CE LVD
TEST REPORT

For

LED EMERGENCY LIGHT

Model No.:	**VT-510, VT-514, VT-515, VT-518, VT-530, VT-511, VT-503, VT-525**
Applicant :	**V-TAC EXPORTS LIMITED**
	ROOM NO.301, KAM ON BUILDING 176A QUEENS ROAD CENTRAL, CENTRAL, HONGKONG
Manufacturer :	**V-TAC EXPORTS LIMITED**
	ROOM NO.301, KAM ON BUILDING 176A QUEENS ROAD CENTRAL, CENTRAL, HONGKONG
Issued By :	**Global-Standard Testing Service Co., Ltd.**
	Room 1911-1914, Noble Plaza, Qian Jin 1st Road, Bao An district Shenzhen, Guangdong, China.
Tel :	**+86 755 33863599**
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Report Number :	**J02.06.0191S-R1**
Issued Date :	**January 02, 2018**
Date of Report :	**January 02, 2018**

Note:

1. The test data and result is based on the tested sample only.
2. Please verify information in the report on GST web: www.gstslab.com through report number.
3.

Test Report

EN 61347-1: 2015

Luminaires — Part 1: General and safety requirements

EN 61347-2-7: 2012

Particular requirements for d.c. or a.c. supplied electronic controlgear for LED modules

Report reference No. ……..……:	J02.06.0191S-R1
Testing laboratory ……..……:	Global-Standard Testing Service Co., Ltd.
Location……..……:	Room 1911-1914, Noble Plaza, Qian Jin 1st Road, Bao An district, Shenzhen, Guangdong, China.
Applicant……..……:	V-TAC EXPORTS LIMITED
Address:……..……:	ROOM NO.301, KAM ON BUILDING 176A QUEENS ROAD CENTRAL, CENTRAL, HONGKONG
Manufacturer……..……:	V-TAC EXPORTS LIMITED
Address:……..……:	ROOM NO.301, KAM ON BUILDING 176A QUEENS ROAD CENTRAL, CENTRAL, HONGKONG
Standards……..……:	EN 61347-2-7: 2012 EN 61347-1: 2015
Procedure deviation……..……:	N/A
Non-standard test method……..……:	N/A
Type of test equipment ……..……:	LED EMERGENCY LIGHT
Trade mark……..……:	V-TAC
Model/Type designation……..……:	VT-510, VT-514, VT-515, VT-518, VT-530, VT-511, VT-503, VT-525
Rating……..……:	Input: AC200-240V, 50/60Hz Output: DC30-42V, Max.10W. Ta: 50℃, Tc: 70℃.
Test item particulars.....:	--
Operating Condition.....:	Continuous
Tested for IT power systems.....:	No
IT testing, phase-phase voltage (V).....:	N/A.
Protection against ingress of water.....:	IP20

Possible test case verdicts:	
test case does not apply to the test object	N(/A.)
test object does meet the requirement	P(ass)
test object does not meet the requirement	F(ail)

Name and address of the testing laboratory :

Global-Standard Testing Service Co., Ltd.

Room 1911-1914, Noble Plaza, Qian Jin 1st Road, Bao An District, Shenzhen, Guangdong, China.

Tested by : Sean Xiao — December 15, 2017

Signature — Date

Sean Xiao / Engineer

Name/title

Reviewed by : Jerry Hu — January 02, 2018

Signature — Date

Jerry Hu / Supervisor

Name/title

Approved by : Global Standard Testing Service Co.,Ltd. APPROVED — January 02, 2018

Signature — Date

Tim Sun / Supervisor

Name/title

General remarks: Clause number between brackets refer to clauses in IEC 61347-1 "(see remark #)" refers to a remark 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. 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 testing laboratory. Unless otherwise specified, test are made under normal conditions at an ambient temperature within the range of 15℃ to 35℃, RH45% to 75% and an air pressure of 860mbar of 1060mbar	

General remarks:

The test results presented in this report relate only to the object tested;

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

The model VT-518 as representive model to perform all test in report.

This report is based on report J02.06.0191S, dated July 11, 2017.

Label

Representative

Note:

1. Due to similarity of the labels, only above label was listed;

2. All labels have the same format excep for model name and wattage;

3. The height of WEEE directive mark is at least 7mm height,and CE directive mark is at least 5mm height.

IEC 61347-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
4 (4)	**GENERAL REQUIREMENTS**		P
- (4)	Insulation materials for double or reinforced insulation according requirements in Annex N of IEC 61347-1	(see Annex N)	P
- (4)	Compliance of independent controlgear enclosure with IEC 60 598- 1		P
- (4)	Built-in magnetic ballast with double or reinforced insulation comply with Annex I of IEC 61347-1		N
- (4)	Built-in electronic controlgear with double or reinforced insulation comply with Annex O of IEC 61347-1	(see Annex O)	N
- (4)	SELV controlgear comply with Annex L of IEC 61347-1	(see Annex L)	P
4 (-)	Each lamp type tested according clause 15 – 20, 22 and 34 and lamp with highest rated power in other tests		—
4 (-)	Controlgear with automatic test function tested according Annex K	(see Annex K)	N

6 (6)	**CLASSIFICATION**		**P**
	Built-in controlgear ..... :	Yes ☐ No ☒	—
	Independent controlgear..... :	Yes ☒ No ☐	—
	Integral controlgear ..... :	Yes ☐ No ☒	—
	With automatic test function .....:	Yes ☐ No ☒	—

7 (7)	**MARKING**		P
7.1 (7.1)	Mandatory markings		P
	a) mark of origin	See label	P
	b) model number or type reference	See label	P
	c) symbol for independent controlgear, if applicable		N
	d) correlation between interchangeable parts and controlgear marked		N
	e) rated supply voltage (V)		P
	supply frequency (Hz)	See label	P
	supply current (A)	See label	N

IEC 61347-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
	f) earthing symbol		N
	k) wiring diagram	See label	P
	l) value of t_c		P
7.1 (-)	- open circuit voltage (V)	DC42V	P
	- controlgear without enclosure marked with a) and b) above		N
	- type and current rating of fuse, if applicable		N
	- symbol if the controlgear comply with this part 2		N
	- symbol if the controlgear is provided with automatic test function		N
	- maximum working voltage between output terminals (V)		P
	- maximum working voltage between any output terminal and earth, if applicable (V)		N
7.1 (7.2)	Marking durable and legible		P
	Rubbing 15 s water, 15 s petroleum; marking legible		P
7.2 (7.1)	Information to be provided, if applicable:		P
	h) declaration on protection against accidental contact		P
	i) cross-section of conductors (mm²)		N
	j) number, type and wattage of lamp(s)		P
	n) additional heat sink		N
7.2 (-)	- suitable for use only on battery supply not having a trickle or intermittent re-charging circuits		P
	- rated duration of operation (hr)		P
	- for use in luminaries for high-risk task area lighting		N
	- proof against supply voltage polarity reversal		N
	- emergency ballast lumen factor (EBLF)		N
	- limits of ambient temperature range within which the ballast will start and operate		P
	- type of insulation between the supply and the battery circuit (non, basic or double/reinforced)	reinforced	P

IEC 61347-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
	- recharge the battery normally after the test of 22.3		P
	- supply current for each lamp		N
	Information for correct battery selection:		P
	- technology of the battery		P
	- type designation		P
	- capacity		P
	- voltage		P
	- maximum charge current		P
	- minimum charge current		N
	- charge voltage limits		P
	- maximum discharge current		N
	- minimum discharge current		N
	- discharge voltage limits		P
	- temperature rating		P
	- type and manufacturer		N
	- information regarding the installation, commissioning and use if with automatic test function		N
8 (10)	**PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS**		**P**
- (10.1)	Controlgear protected against accidental contact with live parts		P
- (A2)	Voltage measured with 50 kΩ	(see Annex A)	P
- (A3)	Voltage > 35 V peak or > 60 V d.c. or protective impendence device	(see Annex A)	P
- (10.1)	Lacquer or enamel not used for protection or insulation		P
	Adequate mechanical strength on parts providing protection		P
- (10.2)	Capacitors > 0,5 μF: voltage after 1 min (V): < 50 V ..... :		P
- (10.3)	Controlgear providing SELV		P

IEC 61347-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
	Accessible conductive parts are insulated from live parts by double or reinforced insulation in SELV controlgear		P
	No connection between output circuit and the body or protective earthing circuit		P
	No possibility of connection between output circuit and the body or protective earthing circuit through other conductive parts		P
	SELV outputs separated by at least basic insulation		P
	ELV conductive parts insulated as live parts		P
	Tests according Annex L of IEC 61347-1		P
- (10.4)	Accessible conductive parts in SELV circuits		P
	Output voltage under load ≤ 25 V r.m.s. or ≤ 60 V d.c.		P
	If output voltage > 25 V r.m.s. or > 60 V d.c.; No load output ≤ 35 V peak or ≤ 60 V d.c and touch current does not exceed 0,7 mA (peak) or 2 mA d.c. ..... :		N
	One conductive part is insulated if output voltage or current exceeding the values above and withstand test voltage 500 V		N
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N
	Y1 or Y2 capacitors comply with IEC 60384-14		N
	Resistors comply with test (a) in 14.1 of IEC 60065		N
9 (8)	**TERMINALS**		N
- (8)	Screw terminals according section 14 of IEC 60598-1:		N
	Separately approved; component list	(see Annex 1)	N
	Part of the controlgear	(see Annex 2)	N
	Screwless terminals according section 15 of IEC 60598-1:		N
	Separately approved; component list	(see Annex 1)	N
	Part of the controlgear	(see Annex 3)	N

IEC 61347-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
10 (9)	**PROVISION FOR PROTECTIVE EARTHING**		N
- (9.1)	Provisions for protective earthing		N
	Terminal complying with clause 9		N
	Locked against loosening and not possible to loosen by hand		N
	Not possible to loosen clamping means unintentionally on screwless terminals		N
	Earthing via means of fixing		N
	Earthing terminal only used for the earthing of the control gear		N
	All parts of material minimizing the danger of electrolytic corrosion		N
	Made of brass or equivalent material		N
	Contact surface bare metal		N
- (9.2)	Provision for functional earthing		N
	Comply with clause 8 and 9.1		N
- (9.3)	Earth contact via the track on the printed board		N
	Test with a current of 25 A between earthing terminal and each of the accessible metal parts; measured resistance (Ω) at ≥ 10 A according 7.2.3 of IEC 60598-1: < 0,5 Ω ..... :		N
- (9.4)	Earthing of built-in lamp controlgear		N
	Earth by means of fixing to earthed metal of luminaire in compliance of 7.2 of IEC 60598-1		N
	Earthing terminal only for earthing the built-in controlgear		N
- (9.5)	Earthing via independent controlgear		N
- (9.5.1)	Earth connection to other equipment		N
	Looping or through connection, conductor min. 1,5 mm² and of copper or equivalent		N
	Protective earthing wires in line with 5.3.1.1 and clause 7		N
- (9.5.2)	Earthing of the lamp compartments powered via the independent lamp controlgear		N

IEC 61347-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
	Test with a current of 25 A between input and output earth terminals; measured resistance (Ω) between earthing terminal and each of the accessible metal parts at ≥ 10 A according 7.2.3 of IEC 60598-1: < 0,5 Ω ..... :		N
	Output earthing terminal marked as in 7.1 t) of IEC 61347-1		N
11 (11)	**MOISTURE RESISTANCE AND INSULATION**		**P**
	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance with d.c. 500 V (MΩ):		P
	For basic insulation ≥ 2 MΩ ..... :		P
	For double or reinforced insulation ≥ 4 MΩ ..... :		P
	Between primary and secondary circuits in controlgear providing SELV, values in Annex L in IEC 61347-1		P
12 (12)	**ELECTRIC STRENGTH**		**P**
- (12)	Immediately after clause 11 electric strength test for 1 min		P
	Basic insulation for SELV, test voltage 500 V	500 V	P
	Working voltage ≤ 50 V, test voltage 500 V	500 V	P
	Working voltage > 50 V ≤ 1000 V, test voltage (V):		N
	Basic insulation, 2U + 1000 V	1480V	P
	Supplementary insulation, 2U + 1000 V	1480V	P
	Double or reinforced insulation, 4U + 2000 V	2960V	P
	No flashover or breakdown		P
	Solid or thin sheet insulation for double or reinforced insulation fulfil the requirements in Annex N in IEC 61347-1		P
15 (-)	**STARTING CONDITIONS**		**P**
	- after the switching test the ballast operate the lamps at rated operating voltage		P
	- the lamps start and operate from the appropriate mains operation reference ballast/circuit		P

IEC 61347-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
16 (-)	**LAMP CURRENT** (only for fluorescent lamps)		P
	Lamp current not exceeding 125 % of that delivered to the same lamp when operated with a reference controlgear		P
17 (-)	**SUPPLY CURRENT**		**P**
	At the rated operating voltage, the supply current from the battery differ not more than ± 15 % from the marked value when operated with reference lamp		P
18 (-)	**MAXIMUM CURRENT IN ANY LEAD (WITH CATHODE PREHEATING)**		**P**
	If fluorescent lamp, the current flowing in any cathode termination not exceed the value given in lamp data sheet of IEC 60081 and IEC 60901	(see appended table)	P
19 (-)	**LAMP OPERATING CURRENT WAVEFORMS** (only for fluorescent lamps)		**P**
	The peak current does not exceed 1,7 times the rated lamp current specified on lamp data sheets of IEC 60081 and IEC 60901 .....:		P
	The peak current does not exceed 3 times the measured r.m.s. lamp current ..... :		P
20 (-)	**FUNCTIONAL SAFETY (EBLF)** (only for fluorescent lamps)		**P**
	The controlgear provide the necessary light output after change over to the emergency mode		P
	- lowest value measured at 60 s and V_1 or in steady conditions at V_{min} be retained and at least the declared EBLF .....:		P
	- value measured at 5 s and V_1 reach at least 50 % of declared EBLF .....:		P
21 (-)	**CHANGE-OVER OPERATION**		**P**
	Change over from normal to emergency mode at not less than 0,6 times and not greater than 0,85 times rated supply voltage		P

IEC 61347-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
	Change over voltage (V)..... :		P
	Supply reduced within 0,5 s to 0,6 times rated voltage, emergency lamps operated		P
	Switching of supply at 0,85 times rated voltage for 500 cycles 2 s ″off″ and 2 s ″on″. After these cycles, supply reduced to 0,6 times rated voltage. Emergency lamps operated during emergency mode and after the test.		P
	Controlgear with rest mode: automatic changeover from rest mode to normal mode at not greater than 0.9 times rated supply voltage		P
22 (-)	**RECHARGING DEVICE**		N
	Recharging device provide the rated charge performance specified by the battery manufacturer to charge the battery within 24 h		N
	Transformers in the recharging device comply with relevant parts of IEC 61558-2-1, IEC 61558-2-6 and IEC 61558-2-16		N
22.1 (-)	Low temperature operation		N
	Charged battery for 48 h and then discharged until voltage indicated in table 2 is achieved at 20 °C ± 5 °C		N
	Charged battery at 0,9 times rated supply voltage at minimum ambient temperature for 24 h		N
	Simulating supply failure, lamp operated for rated duration of operation and at the end the battery voltage is at least V_{min} according clause 20		N
22.2 (-)	High temperature operation		N
	Charged battery for 48 h and then discharged until voltage indicated in table 2 is achieved at 20 °C ± 5 °C		N
	Charged at 0,9 times rated supply voltage at maximum ambient temperature for 24 h		N
	Simulating supply failure, lamp operated for rated duration of operation and at the end the battery voltage is at least V_{min} according clause 20		N
22.3 (-)	Abnormal operating condition		N

IEC 61347-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
	Recharging device operated at 1,1 times rated supply voltage and maximum marked ambient temperature with battery disconnected and output short-circuited		N
	- no flames, molten material or flammable gases		N
	After the test period and short-circuit removed		N
	- the recharging device is safe		N
	- normal recharge if self-resetting or user-replaceable protective devices		N
22.4 (-)	Maximum output voltage		N
	Output voltage of recharging device ≤ 50 V r.m.s. at 1,1 times rated supply voltage with or without batteries connected (V)..... :		N
22.5 (-)	Battery charge and discharge characteristics		N
	Charged battery for 48 h and then discharged until voltage indicated in table 2 is achieved at 20 °C ± 5 °C		N
	Charged at 0,9 and 1,1 times rated supply voltage at 25 °C ± 2 °C for 24 h		N
	Current and voltage characteristics within those declared by controlgear manufacturer		N
22.6 (-)	Lamp failure		N
	Lamp failure do not interrupt charging current to battery and not impair the operation of the battery		N
23 (-)	**PROTECTION AGAINST EXCESSIVE DISCHARGE**		P
	Protection against polarity reversal of individual cells, limits the discharge current when the battery voltage has fallen to V_{low} according a) to c)		P
	- Discharge current (A) ..... :		P
	Protection system prevents any further discharge until the normal supply has been restored. Battery voltage not below V_{low} and discharge current not exceed a) to c)		P
	- Battery voltage (V) ..... :		P
	- Discharge current (A) ..... :		P
24 (-)	**INDICATOR**		N
	Compliance with 22.6.7 of IEC 60598-2-22		N

IEC 61347-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
25 (-)	**REMOTE CONTROL, REST MODE, INHIBITION MODE**		N
25.1 (-)	No other changeover device than the switch between the battery and emergency lighting lamps		N
	Not contain manual or non-self-resetting switch isolating the emergency circuit from main supply		N
25.2 (-)	If rest mode facility, operation automatically revert to normal mode if restoration of normal supply		N
	If remote inhibiting facilities, provided with a means of connection to the remote inhibiting circuit		N
25.3 (-)	If for remote inhibiting facilities, in the emergency mode, not influenced by short circuit or contact to earth in the wiring to the remote control		N
	- Simulation of above faults in conjunction with tests of 28.2		N
25.4 (-)	Operation of remote control independent of the battery and mains supply		N
25.5 (-)	If rest mode facility in the emergency mode , not influenced by short circuit, contact to earth or interruption in the wiring to the remote control changeover device		N
	- Simulation of above faults in conjunction with tests of 28.2		N
25.6 (-)	If rest mode or inhibiting facilities, in rest mode, current drain from batteries not exceed the values in 25.6		N
	- Discharge current (A) ..... :		N
26 (-)	**TEMPERATURE CYCLING TEST AND ENDURANCE TEST**		**P**
26.a (-)	Temperature cycling test: 5 cycles;		P
	- 1 h at minimum ambient temperature (°C) .....:	0 °C	P
	- 1 h at maximum ambient temperature (°C) .....:	50 °C	P
26.b (-)	Endurance test 50 h at an ambient that produces tc; ambient temperature (°C) ..... :		P
	After test, controlgear restart and operate lamps at rated operating voltage		P
27 (-)	**POLARITY REVERSAL**		**P**
	If declared to be proof against polarity reversal, operating with reverse supply voltage for 1 h at maximum rated voltage		P

IEC 61347-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
	After test, supply connected correctly, start and operate lamps normally		P
28 (14)	**FAULT CONDITIONS**		P
28.1 (14)	When operated under fault conditions the controlgear:		P
	- does not emit flames or molten material		P
	- does not produce flammable gases		P
	- protection against accidental contact not impaired		N
	Thermally protected controlgear does not exceed the marked temperature value		N
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected	(see appended table)	N
- (14.1)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (except between live parts and accessible metal parts)	(see appended table)	P
	Creepage distances on printed boards less than specified in clause 16 in Part 1 provided with coating according to IEC 60664-3		P
- (14.2)	Short-circuit or interruption of semiconductor devices	(see appended table)	N
- (14.3)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	N
- (14.4)	Short-circuit across electrolytic capacitors	(see appended table)	N
- (14.5)	After the tests has been carried out on three samples:		P
	The insulation resistance ≥ 1 MΩ ..... :		P
	No flammable gases		P
	No accessible parts have become live		P
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		P
- (14.6)	Relevant fault condition tests with high-power supply		—
28.2 (-)	Short circuit, contact to earth or interruption in the wiring of the normal supply not influenced the emergency mode		P

IEC 61347-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
29 (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
	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
	Plugs and socket-outlets for SELV comply with IEC 60906-3 and IEC 60884-2-4		N
	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
	- plugs not able to enter socket-outlets of other standardised system		N
	- socket-outlets not admit plugs of other standardised system		N
	- socket-outlets without protective earth		N
29.1.1 (-)	Compliance with 22.6.1, 22.6.7, 22.6.9, 22.6.11, 22.6.19 and 22.20 of IEC 60598-2-22 if applicable		N
29.1.2 (-)	Battery comply with Annex I		P
	Battery designed for at least 4 years of operation		N
	Battery only use for emergency functions		P

30 (16)	**CREEPAGE DISTANCES AND CLEARANCES**		**P**
- (16)	Creepage distances and clearances according to Table 3 and 4, as appropriate	(see appended table)	P
	Controlgears providing SELV comply with L.1 in Annex L		P
	Insulating lining of metallic enclosures		P

IEC 61347-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
	Basic insulation on printed boards tested according to clause 14		P
	Distances subjected to both sinusoidal voltage as non-sinusoidal pulses not less than value in either Table 3 or 4		P
	Creepage distances not less than minimum clearance		P

31 (17)	**SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS**		**P**
	Screws, current-carrying parts and connections in compliance with IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1)		P
(4.11)	Electrical connections		P
(4.11.1)	Contact pressure		P
(4.11.2)	Screws:		N
	- self-tapping screws		N
	- thread- cutting screws		N
(4.11.3)	Screw locking:		N
	- spring washer		N
	- rivets		N
(4.11.4)	Material of current-carrying parts		P
(4.11.5)	No contact to wood or mounting surface		N
(4.11.6)	Electro-mechanical contact systems		N
(4.12)	Mechanical connections and glands		N
(4.12.1)	Screws not made of soft metal		N
	Screws of insulating material		N
	Torque test: torque (Nm); part.....:		N
	Torque test: torque (Nm); part.....:		N
	Torque test: torque (Nm); part.....:		N
(4.12.2)	Screws with diameter < 3 mm screwed into metal		N
(4.12.4)	Locked connections:		N
	- fixed arms; torque (Nm)..... :		N
	- lampholder; torque (Nm).....:		N
	- push-button switches; torque 0,8 Nm..... :		N

IEC 61347-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
(4.12.5)	Screwed glands; force (Nm)..... :		N
32 (18)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		**P**
- (18.1)	Ball-pressure test:		P
	- part tested; temperature (°C)..... :	PCB: 125°C, 0.78mm	P
	- part tested; temperature (°C)..... :		N
- (18.2)	Test of printed boards:		P
	- part tested..... :		P
	- part tested..... :		N
- (18.3)	Glow- wire test (650°C):		P
	- part tested..... :	PCB, no flame	P
	- part tested..... :		N
- (18.4)	Needle flame test (10 s):		P
	- part tested..... :	PCB, no flame	P
	- part tested..... :		N
- (18.5)	Tracking test:		N
	- part tested..... :		N
	- part tested..... :		N
33 (19)	**RESISTANCE TO CORROSION**		**P**
	- test according 4.18.1 of IEC 60598-1		P
	- adequate varnish on the outer surface		P
34	**Abnormal lamp conditions**		P
34.1	Controlgear not impair safety operated under abnormal conditions		P
34.2	Abnormal conditions for controlgear for fluorescent lamps		N
	a) lamp not inserted		N
	b) lamp does not start because cathode is broken		N
	c) de-active lamp		N
	d) lamp operates with rectifying effect		N

IEC 61347-2-7			
Clause	Requirement + Test	Result - Remark	Verdict
34.3	Abnormal conditions for d.c. supplied electronic step-down convertors for filament lamps		N
	Output voltage of the convertor not exceed 115% of rated output voltage under abnormal conditions		N
	a) lamp not inserted		N
	b) twice the number of lamps		N
	c) output terminals short-circuited		N
34.4	Abnormal conditions for controlgear for d.c. supplied electronic controlgear for LED modules		P
34.4.1	Length of output cable 20 cm and 200 cm in 34.4.2 or 34.4.3		P
34.4.2	Controlgear of constant voltage type		P
	a) no LED module inserted		P
	b) double LED modules in parallel		N
	c) output terminals short-circuited		N
34.4.3	Controlgear of constant current type		N
	a) no LED module inserted (and all at same time)		N
	b) double LED modules in series		N
	c) output terminals short-circuited		N
34.5	Abnormal conditions for ballast for d.c. supplied electronic controlgear for discharge lamps		P
	a) lamp not inserted or does not ignite		P
	b) burner leaks		N
	c) lamp operates, but rectifies		N
34.6	Compliance		N
	- does not emit flames or molten material		N
	- does not produce flammable gases		N
	- protection against accidental contact according 10.1 of IEC 61347-1 not impaired		N
	- insulation resistance ≥ 1 MΩ .....:		N
35	**Protection of associated components**		N
35.1	Peak voltage limits		N

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Clause	Requirement + Test	Result - Remark	Verdict
	Voltage at output terminals not exceed maximum permitted peak value in Table 2 (V) .....:		N
35.2	Working voltage limits		N
	Voltage at output terminals not exceed declared maximum working voltage under normal operating, and from 5 s after start (V) .....:		N
35.3	Compliance		N
	Voltage in 35.1 and 35.2 in compliance with the limits, measured between output terminal and earth		N
	Voltage in 35.1 and 35.2 in compliance with the limits, measured between output terminals if the voltage present across insulation barriers within associated components		N

18	**TABLE: maximum current in any lead**						**P**
	Test voltage (V):			240VAC			P
I 1 (A)	I 2 (A)	I 3 (A)	I 4 (A)	I 5 (A)	I 6 (A)	I 7 (A)	I 8 (A)
4.0	3.8	3.9	4.0	3.8	3.9	4.0	4.0

28 (14)	**TABLE: tests of fault conditions**	**P**
Part	Simulated fault	Hazard
C1	Fuse open	NO
D1	Fuse open	NO
C14	Protection,recoverable	NO
Q2	Fuse open, R10,R12 damage	NO
D7	Protection,recoverable	NO

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Clause	Requirement + Test	Result - Remark	Verdict

30 (16)	**TABLES: Creepage distances and clearances**						P
Table 3	**Minimum distances (mm) for a.c. (50/60 Hz) sinusoidal voltages**						
RMS working voltage (V) not exceeding		50	150	250	500	750	1000
Creepage distances							
Required basic insulation, PTI ≥ 600		0,6	0,8	1,5	3	4	5,5
Measured		-	-	-	-	-	-
Required basic insulation, PTI < 600		1,2	1,6	2,5	5	8	10
Measured				>2.5	-	-	-
Required supplementary insulation PTI ≥ 600		-	0,8	1,5	3	4	5,5
Measured		-	-	-	-		
Required supplementary insulation PTI < 600		-	1,6	2,5	5	8	10
Measured		-	-	>2.5	-	-	-
Required reinforced insulation		-	3,2	5	6	8	11
Measured		-	-	>5	-	-	-
Clearances							
Required basic insulation		0,2	0,8	1,5	3	4	5,5
Measured		-	-	>1.5	-	-	-
Required supplementary insulation		-	0,8	1,5	3	4	5,5
Measured		-	-	>1.5	-	-	-
Required reinforced insulation		-	1,6	3	6	8	11
Measured		-	-	>3	-	-	-
Table 4	**Minimum distances (mm) for non-sinusoidal pulse voltages**						**N**

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Clause	Requirement + Test	Result - Remark	Verdict

Rated pulse voltage (peak kV)	2,0	2,5	3,0	4,0	5,0	6,0	8,0
Required clearances	1,0	1,5	2	3	4	5,5	8
Measured							
Rated pulse voltage (peak kV)	10	12	15	20	25	30	40
Required clearances	11	14	18	25	33	40	60
Measured							
Rated pulse voltage (peak kV)	50	60	80	100	-	-	-
Required clearances	75	90	130	170	-	-	-
Measured							

A	**ANNEX A IN PART 1: TEST TO ESTABLISH WHETHER A CONDUCTIVE PART IS A LIVE PART WHICH MAY CAUSE AN ELECTRIC SHOCK**		P
A.1	Comply with A.2 or A.3		P
A.2	Voltage ≤ 35 V peak or ≤ 60 V d.c .....:		P
A.3	If voltage > 35 V peak or > 60 V d.c. or protective impendence device; touch current does not exceed 0,7 mA (peak) or 2 mA d.c. .....:		P
	Comply with Annex G of IEC 60598-1		P

C	**ANNEX C IN PART 1: PARTICULAR REQUIREMENTS FOR ELECTRONIC LAMP CONTROLGEAR WITH MEANS OF PROTECTION AGAINST OVERHEATING**		P
C3	**GENERAL REQUIREMENTS**		**P**
C3.1	Thermal protection means integral with the controlgear, protected against mechanical damage		P
	Renewable only by means of a tool		N
	If function depending on polarity, for cord-connected equipment protection means in both leads		N
	Thermal links comply with IEC 60691		N
	Electrical controls comply with IEC 60730-2-3		P
C3.2	No risk of fire by breaking (clause C7)		P
C5	**CLASSIFICATION**		**P**

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Clause	Requirement + Test	Result - Remark	Verdict
	a) automatic resetting type		—
	b) manual resetting type		—
	c) non-renewable, non-resetting type		—
	d) renewable, non-resetting type		—
	e) other type of thermal protection; description ...:		—
C6	**MARKING**		**P**
C6.1	Symbol for temperature declared thermally protected controlgear		P
C6.2	Declaration of the type of protection provided		P
C7	**LIMITATION OF HEATING**		**P**
C7.1	Preselection test:		P
	Test sample placed for at least 12 h in an oven having temperature (t_c - 5) K		P
	No operation of the protection device		P
C7.2	Functioning of protection means:		P
	Normal operation of the sample in a test enclosure according to Annex D at an ambient temperature such that (t_c +0; -5) °C is obtained		P
	No operation of the protection device		N
	Introducing of the most onerous test condition determined during test of clause 14		N
	Output of windings connected to the mains supply short-circuited, and other part of the controlgear operated under normal conditions		N
	Increasing of the current through the windings continuously until operation of the protection means		N
	Continuous measuring of the highest surface temperature		N
	Controlgear according to C5 a) or C5 e) operated until stable conditions are achieved		N
	Automatic-resetting thermal protectors working 3 times		N
	Controlgear according to C5 b) working 6 times		N
	Controlgear according to C5 c) and C5) d) working once		N

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Clause	Requirement + Test	Result - Remark	Verdict
	Highest temperature does not exceed the marked value		P
	Any overshoot of 10% over the marked value within 15 min		P
D	**ANNEX D IN PART 1: REQUIREMENTS FOR CARRY OUT THE HEATING TESTS OF THERMALLY PROTECTED LAMP CONTROLGEAR**		P
	Tests in C7 performed in accordance with Annex D, if applicable		P
F	**ANNEX F IN PART 1: DRAUGHT-PROOF ENCLOSURE**		**P**
	Draught-proof enclosure in accordance with the description		P
	Dimensions of the enclosure		P
	Other design; description		P
H	**ANNEX H IN PART 1: TESTS**		N
	All tests performed in accordance with the advice given in Annex H, if applicable		N
I (-)	**ANNEX I IN THIS PART 2: BATTERIES FOR EMERGENCY LUMINAIRES** (Annex numbers between parentheses refer to IEC 60598-2-22)		P
(A.1)	Type of batteries		P
(A.2)	Conform to relevant standard		P
	Operate within specific tolerance		N
(A.3)	Battery capacity for rated duration up to time of replacement		P
(A.4)	Sealed nickel cadmium batteries		P
(A.4.1)	Conform to IEC 60285		P
(A.4.2.a)	Maximum ambient air temperature 50 °C		P
(A.4.2.b)	Maximum overcharge rate 0,08 C_5A		P
(A.4.2.c)	Minimum ambient temperature 5 °C		P
(A.4.2.d)	Maximum discharge rates for 1 h: 0,6 C_5A and 3 h: 0,25 C_5A		P

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Clause	Requirement + Test	Result - Remark	Verdict
(A.5)	Valve regulated lead acid batteries		P
(A.5.1)	Conform to IEC 60869-2 or IEC 61056-1		P
(A.5.2.a)	Maximum ambient air temperature 30 °C with temperature compensation or 25 °C without temperature compensation		P
(A.5.2.b)	Minimum recharge current 0,4 C_{20}		P
(A.5.2.c)	Maximum discharge rates for 1 h: 0,4 C_{20} and 3 h: 0,17 C_{20}		P
(A.5.2.d)	Maximum r.m.s. ripple current 0,1 C_{20}		P
(A.5.2.e)	Minimum ambient temperature 5 °C		P
(A.6)	Ambient temperature of cells measured after 48 h		P
(A.7)	Evidence of alternative operating parameters		P

J (D)	**ANNEX J: REST MODE AND INHIBITION MODE FACILITIES** (ANNEX D IN IEC 60598-2-22)		N
	Rest mode:		N
	a) only operate when normal supply has failed		N
	b) remote control wiring is fail-safe		N
	c) normal mode at restoration of normal supply		N
	Inhibition mode:		N
	a) supply failure or disconnection not cause an unwanted discharge		N
	b) protection against interruption of remote control wiring		N
	1) safety circuits independent of other circuits		N
	2) safety circuits not pass through locations exposed to fire risk or explosion risk		N
	3) protection against overload may be omitted		—
	4) overcurrent in one circuit not impair circuits of safety services		N
	5) switchgear and controlgear clearly identified and in locations accessible only to competent persons		N
	6) Alarm devices clearly identified		N

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Clause	Requirement + Test	Result - Remark	Verdict

K	**ANNEX K IN PART 1: BALLASTS INCORPORATING AN AUTOMATIC TESTING FUNCTION FOR EMERGENCY LIGHTING OPERATION**		**N**
	Fulfil relevant requirements of Table K.1		N

L	**ANNEX L IN PART 1: PARTICULAR ADDITIONAL REQUIREMENTS FOR CONTROLGEAR PROVIDING SELV**		P
L.3	**Classification**		**P**
	Class I	Yes ☐ No ☒	—
	Class II	Yes ☒ No ☐	—
	Class III	Yes ☐ No ☒	—
	non-inherently short circuit proof controlgear	Yes ☐ No ☒	—
	inherently short circuit proof controlgear	Yes ☒ No ☐	—
	fail safe controlgear	Yes ☒ No ☐	—
	non-short-circuit proof controlgear	Yes ☐ No ☒	—
L.4	**Marking**		**P**
	Adequate symbols are used		P
L.5	**Protection against electric shock**		**P**
	Comply with 9.2 of IEC 61558-1		P
L.6	**Heating**		**P**
	No excessive temperatures in normal use		P
	Value if capacitor t_c marked ..... :		—
	Winding insulation classified as Class ..... :		—
	Comply with tests of clause 14 of IEC 61558-1 with adjustments		P
L.7	**Short-circuit and overload protection**		**P**
	Comply with tests of clause 15 of IEC 61558-1 with adjustments		P
L.8	**Insulation resistance and electric strength**		**P**
L.8.1	Conditioned 48 h between 91 % and 95 %		P
L.8.2	Insulation resistance		P
	Between input- and output circuits not less than 5 _MΩ ..... :		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Between metal parts of class II convertors which are separated from live parts by basic insulation only and the body not less than 5 MΩ ..... :		P
	Between metal foil in contact with the inner and outer surfaces of enclosures of insulating material not less than 2 MΩ ..... :		P
L.8.3	Electric strength		P
	1) Between live parts of input circuits and live parts of output circuits ..... :		P
	2) Over basic or supplementary insulation between:		P
	a) live parts having different polarity ..... :		P
	b) live parts and body if intended to be connected to protective earth .....:		P
	c) accessible metal parts and a metal rod of the same diameter as the flexible cable or cord ..... :		P
	d) live parts and an intermediate metal part .....:		P
	e) intermediate metal parts and the body .....:		P
	f) each input circuit and all other input circuits .....:		P
	3) Over reinforced insulation between the body and live parts .....:		P
L.9	**Construction**		**P**
L.9.1	Transformer comply with 19.12 of IEC 61558-1 and 19 of IEC 61558-2-6		P
	HF transformer comply with 19 of IEC 61558-2-16		P
L.10	**Components**		**P**
	Protective devices comply with 20.6 – 20.11 of IEC 61558-1		P
L.11	**Creepage distances and clearances**		**P**
	1. Insulation between input and output circuits, basic insulation:		P
	a) measured values ≥ specified values (mm) .....:	Cl:>1.5mm, Cr>2.5mm	P
	b) measured values ≥ specified values (mm) .....:		N
	c) measured values ≥ specified values (mm) .....:		N
	2. Insulation between input and output circuits, double or reinforced insulation:		P
	a) measured values ≥ specified values (mm) .....:	Cl:>3.0mm, Cr>5.0mm	P
	b) measured values ≥ specified values (mm) .....:		N

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Clause	Requirement + Test	Result - Remark	Verdict
	c) measured values ≥ specified values (mm) ..... :		N
	3. Insulation between adjacent input circuits		P
	- measured values ≥ specified values (mm) ..... :	Cl:>3.0mm, Cr>5.0mm	P
	3. Insulation between adjacent output circuits		P
	- measured values ≥ specified values (mm) ..... :	Cl:>3.0mm, Cr>5.0mm	P
	4. Insulation between terminals for external connection:		P
	- measured values ≥ specified values (mm) ..... :	Cl:>3.0mm, Cr>5.0mm	P
	5. Basic or supplementary insulation:		P
	a) measured values ≥ specified values (mm) ..... :	Cl:>1.5mm, Cr>2.5mm	P
	b) measured values ≥ specified values (mm) ..... :		N
	c) measured values ≥ specified values (mm) ..... :		N
	d) measured values ≥ specified values (mm) ..... :		N
	e) measured values ≥ specified values (mm) ..... :		N
	6. Reinforced insulation or insulation:		P
	Between body and output circuit: measured values ≥ specified values (mm) .....:	Cl:>3.0mm, Cr>5.0mm	P
	Between body and output circuit if provision against transient voltages: measured values ≥ specified values (mm) .....:		N
	7. Distance through insulation:		P
	a) measured values ≥ specified values (mm) ..... :	Cl:>3.0mm, Cr>5.0mm	P
	b) measured values ≥ specified values (mm) ..... :		N
	c) measured values ≥ specified values (mm) ..... :		N

N	**ANNEX N IN PART 1: REQUIREMENTS FOR INSULATION MATERIALS USED FOR DOUBLE OR REINFORCED INSULATION**		N
N.4	**General requirements**		N
N.4.1	Material comply with IEC 60085 and IEC 60216 series		N
N.4.2	Solid insulation		N
	Electric strength test at least 5 kV or 1,35 x test voltage in Table N.1		N

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Clause	Requirement + Test	Result - Remark	Verdict
	If not classified according IEC 60085 and IEC 60216 series: Electric strength test increased 10 % of 5,5 kV or 1,5 x test voltage in Table N.1		N
N.4.3	Thin sheet insulation		N
N.4.3.1	Thickness and composition of thin sheet insulation		N
	- Inside the ballast and not subjected to handling or abrasion during the production and during maintenance		N
	- Non-separated layers: Min. 3 layers and fulfil mandrel test of 150N		N
	- Separated layers: Min. 2 layers and each layer fulfil mandrel test of 50N		N
	- Separated layers (alternative): Min. 3 layers and 2/3 of the layers fulfil mandrel test of 100N		N
N.4.3.2	Mandrel test (electric strength test during mechanical stress)		N
	Electric strength test after mandrel test:		N
	- Non-separated layers: min. 5 kV or 1,35 x test voltage in Table N.1		N
	- 2/3 of min. 3 separated layers: min. 5 kV or 1,25 x test voltage in Table N.1		N
	- one of 2 separated layers: min. 5 kV or 1,25 x test voltage in Table N.1		N
	No flashover or breakdown occurred		N
O	**ANNEX O IN PART 1: ADDITIONAL REQUIREMENTS FOR BUILT-IN ELECTRONIC CONTROLGEAR WITH DOUBLE OR REINFORCED INSULATION**		N
O.6	**Marking**		N
	Marking according clause 7 (7)	See clause 7	N
	Special symbol		N
	Meaning of the special symbol explained in catalogue		N
O.7	**Protection against accidental contact with live parts**		N
	Requirements of clause 8 (10)	See clause 8	N
	Test finger not possible to make contact with basic insulated metal parts		N
O.8	**Terminals**		N

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Clause	Requirement + Test	Result - Remark	Verdict
	Clause 9 (8)	See clause 9	N
O.9	**Provision for earthing**		N
	Functional earthing terminals comply with clause 9 of part 1		N
	No protective earthing terminal		N
O.10	**Moisture resistance and insulation**		N
	Clause 11 (11)	See clause 11	N
O.11	**Electric strength**		N
	Clause 12 (12)	See clause 12	N
O.13	**Fault conditions**		N
	Clause 14 (14)	See clause 14	N
	End of test, between live part and accessible metal parts or external parts of insulating material in contact with the supporting surface comply with dielectric strength test reduced to 35 % of values according Table 1 in part 1		N
	Insulation resistance according to O.10 between live part and accessible metal parts or external parts of insulating material in contact with the supporting surface not less than 4 MΩ		N
O.14	**Construction**		N
	Clause 16 (15)	See clause 16	N
	Accessible metal parts insulated from live parts by double or reinforced insulation		N
	Live part insulated from supporting surface in contact with external faces by double or reinforced insulation		N
O.15	**Creepage distances and clearances**		N
	Clause 17 (16)	See clause 17	N
	Comply with corresponding values for luminaries in IEC 60598-1		N
O.16	**Screws, current-carrying parts and connections**		N
	Clause 18 (17)	See clause 18	N
O.17	**Resistance to heat and fire**		N
	Clause 19 (18)	See clause 19	N
O.18	**Resistance to corrosion**		N

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Clause	Requirement + Test	Result - Remark	Verdict
	Clause 20 (19)	See clause 20	N
	ANNEX 1: components		P

object/part No.	code	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity
Li-ion polymer Cell	B	V-TAC EXPORTS LIMITED	EL-705269P	7.2V, 4400mAh, 31.68Wh.	IEC 62133:2012	CE
Battery Internal lead wire	B	Dongguan Chenxing Electronic Co., Ltd.	2468	18AWG, 80°C, 600 V	EN/IEC 6-598-2-7	Test with appliance and UL
Supply cord	B	New Square Company Ltd.	H03VVH2-F	300/300V, 3*0.75mm2	EN 50525 IEC 60227	VDE
X Capacitor	B	Shenzhen Sincerity Technology Co Ltd	MKP	X2, 0.1uF, 300V, 110℃	EN 132400 IEC 60384	VDE
Y Capacitor	B	Jyh Chung Electronics Co Ltd	JY	0.2uF, Y2, 125℃, 300V	IEC/EC 60384-14	VDE
PCB	B	Hui zhou lianxing electronic co., ltd	LX-D	V-0, 130℃	EN/IEC 6-598-2-7	Test with appliance and UL
Transformer (T1)	B	V-TAC EXPORTS LIMITED	EPC17S	Class B	EN/IEC 6-598-2-7	Test with appliance and UL
Bobbin	B	Changchun Plasticsco.,Ltd.	T375J	V-0,150°C	EN/IEC 6-598-2-7	Test with appliance and UL
Triple Insulating wire	B	Shenzhen Darun Science and Technology Co., Ltd.	DRTIW-B	130℃	IEC/EN 60950-1	VDE
Magnet wire	B	ShantouShengangCo.,Ltd	UEW/130, QA-x/130	130°C	EN/IEC 6-598-2-7	Test with appliance and UL

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Clause	Requirement + Test	Result - Remark	Verdict

Insulation tape	B	Su ZhouMailaduona Electric Material Co., Ltd.	JY312#	130ºC	EN/IEC 6-598-2-7	Test with appliance and UL
Tube	B	Chang Yuan Electronics (Shen Zhen) Co., Ltd.	CB-TT-T, CB-TT-S	Min.200℃, Min.300V, VW-1	EN/IEC 6-598-2-7	Test with appliance and UL
Output wire	B	Shenzhen Longshengda Wire&Cable Co., Ltd.	3239	200°C, 600 Vdc 24AWG	EN/IEC 6-598-2-7	Test with appliance and UL

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

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Clause	Requirement + Test	Result - Remark	Verdict

	ANNEX 2: screw terminals (part of the controlgear)	N

(14)	**SCREW TERMINALS** (IEC 60598-1)		N
(14.2)	Type of terminal.....		—
	Rated current (A).....		—
(14.3.2.1)	One or more conductors		N
(14.3.2.2)	Special preparation		N
(14.3.2.3)	Terminal size		N
	Cross-sectional area (mm²).....		N
(14.3.3)	Conductor space (mm).....		N
(14.4)	Mechanical tests		N
(14.4.1)	Minimum distance		N
(14.4.2)	Cannot slip out		N
(14.4.3)	Special preparation		N
(14.4.4)	Nominal diameter of thread (metric ISO thread)..	M	N
	External wiring		N
	No soft metal		N
(14.4.5)	Corrosion		N
(14.4.6)	Nominal diameter of thread (mm).....		N
	Torque (Nm).....		N
(14.4.7)	Between metal surfaces		N
	Lug terminal		N
	Mantle terminal		N
	Pull test; pull (N).....		N
(14.4.8)	Without undue damage		N

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Clause	Requirement + Test	Result - Remark	Verdict
	ANNEX 3: screwless terminals (part of the controlgear)		N
(15)	**SCREWLESS TERMINALS** (IEC 60598-1)		N
(15.2)	Type of terminal.....:		—
	Rated current (A).....:		—
(15.3.1)	Material		N
(15.3.2)	Clamping		N
(15.3.3)	Stop		N
(15.3.4)	Unprepared conductors		N
(15.3.5)	Pressure on insulating material		N
(15.3.6)	Clear connection method		N
(15.3.7)	Clamping independently		N
(15.3.8)	Fixed in position		N
(15.3.10)	Conductor size		N
	Type of conductor		N
(15.5)	Terminals and connections for internal wiring		N
(15.5.1)	Mechanical tests		N
(15.5.1.1.1)	Pull test spring-type terminals (4 N, 4 samples)….:		N
(15.5.1.1.2)	Pull test pin or tab terminals (4 N, 4 samples)……:		N
	Insertion force not exceeding 50 N		N
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N
(15.6)	Electrical tests		
	Voltage drop (mV) after 1 h (4 samples)..... :		N
	Voltage drop of two inseparable joints		N
	Number of cycles.....:		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:		N

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Clause	Requirement + Test	Result - Remark	Verdict

	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples)..... :		N
(15.7)	Terminals external wiring		N
	Terminal size and rating		N
(15.8.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) .....:		N
	Pull test pin or tab terminals (4 samples); pull (N) .....:		N
(15.9)	Contact resistance test		N
	Voltage drop (mV) after 1 h		N

terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										

	Voltage drop of two inseparable joints		
	Voltage drop after 10th alt. 25th cycle		
	Max. allowed voltage drop (mV).....:		—

terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										

	Voltage drop after 50th alt. 100th cycle		
	Max. allowed voltage drop (mV).....:		—

terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										

	Continued ageing: voltage drop after 10th alt. 25th cycle		
	Max. allowed voltage drop (mV).....:		—

terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										

	Continued ageing: voltage drop after 50th alt. 100th cycle		
	Max. allowed voltage drop (mV).....:		—

terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										

Appendix 1

Photo Documentation

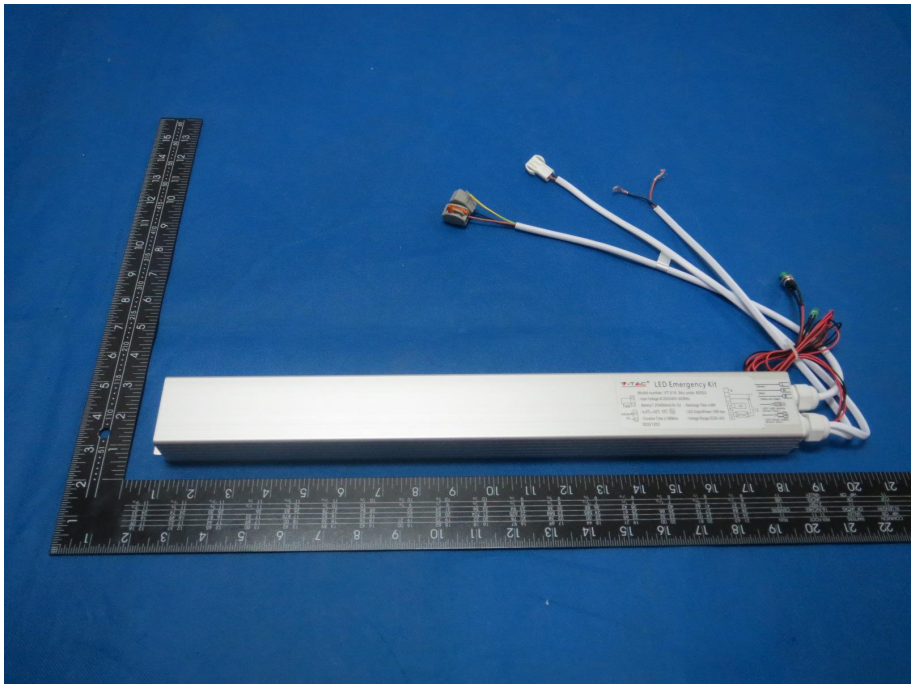
Photo 1 View: [√] Front [ ] Rear [ ] Right side [ ] Left side [ ] Top [ ] Bottom [ ] Internal	

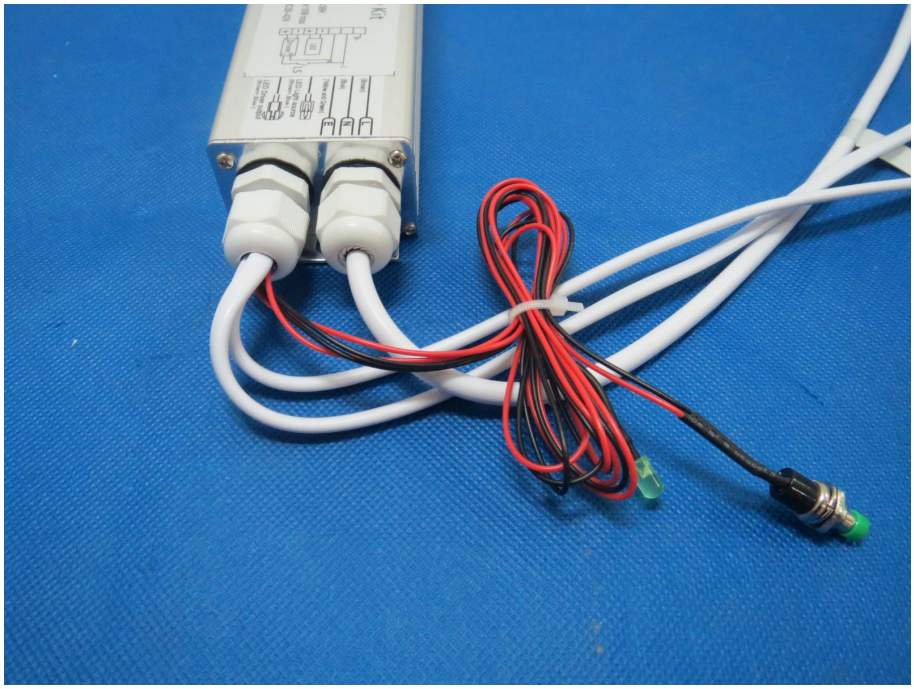
Photo 2 View: [ ] Front [ ] Rear [√] Right side [ ] Left side [ ] Top [ ] Bottom [ ] Internal	

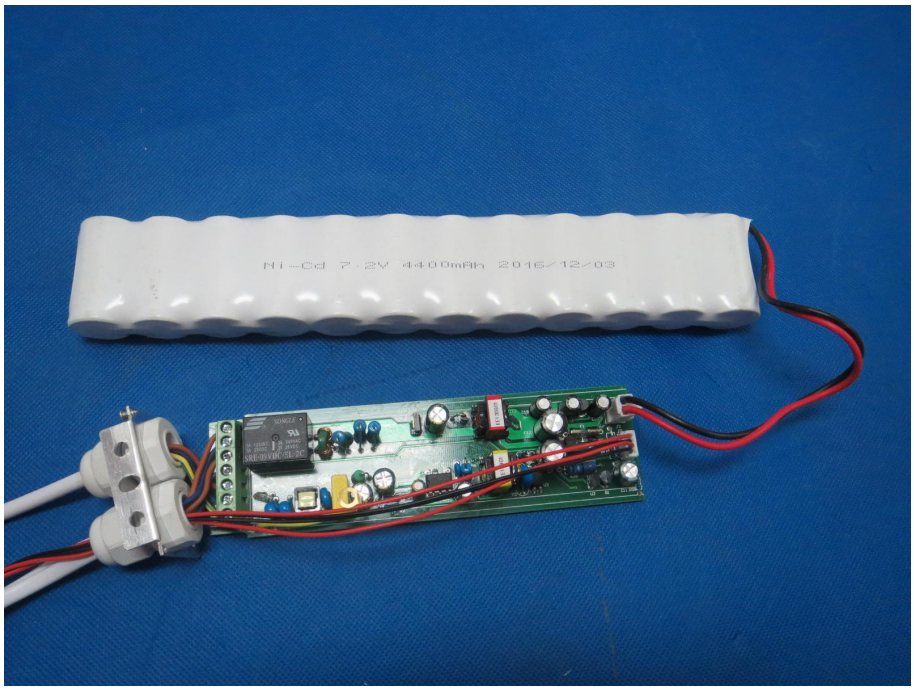
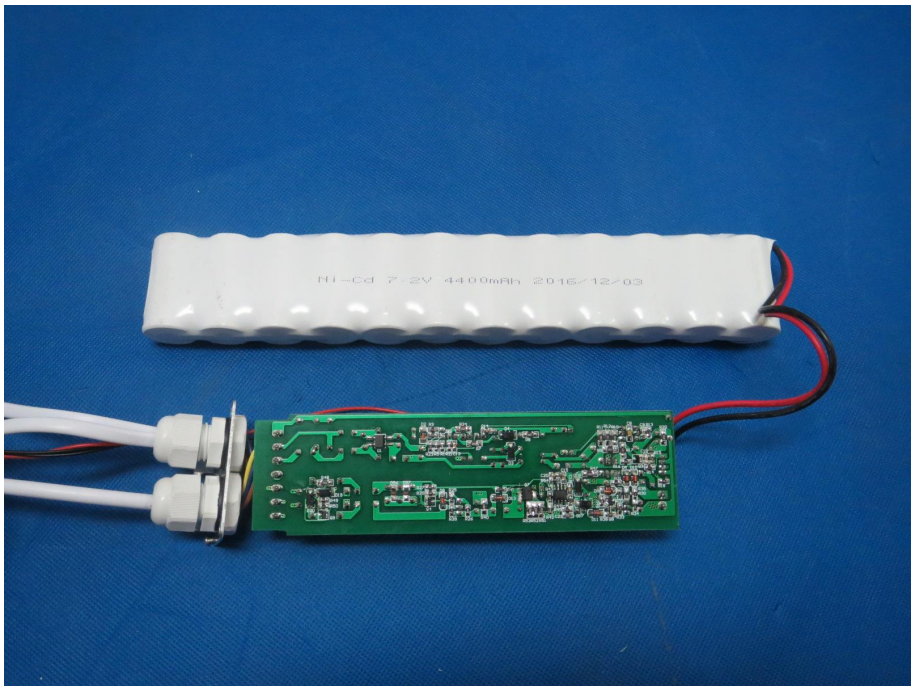
Photo 3 View: [ ] Front [ ] Rear [ ] Right side [ ] Left side [ ] Top [ ] Bottom [√] Internal	

Photo 4 View: [ ] Front [ ] Rear [ ] Right side [ ] Left side [ ] Top [ ] Bottom [√] Internal	

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