classification of installation and use.....:	SELV and Independent controlgear
Supply Connection .....:	Terminal
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.....:	2023.12.28
Date (s) of performance of tests.....:	2023.12.28-2024.01.21

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided.....:	☐ **Yes** ☒ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies).....: **YIGUANG TECHNOLOGY(JIANGSU) CO.,LTD.**
Building 2, Yixing Photoelectric Industrial Park, No.10 xingli Road, Yixing Eco. Tech. Development Zone, 214200 JIANGSU, P.R.CHINA

General product information and other remarks:

Model list:

Model	Input Voltage (VAC)	PF	Input Power	Input current (A)	Output voltage (VDC)	I_{rated} (mA)	P_{rated} (W)	U_{out} (VDC)	t_a (°C)	t_c (°C)
AAB015-C0350	220-240V	0.3-0.92C	20.46W max	0.11A	9-42 VDC	100mA 150mA 200mA 250mA 300mA 350mA 400mA	16.8W max	50VDC max	50	80

5	**CLASSIFICATION**		P
5.1	**Classification according to the load**		P
	a) single value load control gear.....:	Yes ☐ No ☒	N/A
	b) multiple value load control gear.....:	Yes ☒ No ☐	P
5.2	**Classification according to the output voltage**		P
	a) control gear with stabilized output voltage....:	Yes ☐ No ☒	N/A
	b) control gear without stabilized output voltage:	Yes ☒ No ☐	P
5.3	**Classification according to the output current**		P
	a) control gear with stabilized output current.....:	Yes ☒ No ☐	P
	b) control gear without stabilized output current:	Yes ☐ No ☒	N/A
6	**MARKING**		P
6.1	**Mandatory marking**		P
6.1.1	Circuit power factor.....:	See marking plate	P
6.1.2	a) temperature range.....:	-10˚C~ta (Working ambient temperature provided in manual/catalogue.)	P
	b) stabilized output voltage		N/A
	c) stabilized output current		P
	d) operation with a mains supply dimmer		N/A
	e) operation mode		N/A
	f) rated minimum output power.....:	equal to loading of Min. Uout*Min. Iout see “general product information” for details (remark: provided in manual/catalogue.)	P
6.2	**Optional markings**		P
	a) total circuit power.....:	see “general product information” for details	P
	b) symbol for short-circuit proof type control gear		P
7	**OUTPUT VOLTAGE AND CURRENT**		P
7.1	**Starting and connecting requirements**		P
	Output within 110% of the rated value within 2 s		P
7.2	**Voltage and current during operation**		P
	For controlgear with stabilized / non-stabilized output voltage, the output voltage doesn’t differ by more than ±10% of the rated voltage	See appended table	P
	For controlgear with stabilized / non-stabilized output current, the output current doesn’t differ by more than ±10% of the rated current	See appended table	P

7.3	**Capacitive load requirement**		**P**
	LED module or any additional control unit not disturbing the controlgear overcurrent detection		P
	LED module or any additional control unit not disturbing the starting process of the controlgear		P
8	**TOTAL CIRCUIT POWER**		P
	Total circuit power ≤ 110% of the value declared by the manufacturer	See appended table	P
9	**CIRCUIT POWER FACTOR**		P
	Circuit power factor ≥ (marked value - 0,05)	See appended table	P
	Controlgear designed to provide constant luminous flux, provides the maximum output power		P
10	**SUPPLY CURRENT**		P
	Supply current doesn't differ by more than 10% from the marked value	See appended table	P
11	**OPERATIONAL TESTS FOR ABNORMAL CONDITIONS**		P
	Controlgear not damaged		–
	a) without LED module(s) inserted		P
	The LED module(s) operate(s) normally after test a)		P
	b) for reduced LED module resistance	Test under consideration	N/A
	c) for short-circuit proof control gear		N/A
	The controlgear operates normally after the tests and after restoration of a protecting device		N/A
12	**ENDURANCE**		**P**
12.1	a) Temperature cycling shock test (5 cycles) ....:	Non-energised; -10°C(1h); tc(1h); 5 cycles	P
	b) Supply voltage switching test (200+800 cycles) .. :		P
	The controlgear operates an appropriate LED module(s) correctly for 15 min		P
12.2	The controlgear is operated at rated supply voltage and in ambient temperature which produces tc, until a test period of 200 h has passed		P
	The controlgear operates an appropriate LED module(s) correctly for 15 min		P

7.2	TABLE: Voltage and current during operation			P
Supply voltage (a.c. or d.c.)	**Rated output (voltage or current) U_{rated}**	**Measured output (voltage or current) U_{meas}**	**$(U_{meas} - U_{rated})/ U_{rated}$ (%)**	**Comments**
Min. load: 0,1A				
220VAC	9	9	0	0.2m output cord
240VAC	9	9	0	0.2m output cord
220VAC	9	9	0	2m output cord
240VAC	9	9	0	2m output cord
220VAC	42	42	0	0.2m output cord
240VAC	42	42	0	0.2m output cord
220VAC	42	42	0	2m output cord
240VAC	42	42	0	2m output cord
Max. load: 0,4A				
220VAC	9	9	0	0.2m output cord
240VAC	9	9	0	0.2m output cord
220VAC	9	9	0	2m output cord
240VAC	9	9	0	2m output cord
220VAC	42	42	0	0.2m output cord
240VAC	42	42	0	0.2m output cord
220VAC	42	42	0	2m output cord
240VAC	42	42	0	2m output cord

7.2	TABLE: Voltage and current during operation			P
Supply voltage (a.c. or d.c.)	**Rated output (voltage or current) I_{rated}**	**Measured output (voltage or current) I_{meas}**	**$(I_{meas} - I_{rated})/ I_{rated}$ (%)**	**Comments**
Min. load: 9V				
92%*220VAC	0.1	0.095	-5	0.2m output cord
106%*240VAC	0.1	0.095	-5	0.2m output cord
92%*220VAC	0.1	0.095	-5	2m output cord
106%*240VAC	0.1	0.095	-5	2m output cord
Max. load: 42V				
92%*220VAC	0.4	0.41	2.5	0.2m output cord
106%*240VAC	0.4	0.41	2.5	0.2m output cord
92%*220VAC	0.4	0.41	2.5	2m output cord
106%*240VAC	0.4	0.41	2.5	2m output cord

8	TABLE: Total circuit power			P
Supply voltage (a.c. or d.c.)	**Rated power P_{rated} (W)**	**Measured power P_{meas} (W)**	**P_{meas} / P_{rated} (%)**	**Comments**
220	20.46	20.57	100.5	0.2m output cord
240	20.46	20.66	101	0.2m output cord
220	20.46	20.57	100.5	2m output cord
240	20.46	20.66	101	2m output cord
Supplementary information:				

9	TABLE: Total Circuit power factor				P
Supply voltage (a.c.)	**Output power (W)**	**Marked power factor λ_{mark}**	**Measured power factor λ_{meas}**	**λ_{meas} - λ_{mark}**	**Comments**
220	16.8	0.92	0.90	0.02	0.2m output cord
240	16.8	0.92	0.91	0.01	0.2m output cord
220	16.8	0.92	0.90	0.02	2m output cord
240	16.8	0.92	0.91	0.01	2m output cord
220	0.9	0.3	0.47	0.17	0.2m output cord
240	0.9	0.3	0.51	0.21	0.2m output cord
220	0.9	0.3	0.47	0.17	2m output cord
240	0.9	0.3	0.51	0.21	2m output cord

10	TABLE: Supply current			P
Supply voltage (a.c. or d.c.)	**Rated current I_{rated} (A)**	**Measured current I_{meas} (A)**	**$(I_{meas} - I_{rated})/ I_{rated}$ (%)**	**Comments**
220	0.11	0.096	-12.73	0.2m output cord
240	0.11	0.090	-18.18	0.2m output cord
220	0.11	0.096	-12.73	2m output cord
240	0.11	0.090	-18.18	2m output cord
Supplementary information:				

-End of report-