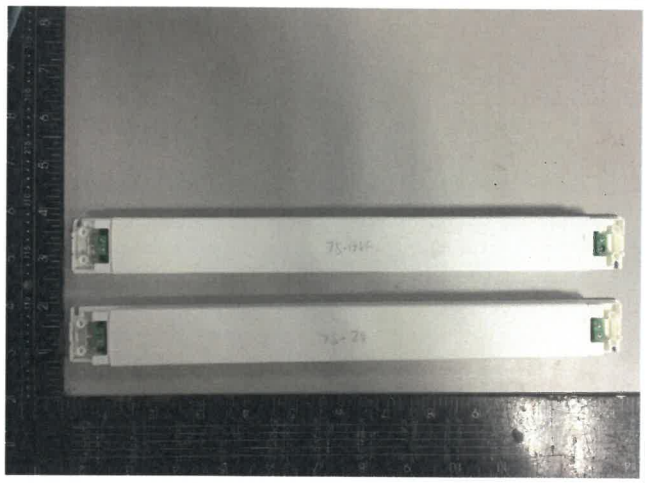
Prüfbericht-Nr.: *Test Report No.:*	**14716224 008**	**Auftrags-Nr.:** *Order No.:*	1160039842	Seite 1 von 19 *Page 1 of 19*
Kunden-Referenz-Nr.: *Client Reference No.:*	N/A	**Auftragsdatum:** *Order date:*	10.10.2017	
Auftraggeber: *Client:*	Ningbo Snappy Optoelectronics Co., Ltd.No.56, Keda Road National Hi-tech park of Ningbo Zhejiang 315040 P.R. China.			
Prüfgegenstand: *Test item:*	LED POWER SUPPLY			
Bezeichnung / Typ-Nr.: *Identification / Type No.:*	SL60-12VF, SL60-24VF, SL75-12VF, SL75-24VF			
Auftrags-Inhalt: *Order content:*	Type test			
Prüfgrundlage: *Test specification:*	EN 61347-1:2015 EN 61347-2-13:2014+A1:2017 EN 62493:2015			

Wareneingangsdatum: *Date of receipt:*	10.10.2017
Prüfmuster-Nr.: *Test sample No.:*	1160039842
Prüfzeitraum: *Testing period:*	10.10.2017 – 04.11.2017
Ort der Prüfung: *Place of testing:*	TÜV Rheinland / CCIC (Ningbo) Co., Ltd.
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland / CCIC (Ningbo) Co., Ltd.
Prüfergebnis*: *Test result*:*	Pass



geprüft von / *tested by*:

Datum / *Date*	Name / Stellung / *Name / Position*	Unterschrift / *Signature*
2017-11-07	Trainee / Kitty Chen Jing Zheng PE	

kontrolliert von / *reviewed by*:

Datum / *Date*	Name / Stellung / *Name / Position*	Unterschrift / *Signature*
2017-11-10	Chengchao Huang / TC	

Sonstiges / *Other*: This report is addtional types based on 14716224 001-007, TUV&CE LVD issued.
The relative items and tests were evaluated with passed.
Attachment 1: Measuring and equipment list (1 page).

Zustand des Prüfgegenstandes bei Anlieferung:
Condition of the test item at delivery:
Prüfmuster vollständig und unbeschädigt
Test item complete and undamaged

* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhaft
	P(ass) = entspricht o.g. Prüfgrundlage(n)		F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
Legend:	*1 = very good*	*2 = good*	*3 = satisfactory*	*4 = sufficient*	*5 = poor*
	P(ass) = passed a.m. test specification(s)		*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

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.
This test report only 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 test mark.

V04

Test Report issued under the responsibility of:

TÜVRheinland®

TEST REPORT
IEC 61347-2-13
Part 2: Particular requirements:
Section 13 – d.c. or a.c. supplied electronic controlgear for LED modules

Report Number. .....:	14716224 008
Date of issue .....:	See cover page
Total number of pages.....	See cover page
Name of Testing Laboratory preparing the Report.....:	TÜV Rheinland / CCIC (Ningbo) Co., Ltd. 3F, Building C13, R&D Park, No.32 Lane 299 Guanghua Road, National Hi-Tech Zone, Ningbo 315048, P.R. China
Applicant's name.....:	Ningbo Snappy Optoelectronics Co., Ltd.
Address .....:	No.56, Keda Road National Hi-tech park of Ningbo Zhejiang 315040 P.R. China.
Test specification:	
Standard .....:	IEC 61347-2-13:2014/AMD1:2016 used in conjunction with IEC 61347-1:2015
Test procedure .....:	TUV mark & CE-LVD
Non-standard test method……..:	N/A
Test Report Form No.....:	IEC61347_2_13F
Test Report Form(s) Originator.....:	Intertek Semko AB
Master TRF.....:	2016-10

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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.

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

Test item description .....:	LED POWER SUPPLY
Trade Mark .....:	Snappy Optoelectronics
Manufacturer.....:	Ningbo Snappy Optoelectronics Co., Ltd. No.56, Keda Road National Hi-tech park of Ningbo Zhejiang 315040 P.R. China.
Model/Type reference.....:	SL60-12VF, SL60-24VF, SL75-12VF, SL75-24VF
Ratings .....:	I/P: AC 200-240V; 50/60Hz; independent; SELV, ta:45℃. Details in “General product information”.

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):			
☒	**Testing Laboratory:**	TÜV Rheinland / CCIC (Ningbo) Co., Ltd.	
Testing location/ address ..... :		3F, Building C13, R&D Park, No.32 Lane 299 Guanghua Road, National Hi-Tech Zone, Ningbo 315048, P.R. China.	
Tested by (name, function, signature) ..... :		See cover page	
Approved by (name, function, signature) .. :		See cover page	
☐	**Testing procedure: TMP/CTF Stage 1:**		
Testing location/ address ..... :			
Tested by (name, function, signature) ..... :			
Approved by (name, function, signature) .. :			
☐	**Testing procedure: CTF Stage 2:**		
Testing location/ address ..... :			
Tested by (name + signature)..... :			
Witnessed by (name, function, signature) . :			
Approved by (name, function, signature) .. :			
☐	**Testing procedure: CTF Stage 3:**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address ..... :			
Tested by (name, function, signature) ..... :			
Witnessed by (name, function, signature) . :			
Approved by (name, function, signature) .. :			
Supervised by (name, function, signature) :			

List of Attachments (including a total number of pages in each attachment):

For assessment of lighting equipment related to human exposure to electromagnetic fields according to EN 62493:2010, test result is passed, detail see TR 14712498 001 in attachment 2 of TR 14716224 001

According to the standard EN 62493:2015, the DUT belongs to unintentional radiating part of lighting equipment. Due to the reason that the DUT fulfils the inherent-compliance condition "It is a LED-light-source technology", the DUT is deemed to comply with requirements of this standard without testing.

Attachment 1: equipment list (1 page).

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
The following tests were based on 14716224 007. Additional types SL60-12VF, SL75-12VF were selected to perform all heating test. Result: Pass.	TÜV Rheinland / CCIC (Ningbo) Co., Ltd. 3F, Building C13, R&D Park, No.32 Lane 299 Guanghua Road, National Hi-Tech Zone, Ningbo 315048, P.R. China.

Summary of compliance with National Differences:

List of countries addressed: N/A

Copy of marking plate

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

NINGBO SNAPPY
OPTOELECTRONICS CO.,LTD
ADD.:NO 56, Keda Road,National
Hi-tech Park of Ningbo,China
P.C.: 315040
Company name
ADD.:XXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX
Batch No.:

Remark:

1. “Manufacture or/and his importer shall ensure product bears label requirements in article 6 and article 8 of the 2014/35/EU relate to name, batch number, post address prior place the product into EU market.”
2. The height of graphical symbols shall not be less than 5 mm.
3. The height of letters and numbers shall not be less than 2 mm.
4. Location: at the outer surface of the enclosure.

Test item particulars .....:	LED POWER SUPPLY
Classification of installation and use .....:	Independent, SELV controlgear
Supply Connection.....:	Terminal block
.....:	
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 .....:	04.09.2017
Date (s) of performance of tests .....:	03.07.2015-03.08.2015 for TR14716224 001 26.07.2017-26.07.2017 for TR14716224 006 10.10.2017-10.20.2017 for TR14716224 007 10.10.2017-10.22.2017 for TR14716224 008

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.

Clause numbers between brackets refer to clauses in IEC 61347-1

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) ..... :	Ningbo Snappy Optoelectronics Co., Ltd. No.56, Keda Road National Hi-tech park of Ningbo Zhejiang 315040 P.R. China

General product information:

1. LED Drivers are constant voltage output control gear and suitable use together with LED lighting source, The LED Drivers for independent use and it is non-inherently short-circuit proof controlgear.

2. All the drivers with safety isolating transformer, provide SELV and reinforce insulation between input circuit and output circuit, and also provide reinforce insulation between input circuit and plastic enclosure.

3. The products SL60-12VF, SL60-24VF, SL75-12VF-1 and SL75-24VF-1 have the same schematic and PCB layout with previous certified models: SNP75-12VF, SNP75-24VL-E in 14716224 007, only change with minor modification on PCB.

Details see below parameter.

Model	Input / frequency	Output voltage	Output current	ta	tc	Max.output power
SL60-12VF	200-240VAC /50/60Hz	12VDC	Max.5A	45°C	80°C	Max.60W
SL60-24VF	200-240VAC /50/60Hz	24VDC	Max.2.5A	45°C	80°C	Max.60W
SL75-12VF	200-240VAC /50/60Hz	12VDC	Max.6.25A	45°C	90°C	Max.75W
SL75-24VF	200-240VAC /50/60Hz	24VDC	Max.3.125A	45°C	90°C	Max.75W

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict

15 (-)	**TRANSFORMER HEATING**		**P**
15.1	**General**		**P**
	Transformer comply with clause L.6 and L.7 of IEC 61347-1		P
	Output voltage of SELV controlgear not exceed limits in 10.4 of IEC 61347-1 during the test of 15.1 and 15.2		P
15.2 (-)	**Normal operation**		**P**
	Comply with clause L.6 of IEC 61347-1		P
15.3 (-)	**Abnormal operation**		**P**
	Comply with clause L.7 of IEC 61347-1		P
	Double LED modules or equivalent load connected in parallel to the output terminals of constant voltage type		P
	Double LED modules or equivalent load connected in parallel to the output terminals of constant current type		N/A
15 (-)	During and at the end of the tests no defect impairing safety, nor any smoke or flammable gases produced		P

16 (15)	**CONSTRUCTION**		**P**
- (15.1)	**Wood, cotton, silk, paper and similar fibrous material**		**P**
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P
- (15.2)	**Printed circuits**		**P**
	Printed circuits used as internal connections complies with clause 14		P
- (15.3)	**Plugs and socket-outlets used in SELV or ELV circuits**		**N/A**
	No dangerous compatibility between output socket-outlet and a plug for socket-outlets for input circuit in relation to installation rules, voltages and frequencies		N/A
	Plugs and socket-outlets for SELV comply with IEC 60906-3 and IEC 60884-2-4		N/A
	Plugs and socket-outlets for SELV ≤ 3 A, ≤ 25 V r.m.s. or ≤ 60 V d.c. and ≤ 72 W comply with IEC 60906-3 and IEC 60884-2-4 or:		N/A

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
	- plugs not able to enter socket-outlets of other standardised system		N/A
	- socket-outlets not admit plugs of other standardised system		N/A
	- socket-outlets without protective earth		N/A
- (15.4.2)	SELV circuits		P
	Source used to supply SELV circuits:		P
	- safety isolating transformer in accordance with relevant part 2 of IEC 61558		P
	- controlgear providing SELV in accordance with relevant part 2 of IEC 61347		P
	- another source		N/A
	Voltage in the circuit not higher than ELV		N/A
	SELV circuits insulated from LV by double or reinforced insulation		N/A
	SELV circuits insulated from non SELV circuits by double or reinforced insulation		N/A
	SELV circuits insulated from FELV circuits by supplementary insulation		N/A
	SELV circuits insulated from other SELV circuits by basic insulation		N/A
	SELV circuits insulated from accessible conductive parts according Table 6 in 15.4.5		N/A
- (15.4.3)	FELV circuits		N/A
	Source used to supply FELV circuits:		N/A
	- separating transformer in accordance with relevant part 2 of IEC 61558		N/A
	- separating controlgear providing basic insulation between input and output circuits in accordance with relevant part 2 of IEC 61347		N/A
	- another source		N/A
	- source in circuits separated by the LV supply by basic insulation		N/A
	Voltage in the circuit not higher than ELV		N/A
	FELV circuits insulated from LV supply by at least basic insulation		N/A
	FELV circuits insulated from other FELV circuits if functional purpose		N/A

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
	FELV circuits insulated from accessible conductive parts according Table 6 in 15.4.5		N/A
	Plugs and socket-outlets for FELV system comply with:		N/A
	- plugs not able to enter socket-outlets of other voltage systems		N/A
	- socket-outlets not admit plugs of other voltage systems		N/A
	- socket-outlets have a protective conductor contact		N/A
- (15.4.4)	Other circuits		N/A
	Insulation between circuits other than SELV or FELV and accessible conductive parts in according Table 6 in 15.4.5.		N/A
- (15.4.5)	Insulation between circuits and accessible conductive parts		N/A
	Accessible conductive parts insulated from active parts of electric circuits by insulating according Table 6		N/A
	Requirements for Class II construction with equipotential bonding for protection against indirect contact with live parts:		N/A
	- all conductive parts are connected together		N/A
	- conductive parts are reliably connected together according test of IEC 60598-1 cl. 7.2.3		N/A
	- conductive parts comply with requirements of Annex A in case of insulation fault		N/A

15	**TABLE: test of transformer heating (☒ Constant voltage ☐ Constant current)**		**P**
	Type reference:	SL-60-12VF	
	Test 1: Normal Operation		—
	1.06 times rated voltage:.....	1,06Un;254,4V, 0,258A, 66,1W	—
		Output: 11,74V, 5,0A, 58,7W	
	Under ta = ...:	45°C	—
	Test 2: Abnormal Operation: Short-circuit the output according to L.7		—
	1.1 or 0.9 times rated voltage:	1,1Un: 264V, 0,052A, 4,43W	—
		Protected	
	ta = ...:	45°C	—

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict

	Test 3: Abnormal Operation: overload according to L.7		—
	1.1 or 0.9 times rated voltage:	1,1Un: 264V, 0,398A, 103,4W	—
		Output: 11,467V, 7,68A, 88,06W	
	ta = ...:	45 °C	—
	Test 4: Abnormal Operation: Double the number of LED modules or equivalent load.		—
	1.1 or 0.9 times rated voltage:	1.1Un:264V, 0,029A, 2,02W	—
		Protected	
	ta = ...:	45°C	—

Temperature (°C) of Part	Cl. 15.1		Cl. 15.2			
	Test 1 (ºC)	Limit[3)]	Test 2 (ºC)	Test 3 (ºC)	Test 4 (ºC)	Limit[3)]
VR1	49,5	85	49,4	51,7	49,4	--
CX2	50,5	110	50,4	53,7	50,5	--
CX3	51,8	110	51,7	56,0	51,7	
T1	70,8	130	72,1	82,2	72,6	--
Q3	87,7	130	84,8	127,9	88,0	--
Q1	86,2	130	87,3	121,1	90,8	--
C7	74,8	105	74,3	96,3	74,5	105
C6	76,6	105	76,0	103,2	76,5	
C22	86,2	105	85,7	119,6	85,9	105
C28	86,8	105	86,7	117,1	86,1	
CY1	81,5	125	86,9	115,3	82,6	--
C4	76,2	105	87,2	109,8	77,4	
C5	81,9	105	79,1	119,9	83,3	105
U3	86,1	130	89,7	124,2	87,2	
PRI. winding of T2	93,5	110	92,9	135,2	93,2	175
SEC. winding of T2	94,7	110	94,1	138,4	94,3	175
PCB	87,6	130	87,2	125,4	87,5	--
Bobbin	91,5	110	89,9	129,1	91,3	--
tc point	78,8	80	78,1	108,7	79,0	110
Mounting surface	78,9	80	78,6	108,7	79,0	110

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict

Enclosure inside	84,4	--	83,7	119,3	84,0	--
Output terminal	64,6	105	65,3	88,8	66,1	--
Input terminal	48,3	105	48,3	49,8	48,3	
Ambient temperature	45,0	--	45,0	45,0	45,0	--

15	TABLE: test of transformer heating (☒ Constant voltage ☐ Constant current)		P
	Type reference:	SL-75-12VF	
	Test 1: Normal Operation		—
	1.06 times rated voltage:.....	1,06Un;254,4V, 0,339A, 83,47W	—
		Output: 11,94V, 6,25A, 74,63W	
	Under ta = ...:	45°C	—
	Test 2: Abnormal Operation: Short-circuit the output according to L.7		—
	1.1 or 0.9 times rated voltage:	1,1Un: 264V, 0,041A, 3,2W	—
		Protected	
	ta = ...:	45°C	—
	Test 3: Abnormal Operation: overload according to L.7		—
	1.1 or 0.9 times rated voltage:	1,1Un: 264V, 0,368A, 92,07W	—
		Output: 12,04V, 6,875A, 82,81W	
	ta = ...:	45 °C	—
	Test 4: Abnormal Operation: Double the number of LED modules or equivalent load.		—
	1.1 or 0.9 times rated voltage:	1.1Un:264V, 0,233A, 36,34W	—
		Output: 3,12V, 8,9A, 30,77W Cycled protected	
	ta = ...:	45°C	—

Temperature (°C) of Part	Cl. 15.1		Cl. 15.2			
	Test 1 (ºC)	Limit[3)]	Test 2 (ºC)	Test 3 (ºC)	Test 4 (ºC)	Limit[3)]
VR1	52,9	85	53,2	55,0	53,4	--

IEC 61347-2-13						
Clause	Requirement + Test			Result - Remark		Verdict
CX2	57,3	110	57,4	64,7	58,1	--
CX3	61,7	110	61,6	66,2	62,1	
T1	80,0	130	80,1	84,2	80,6	--
Q3	101,8	130	102,4	113,2	109,5	--
Q1	100,4	130	102,8	116,0	129,7	--
C7	83,0	105	83,1	88,2	83,5	105
C6	87,3	105	87,9	94,8	90,4	
C22	101,8	105	103,4	111,7	103,0	105
C28	103,7	105	105,3	114,0	104,8	--
CY1	100,3	125	107,1	111,5	104,6	--
C4	103,9	105	102,4	120,0	109,1	--
C5	101,1	105	104,1	113,5	103,1	105
U3	101,0	130	110,5	111,4	108,9	--
PRI. winding of T2	114,0	130	115,1	126,5	117,2	175
SEC. winding of T2	119,7	130	121,1	133,9	127,2	175
PCB	107,6	130	109,0	8118,7	108,8	--
Bobbin	106,1	110	107,4	117,6	108,4	--
tc point	89,5	90	89,2	96,8	89,3	110
Mounting surface	91,3	90	93,7	100,9	93,2	110
Enclosure inside	97,7	110	97,3	106,5	97,3	--
Output terminal	85,2	105	89,6	96,9	90,2	--
Ambient temperature	45,0	--	45,0	45,0	45,0	--

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict

	ANNEX 1: components	

object/part No.	code	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity
Enclosure	B	COVESTRO DEUTSCHLAND AG [PC RESINS]	2807+(z)(f1)	PC; V-2; 125°C	EN 61347-1 EN 61347-2-13	UL E41613 (Test with appliance)
Alternative	D	COVESTRO DEUTSCHLAND AG [PC RESINS]	6557+(z)(f1)	PC; V-2; 125°C	EN 61347-1 EN 61347-2-13	UL E41613 (Test with appliance)
Alternative	D	COVESTRO DEUTSCHLAND AG [PC RESINS]	6265+(z)(f1)	PC; V-0; 125°C	EN 61347-1 EN 61347-2-13	UL E41613 (Test with appliance)
PCB	B	WALEX ELECTRONIC (WUXI) CO.,LTD	T4/T5 FR-4	V-0 or better, 130 °C	EN 61347-1 EN 61347-2-13	UL:E154355 (Test with appliance)
Alternative	D	KUNSHAN CITY SUYUAN ELECTRON CO LTD	SY-3	V-0 or better, 130 °C	EN 61347-1 EN 61347-2-13	UL:E233870 (Test with appliance)
Alternative	D	LEUCHTEK ELECTRONICS (ZHEJIANG) CO LTD	PFR-4	V-0 or better, 130 °C	EN 61347-1 EN 61347-2-13	UL:E199273 (Test with appliance)
CON1/CON2	B	DONGGUANSHI CHANGHE ELECTRONICS CO LTD	CA350-04-500	2.5-4.0mm², 250V/10A 110 °C	DIN EN 60998-2-1 DIN EN 60998-1	VDE:40021481
Alternative	D	Putian Hanjiang Fucon Electronics Co., Ltd.	CM200	0.5-1.5mm²，250V/10A 120°C	DIN EN 60998-2-1 DIN EN 60998-1	VDE:40022547
Alternative	D	Cixi Kaifeng Electronic Co., Ltd.	KF126	0,5 - 2,5 mm² ,250 V/18A 105°C	DIN EN 60998-2-1 DIN EN 60998-1	VDE:40041233

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict

Alternative	D	HEAVY POWER CO LTD	PA001	0.5-1.5mm², 250V/17.5A 110 °C	DIN EN 60998-2-1 DIN EN 60998-1	VDE:40019265
Fuse F1	B	XC Electronics (Shen Zhen) Corp. Ltd.	5TE	AC 250V;2A	IEC60127-1 IEC60127-3	VDE:40029550
Alternative	D	Conquer Electronics Co.,Ltd	MST	AC 250V;2A	IEC60127-1 IEC60127-3	VDE:40017118
Alternative	D	walter Electronics Co.,Ltd	2010series	AC 250V;2A	IEC60127-1 IEC60127-3	VDE:40018781
Alternative	D	SUNNY EAST ENTERPRISE CO LTD	TSP	AC 250V;2A	IEC60127-1 IEC60127-3	VDE:40027173
Varistor (VR1)	B	BrightkingCo.,Ltd	07D471K 471KD07	300VAC T85	IEC61051-1 IEC61051-2 IEC61051-2-2	VDE:40027827
Alternative	D	JoyinCo.,Ltd	07N471K	300VAC T85	IEC61051-1 IEC61051-2 IEC61051-2-2	VDE: 005937
Alternative	D	Thinking Electronic Co.,Ltd.	TVR07471	300VAC T85	IEC61051-1 IEC61051-2 IEC61051-2-2	VDE:005944

IEC 61347-2-13						
Clause	Requirement + Test			Result - Remark		Verdict
Alternative	D	Thinking Electronic Co.,Ltd.	TVR07471-M-	300VAC T125	IEC61051-1 IEC61051-2 IEC61051-2-2	VDE:40036061
X2 Capacitor (CX2/CX3)	B	FARATRONIC	MKP62	275VAC 0.15 uF T110	IEC 60384-14	VDE:40000358
Alternative	D	DAIN ELECTRONICS CO LTD	MPX	275VAC 0.15uF T110	IEC 60384-14	VDE:40018798
Alternative	D	UITRA TECH XIPHI ENTERPRISE CO.,LTD	HQX	275VAC 0.15uF T100	IEC 60384-14	VDE:40024534
Alternative	D	CARLI ELECTRONICS CO LTD	MPX	275VAC 0.15uF T100	IEC 60384-14	VDE:40008520
Alternative	D	KEMET ELECTRONICS CORPORATION	R.46	275VAC 0.15uF T100	IEC 60384-14	ENEC:DAT97000141
Alternative	D	Shenzhen Chuangshuoda Electronics Co., Ltd.	MPX	275VAC 0.15uF T110	IEC 60384-14	VDE:40037763
Alternative	D	ZHUHAI SUNG HO ELECTRONICS CO. LTD.	CMPP	275VAC 0.15uF T110	IEC 60384-14	VDE:40026078
Y1 Capacitor (CY1)	B	JYA-NAY CO.,LTD.	JN	AC 400V;Y1;2200pF; T125	IEC 60384-14	TUV:HN69242987
Alternative	D	Murata Mfg. Co., Ltd.	KX	AC 440V;Y1;2200pF; T125	IEC 60384-14:	VDE:40002831
Alternative	D	TDK	CD	AC 440V;Y1;2200pF; T125	IEC 60384-14:	VDE:40029780
Alternative	D	SUCCESS ELECTRONICS	SE	AC 500V;Y1;2200pF; T125	IEC 60384-14:	VDE:40020002
Bridge diode (75W BD2) (60W BD1)	B	GALAXY	TB10S	Min. 0.8A, 1000V	EN 61347-1 EN 61347-2-13	Test with appliance

IEC 61347-2-13						
Clause	Requirement + Test			Result - Remark		Verdict
Alternative	D	CHONGQING PINGWEI ENTERPRISE CO.,LTD	TB10S	Min. 0.8A, 1000V	EN 61347-1 EN 61347-2-13	Test with appliance
Alternative	D	GALAXY	MMB10G	1A, 1000V	EN 61347-1 EN 61347-2-13	Test with appliance
Alternative	D	GALAXY	TBF10M	1A, 1000V	EN 61347-1 EN 61347-2-13	Test with appliance
Alternative	D	LITEON	TD10M	1A, 1000V	EN 61347-1 EN 61347-2-13	Test with appliance
Alternative	D	LITEON	ABS10	1A, 1000V	EN 61347-1 EN 61347-2-13	Test with appliance
Alternative	D	PANJIT	MB10F-10	1A, 1000V	EN 61347-1 EN 61347-2-13	Test with appliance
Alternative	D	PANJIT	MB10FQ-08	1A, 1000V	EN 61347-1 EN 61347-2-13	Test with appliance
Photo Coupler (U3)	B	Everlight Electronics Co., Ltd.	EL817-B	Cr=Cl>6.5mm 110°C	IEC 60747-5-5	VDE:132249
Alternative	D	Cosmo Electronic Corp	K1010/KPC817	Cr=Cl>6.5mm 115°C	DIN EN 60747-5-5	VDE:101347
Alternative	D	Sharp Corporation	PC123/PC817	Cr=Cl>6.5mm 100°C	DIN EN 60747-5-5	VDE:40008087
Alternative	D	Lite-onTechnology	LTV817	Cr=Cl>6.5mm 110°C	IEC 60747-5-2	VDE:40015248
Transformer (T2)(FOR 75W 12V)	B	Ningbo Snappy Optoelectronics	SNP5.770.324	N1:20Ts(Φ0.35mmX1); N2: 2Ts(Φ0.6mmX1); N3: 2Ts(Φ0.6mmX1); N4:16Ts(Φ0.35mmX1); Nf:5Ts(0.17mmX1);	EN 61347-1 EN 61347-2-13	Test with appliance

IEC 61347-2-13						
Clause	Requirement + Test			Result - Remark		Verdict
Alternative	D	Jiangxi Yongning Electronic Science and Technology Co., Ltd	YN5.770.324	N1:20Ts(Φ0.35mmX1); N2: 2Ts(Φ0.6mmX1); N3: 2Ts(Φ0.6mmX1); N4:16Ts(Φ0.35mmX1); Nf:5Ts(0.17mmX1);	EN 61347-1 EN 61347-2-13	Test with appliance
Transformer (T2)(FOR 75W 24V)	B	Ningbo Snappy Optoelectronics	SNP5.770.325	N1:20Ts(Φ0.35mmX1); N2: 4Ts(Φ0.45mmX1); N3: 4Ts(Φ0.45mmX1); N4:16Ts(Φ0.35mmX1); Nf:5Ts(0.17mmX1);	EN 61347-1 EN 61347-2-13	Test with appliance
Alternative	D	Jiangxi Yongning Electronic Science and Technology Co., Ltd	YN 5.770.325	N1:20Ts(Φ0.35mmX1); N2: 4Ts(Φ0.45mmX1); N3: 4Ts(Φ0.45mmX1); N4:16Ts(Φ0.35mmX1); Nf:5Ts(0.17mmX1);	EN 61347-1 EN 61347-2-13	Test with appliance
Transformer (T2)(FOR 60W 12V)	B	Ningbo Snappy Optoelectronics	SNP5.770.247	N1:20Ts(Φ0.35mmX1); N2: 2Ts(Φ0.6mmX1); N3: 2Ts(Φ0.6mmX1); N4:14Ts(Φ0.35mmX1); Nf:5Ts(0.17mmX1);	EN 61347-1 EN 61347-2-13	Test with appliance
Alternative	D	Jiangxi Yongning Electronic Science and Technology Co., Ltd	YN5.770.247	N1:20Ts(Φ0.35mmX1); N2: 2Ts(Φ0.6mmX1); N3: 2Ts(Φ0.6mmX1); N4:14Ts(Φ0.35mmX1); Nf:5Ts(0.17mmX1);	EN 61347-1 EN 61347-2-13	Test with appliance
Transformer (T2)(FOR 60W 24V)	B	Ningbo Snappy Optoelectronics	SNP5.770.248	N1:20Ts(Φ0.35mmX1); N2: 4Ts(Φ0.45mmX1); N3: 4Ts(Φ0.45mmX1); N4:14Ts(Φ0.35mmX1); Nf:5Ts(0.17mmX1);	EN 61347-1 EN 61347-2-13	Test with appliance
Alternative	D	Jiangxi Yongning Electronic Science and Technology Co., Ltd	YN5.770.248	N1:20Ts(Φ0.35mmX1); N2: 4Ts(Φ0.45mmX1); N3: 4Ts(Φ0.45mmX1); N4:14Ts(Φ0.35mmX1); Nf:5Ts(0.17mmX1);	EN 61347-1 EN 61347-2-13	Test with appliance
Primary Wire	B	SHANDONG SAINT ELECTRIC CO., LTD	QA/130, QA/130 Litz MW75	130°C	EN 61347-1 EN 61347-2-13	UL:E194410 (Test with appliance)

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict

Triple insulation wire	B	TOTOKU ELECTRIC CO.,LTD	TIW-2 series	130°C	IEC 60950-1	VDE:40005152
Alternative	D	TOTOKU ELECTRIC CO.,LTD	TIW-3 series	130°C	IEC 60950-1	VDE:40005154
Alternative	D	GREAT LEOFLON INDUSTRIAL CO.,LTD	TRW(B)	130°C	IEC 60950-1	VDE:136581
Varnish	B	SUZHOU TAIHU ELECTRIC ADVANCED MATERIAL CO.,LTD	T-4260(a)	130°C	EN 61347-1 EN 61347-2-13	UL:E228349 (Test with appliance)
Bobbin	B	CHANG CHUN PLASTICS CO.,LTD	T375J	V-0, 150°C	EN 61347-1 EN 61347-2-13	UL:E59481 (Test with appliance)
Insulating tape	B	JINGJIANG JINGYI ADHESIVE PRODUCT CO.,LTD	JY25-A(b)	130°C	EN 61347-1 EN 61347-2-13	UL:E246950 (Test with appliance)
Teflon tube	B	GREAT HOLDING INDUSTRIAL CO.,LTD	TFL	150V 200°C VW-1	EN 61347-1 EN 61347-2-13	UL:E156256 (Test with appliance)

The codes above have the following meaning:

A - The component is replaceable with another one, also certified, with equivalent characteristics

B - The component is replaceable if authorised by the test house

C - Integrated component tested together with the appliance

D - Alternative component

< End of Report>

TÜVRheinland®
Precisely Right.

Measurement Equipment List

Testing Start Date 19.09.2017
Testing end date 12.10.2017

Project Manager Kitty Cheng

Test Report Number 14712600 007
Order Item Number 1160038984B00270

Customer Ningbo Snappy
Product Name LED power supply
Comment

Old ID	Equip.	Description	Model	Manufacturer	Inte. (mon)	Due Date
1.243	1809691	Temp. & Humidity recorder	175H1	Testo	12	10.03.2018
1.383	1809800	Oven	ST-120B1	ESPEC	12	08.03.2018
1.384	1809801	Oven	ST-120B1	ESPEC	12	08.03.2018
1.456A	1810406	Electronic Load	IT8722	Itech	12	06.09.2018
1.456B	1810407	Electronic Load	IT8722	Itech	12	06.09.2018
1.026A	1809469	Hybrid recorder	GP20-1C1H	YOKOGAWA	12	20.03.2018
1.381N	1809797	Data acquisition unit	34972A	Keysight	12	07.09.2018
1.601	1809937	AC Power Supply	PCR2000M	KIKUSUI	12	24.11.2017
1.005F	1809435	Digital power meter	WT310-H-C2/G5	YOKOGAWA	12	30.06.2018
1.604	1809941	Electronic Load	IT8702	Itech	12	06.09.2018
1.601A	1809938	AC Power Supply	ANFS030A	Ainuo	12	10.01.2018

* No entry for devices that are not subject to regular gauging or calibration

Signature: Yuil Zhang 2017.10.12