TEST REPORT

EN 60598-2-1 Fixed general purpose luminaires
EN 61347-2-13 Lamp controlgear
EN 62031 LED modules for general lighting

Report Reference No ..... :	616LAB07/14
Compiled by (+ signature)..... :	Lampeev A.L
Approved by (+ signature)..... :	Redko U.N.
Date of issue ..... :	04.07.2014
Number of pages..... :	42

Testing Laboratory..... :	Testing laboratory of "Investment Corporation",
Address ..... :	141300, Moscow region, Sergiev Posad, Moskovskoe shosse, 25
Testing location/address..... :	See as above

Applicant's name..... :	Limited Liability Company "Varton" ("Varton" LLC)
Address ..... :	Moscow, Dorogobuzhskaya street, 14-6. Phone: +7 (495) 649-81-33 info@varton.ru

Test specification:

Standard..... :	EN 60 598-2-1:1989. Luminaires Part 2: Particular requirements Section One – Fixed general purpose luminaires used in conjunction with EN 60598-1:2008 EN 61347-2-13:2006 Particular requirements for d.c. or a.c. supplied electronic controlgear for LED modules, used in conjunction with EN 61347-1:2007 EN 62031:2008. LED modules for general lighting - Safety specifications
Test procedure ..... :	LVD
Non-standard test method ..... :	Not used

Test Report Form No..... :	-
Test Report Form Originator ..:	-
Master TRF ..... :	-

Test item description .....:	LED luminairy
Trademark .....:	VARTON
Manufacturer .....:	Limited Liability Company "Varton" ("Varton" LLC) Moscow, Dorogobuzhskaya street, 14-6. Phone: +7 (495) 649-81-33 info@varton.ru
Model and/or type reference .....:	All models see Appendix 3 Type designation on page 37 Tests were performed on models V-04-221-054-4100K, V-04-831-054-4100K
Rating(s).....:	~176-264V; 50Hz; t_a: 50°C, Rated power:18W, IP27, 36W, 54W (See Appendix 3 Type designation on page 37) IP 65 or 67 (See Appendix 3 Type designation on page 37)
Test items particulars:	
Classification of installation and use :	Class I; Fixed, Normal use
Supply Connection .....:	Pillar terminal

Test case verdicts:	
Test case does not apply to the test object ...:	N/A
Test item does meet the requirement .....:	P(Pass)
Test item does not meet the requirement .....:	F(Fail)

Testing:	
Date of receipt of test item .....:	17 June 2014
Date(s) of performance of test .....:	17 June 2014 to 4 July 2014

General remarks:

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

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

"(see remark #)" refers to a remark appended to the report.

"(see Annex #)" refers to an annex appended to the report.

Clause numbers between brackets refer to clauses in IEC 60 598-1 (EN 60 598-1)

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

General product information:

Luminaire is intended for indoor home and office lightening. All models are equipped with identical integral LED module and integral electronic controlgear and construction.

Tests were performed on models models V-04-221-054-4100K, V-04-831-054-4100K

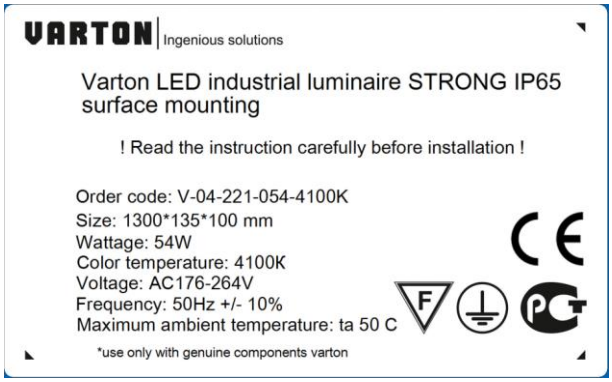
Integral electronic controlgear was tested according to IEC 61347-2-13:2006 in conjunction with IEC 61347-1:2007. See Appendix 1

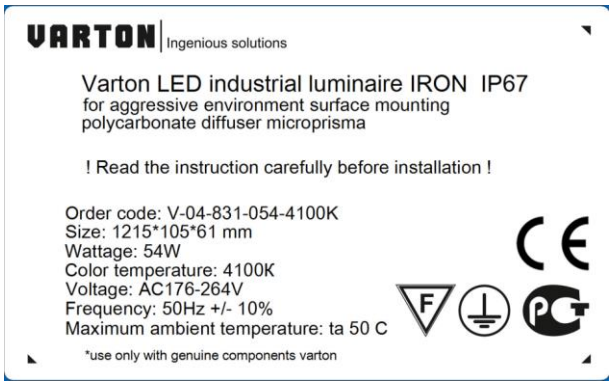
Integral LED module was tested according to IEC 62031:2008. See test report in Appendix 2

Photos of construction luminaire see in Appendix 4

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 NBCs that own this marks.





EN 60 598-2-1			
Clause	Requirement – Test	Result	Verdict
1.1 (0)	**SCOPE**		**—**
1.1 (0.1)	More sections applicable..... :	No	—
1.4 (2)	**CLASSIFICATION**		**—**
1.4 (2.2)	Type of protection ..... :	Class I	—
1.4 (2.3)	Degree of protection..... :	IP67, IP 65	—
1.4 (2.4)	Portable or handheld luminaire ..... :	No	—
	Fixed luminaire suitable for normally flammable surfaces..... :	Yes	—
	Fixed luminaire suitable for non-combustible materials only ..... :	No	—
1.4 (2.5)	Luminaire for normal use ..... :	Yes	—
	Luminaire for rough service ..... :	No	—
1.5 (3)	**MARKING**		**—**
1.5 (3.2)	Mandatory markings	See copy of marking plate	P
	Position of the marking		P
	Format of symbols/text		P
1.5 (3.3)	Additional information		P
	Language of instructions	English	P
1.5 (3.3.1)	Combination luminaires		N/A
1.5 (3.3.2)	Nominal frequency in Hz	50	P
1.5 (3.3.3)	Operating temperature	+50°C	P
1.5 (3.3.4)	Symbol or warning notice		N/A
1.5 (3.3.5)	Wiring diagram		N/A
1.5 (3.3.6)	Special conditions		N/A
1.5 (3.3.7)	Metal halid lamp luminaire – warning		N/A
1.5 (3.3.8)	Limitation for semi-luminaires		N/A
1.5 (3.3.9)	Power factor and supply current		N/A
1.5 (3.3.10)	Suitability for use indoors	In instruction	P
1.5 (3.3.11)	Luminaires with remote control		N/A
1.5 (3.3.12)	Clip-mounted luminaire - warning		N/A
1.5 (3.3.13)	Specifications of protective shields		N/A
1.5 (3.3.14)	Symbol for nature of supply	“ ~ “	P
1.5 (3.3.15)	Rated current of socket outlet		N/A
1.5 (3.3.16)	Rough service luminaire		N/A
1.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments		P

EN 60 598-2-1			
Clause	Requirement – Test	Result	Verdict
1.5 (3.3.18)	Non-ordinary luminaires with PVC cable		N/A
1.5 (3.3.19)	Protective conductor current in instruction if applicable		N/A
1.5 (3.3.20)	Provided with information if not intended to be mounted within arms		N/A
1.5 (3.4)	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		P

1.6 (4)	**CONSTRUCTION**		**—**
1.6 (4.2)	Components replaceable without difficulty		N/A
1.6 (4.3)	Wireways smooth and free from sharp edges		P
1.6 (4.4)	Lampholders		N/A
1.6 (4.4.1)	Integral lampholder		N/A
1.6 (4.4.2)	Wiring connection		N/A
1.6 (4.4.3)	Lampholder for end-to-end mounting		N/A
1.6 (4.4.4)	Positioning		N/A
1.6 (4.4.5)	Peak pulse voltage		N/A
1.6 (4.4.6)	Centre contact		N/A
1.6 (4.4.7)	Rough service luminaires		N/A
1.6 (4.4.8)	Lamp connectors		N/A
1.6 (4.4.9)	Caps and bases correctly used		N/A
1.6 (4.5)	Starter holders		N/A
	Starter holder in luminaires other than class II		N/A
	Starter holders class II construction		N/A
1.6 (4.6)	Terminal blocks		—
	Tails		N/A
	Unsecured blocks		N/A
1.6 (4.7)	Terminals and supply connections		—
1.6 (4.7.1)	Contact to metal parts	Not portable or frequently adjusted equipment	N/A
1.6 (4.7.2)	Test 8 mm live conductor		P
	Test 8 mm earth conductor		P
1.6 (4.7.3)	Terminals for supply conductors		P
1.6 (4.7.3.1)	Welded connections:		—
	- stranded or solid conductor	No welded connections	N/A
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachments		N/A

EN 60 598-2-1			
Clause	Requirement – Test	Result	Verdict
	- mechanical test according to 15.8.2		N/A
	- electrical test according to 15.9		N/A
	- heat test according to 15.9.2.3 and 15.9.2.4		N/A
1.6 (4.7.4)	Terminals other than supply connection		N/A
1.6 (4.7.5)	Heat-resistant wiring/sleeves		N/A
1.6 (4.7.6)	Multi-pole plug		N/A
1.6 (4.8)	Switches:		—
	- adequate rating		N/A
	- adequate fixing		N/A
	- polarized supply		N/A
1.6 (4.9)	Insulating lining and sleeves		—
1.6 (4.9.1)	Retainment		N/A
	Method of fixing..... :		N/A
1.6 (4.9.2)	Insulated linings and sleeves		—
	a) & c) Insulation resistance and electric strength		N/A
	b) Ageing test. Temperature (°C)..... :		N/A
1.6 (4.10)	Insulation of Class II luminaires		—
1.6 (4.10.1)	No contact, mounting surface - accessible metal parts - wiring of basic insulation		N/A
	Safe installation fixed luminaires		N/A
	Capacitors		N/A
	Interference suppression capacitors according to IEC 60384-14		N/A
1.6 (4.10.2)	Assembly gaps:		—
	- not coincidental		N/A
	- no straight access with test probe		N/A
1.6 (4.10.3)	Retainment of insulation:		—
	- fixed		N/A
	- unable to be replaced; luminaire inoperative		N/A
	- sleeves retained in position		N/A
	- lining in lampholder		N/A
1.6 (4.11)	Electrical connections		—
1.6 (4.11.1)	Contact pressure	Contact pressure is not transmitted through insulating material	P
1.6 (4.11.2)	Screws:		—
	- self-tapping screws	Not used	N/A
	- thread-cutting screws		P
1.6 (4.11.3)	Screw locking:		—
	- spring washer		P

EN 60 598-2-1			
Clause	Requirement – Test	Result	Verdict
	- rivets		N/A
1.6 (4.11.4)	Material of current-carrying parts		P
1.6 (4.11.5)	No contact to wood		N/A
1.6 (4.11.6)	Electro-mechanical contact systems		N/A
1.6 (4.12)	Mechanical connections and glands		—
1.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material	Not of insulating material	P
	Torque test: torque (Nm); part..... :	0,60 Earthing screw	P
1.6 (4.12.2)	Screw with diameter < 3 mm screwed into metal		N/A
1.6 (4.12.4)	Locked connections:		—
	- fixed arms; torque (Nm) ..... :		N/A
	- lampholder; torque (Nm)..... :		N/A
	- push-button switches; torque 0,8 Nm ..... :		N/A
1.6 (4.12.5)	Screwed glands; force (Nm)..... :		N/A
1.6 (4.13)	Mechanical strength		—
1.6 (4.13.1)	Impact tests:		—
	- fragile parts; energy (Nm) ..... :	0,20	P
	- other parts; energy (Nm)..... :	0,35	P
	1) live parts		P
	2) linings		P
	3) protection		P
	4) covers		P
1.6 (4.13.3)	Straight test finger		P
1.6 (4.13.4)	Rough service luminaires		—
	a) fixed		N/A
	b) hand-held		N/A
	c) delivered with a stand		N/A
	d) for temporary installations and suitable for mounting on a stand		N/A
1.6 (4.13.6)	Tumbling barrel		N/A
1.6 (4.14)	Suspensions and adjusting devices		—
1.6 (4.14.1)	Mechanical load:		—
	A) four times the weight	10.4 kg	P
	B) torque 2,5 Nm		N/A
	C) bracket arm; bending moment (Nm) ..... :		N/A
	D) load track-mounted luminaires		N/A
	E) clip-mounted luminaires, glass-shelve. Thickness (mm)..... :		N/A
	metal rod. Diameter (mm) ..... :		N/A

EN 60 598-2-1			
Clause	Requirement – Test	Result	Verdict
	Fixed luminaire or independent control gear without fixing devices		N/A
1.6 (4.14.2)	Load to flexible cables		—
	Mass (kg)..... :		N/A
	Stress in conductors (N/mm²) ..... :		N/A
1.6 (4.14.3)	Adjusting devices:		—
	- flexing test; number of cycles..... :		N/A
	- strands broken		N/A
	- electric strength test afterwards		N/A
1.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
1.6 (4.14.5)	Guide pulleys		N/A
1.6 (4.14.6)	Strain on socket-outlets		N/A
1.6 (4.15)	Flammable materials:		—
	- glow-wire test 650 °C	Plastic cover	P
	- spacing ≥ 30 mm		N/A
	- screen withstanding test of 13.3.1		N/A
	- screen dimensions		N/A
	- no fiercely burning material		P
	- thermal protection		N/A
	- electronic circuits exempted		N/A
1.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		—
	a) construction	Components are kept in place by metal support	P
	b) temperature sensing control		N/A
	c) surface temperature		N/A
1.6 (4.16)	Luminaires for mounting on normally flammable surfaces		—
	No lamp control gear		N/A
1.6 (4.16.1)	Lamp control gear spacing:		—
	- spacing 35 mm		N/A
	- spacing 10 mm		P
1.6 (4.16.2)	Thermal protection:		—
	- in lamp control gear		P
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear		N/A
1.6 (4.16.3)	Design to satisfy the test of 12.6	(see 12.6)	P
1.6 (4.17)	Drain holes	No drain holes	N/A
	Clearance at least 5 mm		N/A
1.6 (4.18)	Resistance to corrosion:		—

EN 60 598-2-1			
Clause	Requirement – Test	Result	Verdict
1.6 (4.18.1)	- rust-resistance		P
1.6 (4.18.2)	- season cracking in copper		P
1.6 (4.18.3)	- corrosion of aluminium		N/A
1.6 (4.19)	Ignitors compatible with ballast		N/A
1.6 (4.20)	Rough service vibration		N/A
1.6 (4.21)	Protective shield:		—
1.6 (4.21.1)	Shield fitted		N/A
1.6 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
1.6 (4.21.3)	No direct path		N/A
1.6 (4.21.4)	Impact test on shield		N/A
	Glow-wire test on lamp compartment		N/A
1.6 (4.22)	Attachments to lamps		N/A
1.6 (4.23)	Semi-luminaires comply class II		N/A
1.6 (4.24)	UV radiation, metal halide lamps		N/A
1.6 (4.25)	No sharp point or edges		P
1.6 (4.26)	Short-circuit protection:		—
1.6 (4.26.1)	Uninsulated accessible SELV parts	No uninsulated accessible SELV parts	N/A
1.6 (4.26.2)	Short-circuit test		N/A
1.6 (4.26.3)	Test chain according to Figure 29		N/A
1.6 (4.27)	Screwless earthing contacts		N/A

1.7 (11)	**CREEPAGE DISTANCES AND CLEARANCES**		**—**
	Working voltage (V)..... :	264	—
	Voltage form	Sinusoidal [X] Non-sinusoidal [ ]	—
	PTI	< 600 [X] ≥ 600 [ ]	—
	Rated pulse voltage (kV)..... :		—
	(1) Current-carrying parts of different polarity: cr (mm); cl (mm)..... :	Terminal block, input and out controlgear for LED module: Cr > 4,0 mm (Required min: 2,5) Cl > 3,0 mm (Required min: 1,5)	P
	(2) Current-carrying parts and accessible parts: cr (mm); cl (mm)..... :	Terminal block, input and out controlgear for LED module and accessible parts: Cr > 4,0 mm (Required min: 2,0) Cl > 2,0 mm (Required min: 1,5)	P

EN 60 598-2-1			
Clause	Requirement – Test	Result	Verdict
	(3) Parts becoming live due to breakdown of basic insulation and metal parts: cr (mm); cl (mm)..... :		N/A
	(4) Outer surface of cable where it is clamped and metal parts: cr (mm); cl (mm)..... :		N/A
	(5) No used		—
	(6) Current-carrying parts and supporting surface: cr (mm); cl (mm)..... :	Cr > 4,0 mm (Required min: 2,0) Cl > 2,0 mm (Required min: 1,5)	P

1.8 (7)	**PROVISION FOR EARTHING**		**—**
1.8 (7.2.1 + 7.2.3)	Accessible metal parts		P
	Metal parts in contact with supporting surface		P
	Resistance < 0,5 Ω	0,030 Ω	P
	Self-tapping screws used		N/A
	Thread-forming screws		P
	Connector earthing first		N/A
	Test of Annex V for terminal blocks with integrated screwless earthing contacts		N/A
1.8 (7.2.2 + 7.2.3)	Earth continuity in joints etc.		N/A
1.8 (7.2.4)	Locking of clamping means		N/A
	Compliance with 4.7.3		N/A
1.8 (7.2.5)	Earth terminal integral part of connector socket		N/A
1.8 (7.2.6)	Earth terminal adjacent to mains terminals		P
1.8 (7.2.7)	Electrolytic corrosion of the earth terminal		P
1.8 (7.2.8)	Material of earth terminal	Copper alloys	P
	Contact surface bare metal		P
1.8 (7.2.10)	Class II luminaire for looping-in		N/A
1.8 (7.2.11)	Earthing core coloured green-yellow	No earth conductor inside EUT	N/A
	Length of earth conductor		N/A

1.9 (14)	**SCREW TERMINALS**		**—**
1.9 (14)	Separately approved; component list	(see Annex 1)	N/A
	Part of the luminaire	(see Annex 3)	N/A

1.9 (15)	**SCREWLESS TERMINALS**		**—**
	Separately approved; component list	(see Annex 1)	N/A
	Part of the luminaire	(see Annex 4)	N/A

EN 60 598-2-1			
Clause	Requirement – Test	Result	Verdict
1.10 (5)	**EXTERNAL AND INTERNAL WIRING**		**—**
1.10 (5.2)	Supply connection and external wiring		P
1.10 (5.2.1)	Means of connection ..... :	Pillar terminals	P
1.10 (5.2.2)	Type of cable..... :		N/A
	Nominal cross-sectional area (mm²) ..... :		N/A
	Cables equal to IEC 60227 or IEC 60245		N/A
1.10 (5.2.3)	Type of attachment, X, Y or Z		N/A
1.10 (5.2.5)	Type Z not connected to screws		N/A
1.10 (5.2.6)	Cable entries:		—
	- suitable for introduction		P
	- adequate degree of protection		P
1.10 (5.2.7)	Cable entries through rigid material have rounded edges		P
1.10 (5.2.8)	Insulating bushings:		—
	- suitably fixed		N/A
	- material in bushings		N/A
	- material likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
1.10 (5.2.9)	Locking of screwed bushings		N/A
1.10 (5.2.10)	Cord anchorage:		—
	- covering protected from abrasion		N/A
	- clear how to be effective		N/A
	- no mechanical or thermal stress		N/A
	- no tying of cables into knots etc.		N/A
	- insulating material or lining		N/A
1.10 (5.2.10.1)	Cord anchorage for type X attachment:		—
	a) at least one part fixed		N/A
	b) types of cable		N/A
	c) no damaging of the cable		N/A
	d) whole cable can be mounted		N/A
	e) no touching of clamping screws		N/A
	f) metal screw not directly on cable		N/A
	g) replacement without special tool		N/A
	Glands not used as anchorage		N/A
	Labyrinth type anchorages		N/A
1.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		N/A
1.10 (5.2.10.3)	Tests:		—

EN 60 598-2-1			
Clause	Requirement – Test	Result	Verdict
	- impossible to push cable; unsafe		N/A
	- pull test: 25 times; pull (N) ..... :		N/A
	- torque test: torque (Nm)..... :		N/A
	- displacement ≤ 2 mm		N/A
	- no movement of conductors		N/A
	- no damage of cable or cord		N/A
1.10 (5.2.11)	External wiring passing into luminaire		N/A
1.10 (5.2.12)	Looping-in terminals		N/A
1.10 (5.2.13)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N/A
1.10 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A
1.10 (5.2.15)	Not used		—
1.10 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Appliance couplers of class II type		N/A
1.10 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
1.10 (5.2.18)	Used plug in accordance with		—
	- IEC 60083		N/A
	- other standard		N/A
1.10 (5.3)	Internal wiring		—
1.10 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		—
	- not delivered/ mounting instruction		N/A
	- factory assembled		N/A
	- socket outlet loaded (A) ..... :		N/A
	- temperatures..... :		N/A
	Green-yellow for earth only		P
1.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		—
	Cross-sectional area (mm²)..... :	0.75	P
	Insulation thickness		P
	Extra insulation added where necessary		N/A
1.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		N/A
	Adequate cross-sectional area and insulation thickness	0,5 mm^2	P
1.10 (5.3.1.3)	Double or reinforced insulation for class II		N/A
1.10 (5.3.1.4)	Conductors without insulation		N/A
1.10 (5.3.1.5)	SELV current-carrying parts	No SELV parts	N/A
1.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A

EN 60 598-2-1			
Clause	Requirement – Test	Result	Verdict
1.10 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		N/A
	Joints, raising/lowering devices		N/A
	Telescopic tubes etc.		N/A
	No twisting over 360°		P
1.10 (5.3.3)	Openings		N/A
	Bushings not removable		N/A
	Bushings in sharp openings		N/A
	Cables with protective sheath		N/A
1.10 (5.3.4)	Joints and junctions effectively insulated		N/A
1.10 (5.3.5)	Strain on internal wiring		N/A
1.10 (5.3.6)	Wire carriers		N/A
1.10 (5.3.7)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A

1.11 (8)	**PROTECTION AGAINST ELECTRIC SHOCK**		**P**
1.11 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection	No such parts	N/A
	Basic insulated parts not accessible with standard test finger on portable and adjustable luminaires		N/A
	Basic insulated parts not accessible with Ø 50 mm probe from outside, within arm's reach, on wall-mounted luminaires		N/A
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N/A
	Protection in any position		P
	Double-ended tungsten filament lamp		N/A
	Insulation lacquer not reliable		P
	Double-ended high pressure discharge lamp		N/A
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
1.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N/A
1.11 (8.2.3)	Protection against electric shock, additional requirements:		N/A
	a) For class II luminaire:		N/A
	- basic insulated metal parts not accessible during starter or lamp replacement		N/A
	- basic insulation not accessible other than during starter or lamp replacement		N/A

EN 60 598-2-1			
Clause	Requirement – Test	Result	Verdict
	- glass protective shields not used as supplementary insulation		N/A
	b) For class I luminaire with BC lampholder		N/A
	c) For class III luminaire:		N/A
	- voltage under load (V).....:		N/A
	- touch current (mA) .....:		N/A
	- no-load voltage (V).....:		N/A
	- insulation test voltage of 500 V r.m.s. for 1 min.		N/A
	- luminaires are other than ordinary. Nominal voltage (V).....:		N/A
	- connection to a SELV source		N/A
1.11 (8.2.4)	Portable luminaire:		N/A
	- protection independent of supporting surface		N/A
	- terminal block completely covered		N/A
1.11 (8.2.6)	Covers reliably secured		P
1.11 (8.2.7)	Discharging of capacitors ≥ 0,5 μF	Capacitors for LED	P
	Portable plug connected luminaire with capacitor		N/A
	Other plug connected luminaire with capacitor		N/A
	Discharge device on or within capacitor		P
	Discharge device mounted separately		N/A

1.12 (12)	**ENDURANCE TEST AND THERMAL TEST**		**P**
1.12 (12.3)	Endurance test:		P
	- mounting-position..... :	As in normal use	—
	- test temperature (°C) ..... :	55	—
	- total duration (h)..... :	240	—
	- supply voltage: Un factor; calculated voltage (V) ..... :	289	—
	- lamp used ..... :	Integral LED module	—
1.12 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N/A
	- marking legible		P
	- no cracks, deformation etc.		P
1.12 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
1.12 (12.5)	Thermal test (abnormal operation)	See appendix 1	P
1.12 (12.6)	Thermal test (failed lamp control gear condition):		N/A
1.12 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A) .....:	See appendix 1	N/A

EN 60 598-2-1			
Clause	Requirement – Test	Result	Verdict
	- case of abnormal conditions ..... :		N/A
	- electronic lamp control gear		—
	- measured winding temperature (°C): at 1,1 Un :		—
	- measured mounting surface temperature (°C): at 1,1 Un ..... :		N/A
	- calculated mounting surface temperature (°C) . :		N/A
	- track-mounted luminaires		N/A
1.12 (12.6.2)	Temperature sensing control		N/A
	- case of abnormal conditions ..... :		—
	- thermal link		N/A
	- manual reset cut-out		N/A
	- auto reset cut-out		N/A
	- measured mounting surface temperature (°C): ..... :		N/A
	- track-mounted luminaires		N/A
1.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N/A
1.12 (12.7.1)	Luminaire without temperature sensing control	See appendix 1	N/A
1.12 (12.7.1.1)	Luminaire with fluorescent lamp s 70W		N/A
	Test method 12.7.1.1 or Annex V.....		—
	Test according to 12.7.1.1:		—
	- case of abnormal conditions		—
	- Ballast failure at supply voltage (V).....		—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
	Test according to Annex V:		N/A
	- case of abnormal conditions		—
	- measured winding temperature (°C): at 1,1 Un..:		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un.....		—
	- calculated temperature of fixing point/exposed part (°C)..... :		—
	Ball-pressure test:		N/A
	- part tested; temperature °C)..... :		N/A
	- part tested; temperature (°C)..... :		N/A
1.12 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA		N/A
	- case of abnormal conditions		—

EN 60 598-2-1			
Clause	Requirement – Test	Result	Verdict
	- measured winding temperature (°C): at 1,1 Un.:		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un.....		—
	- calculated temperature of fixing point/exposed part (°C).....:		—
	Ball-pressure test:		N/A
	- part tested; temperature (°C).....:		N/A
	- part tested; temperature (°C).....:		N/A
1.12 (12.7.1.3)	Luminaire with short circuit proof transformers 10 VA		N/A
	- case of abnormal conditions		—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
1.12 (12.7.2)	Temperature sensing control		N/A
	- thermal link		N/A
	- manual reset cut-out		N/A
	- auto reset cut-out		N/A
	- measured temperature of fixing point/ exposed part (°C): ..... :		N/A
	Ball-pressure test:		N/A
	- part tested; temperature (°C) ..... :		N/A
	- part tested; temperature (°C) ..... :		N/A

1.13 (9)	**RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE**		**P**
1.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP..... :	IP67	—
	- mounting position during test..... :	As in normal use	—
	- fixing screws tightened; torque (Nm) ..... :	N/A	—
	- tests according to clauses..... :	9.2.1, 9.2.8	—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		P
	b) no talcum in dust-tight luminaire		P
	c) no trace of water on current-carrying parts or where it could become a hazard		P
	d) i) For luminaires without drain holes – no water entry		P
	d) ii) For luminaires with drain holes – no hazardous water entry		N/A
	e) no water in watertight luminaire		P

EN 60 598-2-1			
Clause	Requirement – Test	Result	Verdict
	f) no contact with live parts (IP 2X)		N/A
	f) no entry into enclosure (IP 3X and IP 4X)		N/A
	f) no contact with live parts (IP 3X and IP 4X)		N/A
1.13 (9.3)	Humidity test 48 h		P

1.14 (10)	**INSULATION RESISTANCE AND ELECTRIC STRENGTH**		**P**
1.14 (10.2.1)	Insulation resistance test		P
	Insulation resistance (MΩ):		P
	SELV:		N/A
	- between current-carrying parts of different polarity..... :		N/A
	- between current-carrying parts and mounting surface..... :		N/A
	- between current-carrying parts and metal parts of the luminaire..... :		N/A
	- Insulating bushings as described in Section 5.. :		N/A
	Other than SELV:		P
	- between live parts of different polarity ..... :	> 200 MΩ	P
	- between live parts and mounting surface ..... :	> 200 MΩ	P
	- between live parts and metal parts ..... :	> 200 MΩ	P
	- between live parts of different polarity through action of a switch..... :		N/A
	- Insulating bushings as described in Section 5.. :		N/A
1.14 (10.2.2)	Electric strength test		P
	Dummy lamp	Integral LED module	N/A
	Luminaires with ignitors after 24 h test		N/A
	Luminaires with manual ignitors		N/A
	Test voltage (V):		P
	SELV:		N/A
	- between current-carrying parts of different polarity..... :		N/A
	- between current-carrying parts and mounting surface..... :		N/A
	- between current-carrying parts and metal parts of the luminaire..... :		N/A
	- Insulating bushings as described in Section 5.. :		N/A
	Other than SELV:		P
	- between live parts of different polarity ..... :	1528 V	P
	- between live parts and mounting surface ..... :		N/A
	- between live parts and metal parts ..... :	Basic (to metal enclosure): 1528 V;	P

EN 60 598-2-1			
Clause	Requirement – Test	Result	Verdict
	- between live parts of different polarity through action of a switch..... :		N/A
	- Insulating bushings as described in Section 5.. :		N/A
1.14 (10.3.1)	Leakage current or Protective conductor current (mA)..... :	0,030 mA	P

1.15 (13)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		**P**
1.15 (13.2.1)	Ball-pressure test:		P
	- part tested; temperature (°C) ..... :	PCB, 125	P
	- part tested; temperature (°C) ..... :	LED module cover, 75	P
1.15 (13.3.1)	Needle flame test (10 s):		P
	- part tested ..... :		N/A
	- part tested ..... :		N/A
1.15 (13.3.2)	Glow-wire test (650°C):		P
	- part tested ..... :	LED module cover	P
1.15 (13.4.1)	Tracking test: part tested..... :	PCB	P

	ANNEX 1: Components					P
object/part No.	code	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity
Controlgear	C	SHENZHEN JBT ELECTRONICS TECHNOLOGY CO. LTD.	See Appendix 3	Input:176-240 V Output: 10-32 V	IEC 61347-2-13	Tested with appliance (See. Appendix 1)
Controlgear	D	Various	-	Input:176-240 V Output: 10-32 V	IEC 61347-2-13	CE
Fuse	C	XC Electronics (Shen Zhen) Corp. Ltd.	2T-Serie(s)	250V,2A	DIN EN 60127	VDE 40032253
	D	Various	-	250V,2A	DIN EN 60127	VDE
PCB	C	SHENZHEN YU XINDA SCIENCE AND TECHNOLOGY CO.,LTD.	YXD1	V-0, 120°C	UL 94, UL746	UL E352507
	C	SHENZHEN BEN CHUANG ELECTRONIC CO LTD	BC-2	V-0, 130°C	UL 94, UL746	UL E257130
	D	Various	-	V-0, 130°C	UL 94, UL746	UL
Internal wire	C	DONG GUAN SHENG PAI ELECTRIC WIRE & CABLE CO LTD	1332	Min.ieAWG^O O'C 300V	UL578	UL E347603
	D	Various	1332	Min.18AWG,20 043 300V	UL578	UL
Transformer	C	JIABITAI	JBT-IW0401-29V	0.82mH PQ2016	-	Test with appliance
Material of bobbin	C	CHANG CHUN PLASTICS CO LTD	T375J	V-0,150°C	UL 94	UL E59481
Magnet wire	C	QING YUAN SHI CHANGFA ENAMELLED WIRES MATERIAL OF COPPER CO LTD	2UEW-130	Class B,130°C, Polyurethane	UL1446	UL 241437
Insulation tape	C	SUZHOU JIAYUAN ELECTRONICS CO.,LTD	JY312#	130 "C	UL 510	ULE188295
Varnish	C	JOHN C DOLPH CO	BC-325	200X2, Magnet wire type: MW35C	UL1446	UL E317427

	ANNEX 1: Components					P
object/part No.	code	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity
Triple insulated wire	C	SHANGHAI XIANGXIANG ELECTRIC CO LTD	TEX-E	Class B,130X2, reinforced insulation	UL746	UL E308908
Plastic enclosure/Len	C	LOTTE CHEMICAL CORPORATION	PC-1100(+)	V-2,125X2	UL 94	UL
Varistor	C	BRIGHTKING (SHENZHEN) CO LTD	ZOV-07D471K	10A,AC50-420V,DC 65-560V	IEC 61051	VDE 40027827
	C	Various	—	10A,AC50-420V,DC 65-560V	IEC 61051	VDE
X-cap	C	SHENZHEN CHUANGSHUODA ELECTRONICS.,LT D	MEX/TENTA MKP	0.1 uF 275VAC 40/100/21	DIN EN60384-14	VDE 40037763
	D	Various	MEX/TENTA MKP	0.1 uF 275VAC 40/100/21	DIN EN60384-14	VDE
Y-cap	C	Xiamen Wanming Electronics Co., Ltd.,	HM/UM/CM	470pF 400VAC	DIN EN60384-14	VDE 40034436
	C	Keyhold Electronics (Shenzhen) Co.Ltd.	KCMP	470 pF 400VAC	DIN EN60384-14	VDE 40028075
	D	Various	...	470 pF 400VAC	DIN EN60384-14	VDE
LED module	C	Varton	EB18-111-1-12 EB18-111-1-12	9 W		Tested with appliance See appendix 2

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

	ANNEX 2a: TEMPERATURE MEASUREMENTS, THERMAL TESTS OF SECTION 12		P
	Type reference ..... :	V-04-221-054-4100K	—
	Lamp used..... :	Integral LED module	—
	Lamp control gear used ..... :	Integral	—

	Mounting position of luminaire ..... :	As in normal use	—
	Supply wattage (W) ..... :	54	—
	Supply current (A) ..... :	0,157	—
	Calculated power factor ..... :	0,958	—
	Table: measured temperatures corrected for t_a = 50 °C:		P
	- abnormal operating mode ..... :		—
	- test 1: rated voltage ..... :	-	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage..... :	289V	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage ..... :	-	—
	- test 4: 1,1 times rated voltage or 1,05 times rated wattage..... :	-	—

temperature (°C) of part	clause 12.4 – normal				clause 12.5 – abnormal	
	test 1	test 2	test 3	limits	test 4	limit
Plastic enclosure	-	68,0	-	90	-	-
Plastic enclosure of controlgear	-	78,3	-	90	-	-
Terminals	-	53,2	-	120	-	-
Transformer windings	-	81,1	-	90	-	-
Capacitor (ta 105°C)	-	75,5	-	105	-	-
Filter capacitors (ta 110°C)	-	59,2	-	110	-	-

	ANNEX 2b: TEMPERATURE MEASUREMENTS, THERMAL TESTS OF SECTION 12		P
	Type reference ..... :	V-04-831-054-4100K	—
	Lamp used..... :	Integral LED module	—
	Lamp control gear used ..... :	Integral	—
	Mounting position of luminaire ..... :	As in normal use	—
	Supply wattage (W) ..... :	54	—
	Supply current (A) ..... :	-	—
	Calculated power factor ..... :	0,7	—
	Table: measured temperatures corrected for t_a = 50 °C:		P
	- abnormal operating mode ..... :		—
	- test 1: rated voltage ..... :	-	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage..... :	289V	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage ..... :	-	—
	- test 4: 1,1 times rated voltage or 1,05 times rated wattage..... :	-	—

temperature (°C) of part	clause 12.4 – normal	clause 12.5 – abnormal

	test 1	test 2	test 3	limits	test 4	limit
Plastic enclosure of controlgear	-	68,5	-	90	-	-
Terminals	-	65,2	-	120	-	-
Transformer windings	-	74,1	-	90	-	-
Capacitor (ta 105°C)	-	71,1	-	105	-	-

	ANNEX 3: SCREW TERMINALS (PART OF THE LUMINAIRE)		P
(14)	SCREW TERMINALS		P
(14.2)	Type of terminal.....:	Pillar terminal	—
	Rated current (A).....:	15	—
(14.3.2.1)	One or more conductors		P
(14.3.2.2)	Special preparation		P
(14.3.2.3)	Terminal size	2	P
	Cross-sectional area (mm²).....:	1,5	P
(14.3.3)	Conductor space (mm).....:	4	P
(14.4)	Mechanical tests		P
(14.4.1)	Minimum distance		P
(14.4.2)	Cannot slip out		P
(14.4.3)	Special preparation		P
(14.4.4)	Nominal diameter of thread (metric ISO thread) .:	M3	P
	External wiring		P
	No soft metal		P
(14.4.5)	Corrosion		P
(14.4.6)	Nominal diameter of thread (mm) .....:	4	P
	Torque (Nm).....:	0,4	P
(14.4.7)	Between metal surfaces		P
	Lug terminal		N/A
	Mantle terminal		N/A
	Pull test; pull (N).....:	50	P
(14.4.8)	Without undue damage		P

	ANNEX 4: SCREWLESS TERMINALS (PART OF THE LUMINAIRE)		N/A
(15)	SCREWLESS TERMINALS		N/A
(15.2)	Type of terminal.....:		—
	Rated current (A).....:		—
(15.3.1)	Material		N/A
(15.3.2)	Clamping		N/A
(15.3.3)	Stop		N/A
(15.3.4)	Unprepared conductors		N/A
(15.3.5)	Pressure on insulating material		N/A
(15.3.6)	Clear connection method		N/A

(15.3.7)	Clamping independently										N/A
(15.3.8)	Fixed in position										N/A
(15.3.10)	Conductor size										N/A
	Type of conductor										N/A
(15.5.1)	Terminals internal wiring										N/A
(15.5.1.1)	Pull test spring-type terminals (4 N, 4 samples)										N/A
(15.5.1.2)	Pull test pin or tab terminals (4 N, 4 samples)										N/A
	Insertion force not exceeding 50 N										N/A
(15.5.2)	Permanent connections: pull-off test (20 N)										N/A
(15.6)	Electrical tests										N/A
	Voltage drop (mV) after 1 h (4 samples).....:										N/A
	Voltage drop of two inseparable joints										N/A
	Number of cycles.....:										—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:										N/A
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:										N/A
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples) .....:										N/A
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples) .....:										N/A
(15.7)	Terminals external wiring										N/A
	Terminal size and rating										N/A
(15.8.1)	Pull test spring-type terminals (4 samples); pull (N)										N/A
	Pull test pin or tab terminals (4 samples); pull (N)										N/A
(15.9)	Contact resistance test										N/A
	Voltage drop (mV) after 1 h										
Terminal		1	2	3	4	5	6	7	8	9	10
voltage drop (mV)											
	Voltage drop of two inseparable joints										N/A
	Voltage drop after 10th alt. 25th cycle										N/A
	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										N/A
	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										N/A
	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									N/A
	Max. allowed voltage drop (mV) .....:									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										

Appendix 1

EN 61347-2-13			
Clause	Requirement – Test	Result	Verdict
4 (4)	**SCOPE AND GENERAL REQUIREMENTS**		**P**
	Compliance of independent control gear enclosure with EN 60598-1	No	—
	Independent SELV controlgear shall comply with Annex I .....:	No	—
6 (6)	**CLASSIFICATION**		**P**
	Independent controlgear .....:	No	—
	Built-in controlgear .....:	No	—
	Integral controlgear .....:	Yes	—
	SELV-equivalent or isolating controlgear .....:	Yes	—
	Auto-wound controlgear .....:	No	—
	Independent SELV controlgear .....:	No	—
7	**MARKING**		**N/A**
7.1 (7.1)	Mandatory markings:		N/A
	Controlgear, other than integral controlgear, shall be marked with the following:	Integral controlgear	N/A
	- mark of origin		N/A
	- model number, type reference .....:		N/A
	- symbol for independent controlgear, if applicable		N/A
	- correlation between interchangeable parts and controlgear marked		N/A
	- rated supply voltage (V) .....:		N/A
	- earthing symbol		N/A
	- wiring diagram		N/A
	- value of t_c		N/A
	- symbol for declared temperature		N/A
	Constant voltage type .....:	Yes / No	—
	- rated output voltage (V) .....:		N/A
	Constant current type.....:	Yes / No	—
	- rated output current (A).....:		N/A
	- rated maximum output voltage (V).....:		N/A
	- indication if for LED modules only		N/A
7.2 (7.1)	Information to be provided, if applicable		N/A
	- declaration on protection against accidental contact		N/A
	- cross-section of conductors (mm²) .....:		N/A

EN 61347-2-13			
Clause	Requirement – Test	Result	Verdict
	- number, type and wattage of lamp(s)		N/A
	- declaration of control gear has mains connected windings		N/A
	- declaration for SELV-equivalent controlgear		N/A
- (7.2)	Marking durable and legible		N/A
	Rubbing 15 s water, 15 s petroleum; marking legible		N/A

8 (10)	**PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS**		**P**
- (10.1)	Controlgear protected against accidental contact with live parts		P
- (A2)	The current flowing between the part concerned and earth is measured and does not exceed: max. 0,7 mA (peak) or 2,0 mA d.c., ...:	See IEC 60598-2-1 Report	P
- (A2)	For frequencies above 1000 Hz the current does not exceed 0,7 mA (peak) multiplied by the value of the frequency in kilohertz or 70 mA (peak) .....:		N/A
- (A3)	The voltage between the part concerned and any accessible part is measured and does not exceed 34 V (peak).....:		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 .....:		N/A
8.1 (-)	SELV-equivalent controlgear accessible parts are insulated from live parts by double or reinforced insulation according 8.6 and 13.1 in IEC 60065	Integral controlgear	N/A
8.2 (-)	Exposed terminals of SELV or SELV-equivalent controlgear are allowed if:	No such terminals	N/A
	- the rated or maximum output voltage does not exceeding 25 V r.m.s.		N/A
	- the no-load output voltage does not exceed 30 V r.m.s. or 33 √2 V peak		N/A
	Insulated terminals if rated output voltage >25 V N		N/A
	One capacitor Y1 or two capacitors Y2 of the same values used in series between SELV or SELV-equivalent output and primary circuits - Capacitor complying with IEC 60384-14 - Other components bridging the separating transformer complying with EN 60065, clause 14		N/A

9 (8)	**TERMINALS**		**P**
	Screw terminals: compliance with Section 14 of EN 60598-1	See report of EN 60 598-2-1	P
	Screwless terminals: compliance with Section 15 of EN 60598-1		N/A

EN 61347-2-13			
Clause	Requirement – Test	Result	Verdict
10 (9)	**PROVISION FOR EARTHING**		**N/A**
	External metal parts connected to the earth-terminal:	No earting in controlgear	N/A
	- compliance with 7.2.1 in EN 60598-1		N/A
	Test with a current of 10 A between earthing terminal and each of the accessible metal parts; measured resistance (Ω): < 0,5 Ω :		N/A
	Protective earth, symbol		N/A
	Terminal complying with clause 8 in Part 1		N/A
	Locked against loosening and not possible to loosen by hand		N/A
	Not possible to loosen clamping means unintentionally on screwless terminals		N/A
	Earthing via means of fixing		N/A
	Earthing terminal only used for the earthing of the control gear		N/A
	All parts of material minimizing the danger of electrolytic corrosion		N/A
	Made of brass or equivalent material		N/A
	Contact surface bare metal		N/A
	Conductors by tracks on printed circuit boards:		N/A
	- a.c. current of 25 A for 1 min between earthing terminal and accessible metal parts		N/A
	- compliance with clause 7.2.1 in EN 60598-1		N/A

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): ≥ 2 MΩ ..... :	>200 MΩ	P
	For double or reinforced insulation the resistance exceeds 4 MΩ		P
11 (-)	Adequate insulation between input and output terminals not bounded together in SELV-equivalent controlgear		N/A

12 (12)	**ELECTRIC STRENGTH**		**P**
	Immediately after clause 11 electric strength test for 1 min		P
	Working voltage ≤ 42 V, test voltage 500 V		N/A
	Working voltage > 42 V, test voltage (V): 2U + 1000 V .....:	Between live parts and accessible metal enclosure 1526 V	P
	Reinforced insulation, test voltage (V): .....:	Between live parts and accessible surface with metal foil 3750 V	P
	No flashover or breakdown		P

EN 61347-2-13			
Clause	Requirement – Test	Result	Verdict
12 (-)	Windings in separating transformers in SELV-equivalent control gear according to 14.3.2 of EN 60065	No such transformers	N/A

13 (13)	**THERMAL ENDURANCE FOR WINDINGS**		N/A
	Not applicable		—

14 (14)	**FAULT CONDITIONS**		**P**
	When operated under fault conditions the control gear:		P
	- does not emit flames or molten material		P
	- does not produce flammable gases		P
	- protection against accidental contact not impaired		P
	Thermally protected controlgear does not exceed the marked temperature value		N/A
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected		P
- (14.1)	Short-circuit of creepage distances and clearances if less than specified in clause 18 (except between live parts and accessible metal parts)		N/A
	Distances of printed boards provided with coating according to IEC 60664-3 is used		N/A
- (14.2)	Short-circuit or interruption of semiconductor devices	(see appended table 14)	P
- (14.3)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table 14)	P
- (14.4)	Short-circuit across electrolytic capacitors	(see appended table 14)	P
- (14.5)	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		P
	After the tests the insulation resistance with d.c. 500 V (MΩ) are ≥ 1 MΩ .....:	>200 MΩ	P
	After the tests accessible parts has not become live		P
14 (-)	Temperature declared thermally protected controlgear fulfil the requirements in Annex C		N/A

15	**TRANSFORMER HEATING**		**P**
	Windings of separating transformer in a SELV equivalent control gear tested according to 7.1 and 11.2 of EN 60065 are complied with		P

EN 61347-2-13			
Clause	Requirement – Test	Result	Verdict
15.1	Temperatures do not exceed the changed values of the values in column 2 of Table 3 of IEC 60065, in respect to relevant ambient temperature at tc, under normal operation		P
15.2	Temperatures do not exceed the changed values of the values in column 3 of Table 3 of IEC 60065, in respect to relevant ambient temperature at tc, under abnormal conditions of Cl. 16 and fault conditions of Cl. 14		P
	Ambient temperature at tc .....:	50	—

16	**ABNORMAL CONDITIONS**		**P**
	Safety not impaired when ballast is operated at any voltage between 90% and 110% of rated voltage		P
16.1	Controlgear which are of the constant voltage output type:		N/A
	a) No LED module inserted		N/A
	b) Double the LED modules or equivalent load connected in parallel to the output terminals		N/A
	c) Output terminals short-circuited (20 cm and 200 cm or declared length)		N/A
	During and at the end of the tests no defect impairing safety, nor any smoke or flammable gases produced		N/A
16.2	Controlgear which are of the constant current output type:		P
	a) No LED module inserted		P
	b) Double the LED modules or equivalent load connected in series to the output terminals		P
	c) Output terminals short-circuited (20 cm and 200 cm or declared length)		P
	The maximum output voltage shall not be exceeded		N/A
	During and at the end of the tests no defect impairing safety, nor any smoke or flammable gases produced		P

17 (15)	**CONSTRUCTION**		**P**
- (15.1)	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P
- (15.2)	Printed boards used as internal connections complies with clause 14		P
17 (-)	Socket-outlet in the output circuit does not accept plugs complying with IEC 60083 and IEC 60906		N/A
	Not possible to engage plugs accepted by socket-outlet in the output circuit with socket-outlets complying with IEC 60083 and IEC 60906		N/A

EN 61347-2-13			
Clause	Requirement – Test	Result	Verdict
18 (16)	**CREEPAGE DISTANCES AND CLEARANCES**		**P**
	Creepage distances and clearances according to Table 3 and 4, as appropriate		P
	Printed boards see clause 14		P
	Insulating lining of metallic enclosures		N/A
19 (17)	**SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS**		**N/A**
	Screws, current-carrying parts and connections in compliance with EN 60598-1 (clause numbers between parentheses refer to EN 60598-1)		N/A
(4.11)	Electrical connections	See report of EN 60 598-2-1	N/A
(4.11.1)	Contact pressure		N/A
(4.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
	- at least two self-tapping screws		N/A
(4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
(4.11.4)	Material of current-carrying parts		N/A
(4.11.5)	No contact to wood		N/A
(4.12)	Mechanical connections and glands		N/A
(4.12.1)	Mechanical stress		N/A
	Screws not made of soft metal		N/A
	Screws of insulating material		N/A
	Torque test: part; torque (Nm) .....:		N/A
	Torque test: part; torque (Nm) .....:		N/A
	Torque test: part; torque (Nm) .....:		N/A
(4.12.2)	Screw diameter < 3 mm screwed into metal		N/A
(4.12.3)	Void		—
(4.12.4)	Locked connections		N/A
(4.12.5)	Screwed glands: force (N) .....:		N/A
20 (18)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		**P**
(18.1)	Parts of insulating material retaining live parts in position, ball-pressure test:		N/A
	- part; test temperature (°C) .....:	See clause 2.12 report of EN 60 598-2-1	N/A
	- part; test temperature (°C) .....:		N/A
(18.2)	Printed boards in accordance with IEC 60249-1, 4.3	Flame class V-0	P

EN 61347-2-13			
Clause	Requirement – Test	Result	Verdict
(18.3)	External parts of insulating material preventing electric shock glow-wire test 650 °C		N/A
(18.4)	Parts of insulating material retaining live parts in position, needle-flame test 10 s:		N/A
	- flame extinguished within 30 s		N/A
	- no flaming drops igniting tissue paper		N/A
(18.5)	Tracking test		N/A

21 (19)	**RESISTANCE TO CORROSION**		**N/A**
	Rust protection:	See clause 2.13 report of EN 60 598-2-1	N/A
	- test according 4.18.1 of IEC 60598-1		N/A
	- adequate varnish on the outer surface		N/A

- (20)	**NO-LOAD OUTPUT VOLTAGE**		**N/A**
	No-loud output voltage no differ more than 10% from rated voltage		N/A

14	**TABLE: tests of fault conditions**	**P**
Part	Simulated fault	Hazard
C14, C19, Output	S-c. Duration 1 hour. Not damaged, nominal output (0,9A).	No
Output	Overload. Max output current (0,9A). Duration 1 hour. Not damaged, no excessive temperatures.	No
C1	S-c. FU1 triggered , not working , no output , No excessive temperatures.	No

Appendix 2

EN 62031			
Clause	Requirement – Test	Result	Verdict
4	**GENERAL REQUIREMENTS**		**P**
4.4	Integral modules treated as part of luminaires defined in clause 0.5 of IEC 60598-1	Yes	—
4.5	Independent modules complies with requirements in IEC 60598-1	No	—
5	**GENERAL TEST REQUIREMENTS**		**P**
5.5	SELV-operated LED modules comply with AnnexI of IEC 61347-2-13		N/A
6	**CLASSIFICATION**		**P**
	Built-in module .....:	No	—
	Independent module .....:	No	—
	Integral module .....:	Yes	—
	For Integral module; Note to 1.2.1 in IEC 60598-1 applies		P
7	**MARKING**		**N/A**
7.1	Mandatory markings:	Integral LED module	N/A
	- mark of origin		N/A
	- model number, type reference ..... :		N/A
	- rated supply voltage (V)..... :		N/A
	- rated supply current (A)..... :		N/A
	- rated input power (W)..... :		N/A
	- nominal power		N/A
	- indication of connections, wiring diagram		N/A
	- value of t_c		N/A
	- eye protection		N/A
	- marking of built-in modules only		N/A
7.2	Location of marking		N/A
7.3	Marking durable and legible		N/A
	Rubbing 15 s water, marking legible		N/A
8	**TERMINALS**		**N/A**
	SCREW TERMINALS	See report of EN 60 598-2-1	N/A
	Compliance with section 14 of IEC 60598-1		N/A
	SCREWLESS TERMINALS		N/A

EN 62031			
Clause	Requirement – Test	Result	Verdict
	Compliance with section 15 of IEC 60598-1		N/A
	CONNECTORS		N/A
	Compliance with IEC 60838-2-2		N/A

9	**PROVISION FOR PROTECTIVE EARTHING**		**N/A**
	External metal parts connected to the earth terminal:		N/A
	- compliance with 7.2.1 in IEC 60598-1	See report of EN 60 598-2-2	N/A
	Test with a current of 10 A between earthing terminal and each of the accessible metal parts; measured resistance (□): < 0,5 ..... :		N/A
	Protective earth, symbol		N/A
	Terminal complying with clause 8 in Part 1		N/A
	Locked against loosening and not possible to loosen by hand		N/A
	Not possible to loosen clamping means unintentionally on screwless terminals		N/A
	Earthing via means of fixing		N/A
	Earthing terminal only used for the earthing of the control gear		N/A
	All parts of material minimizing the danger of electrolytic corrosion		N/A
	Contact surface bare metal		N/A
	Conductors by tracks on printed circuit boards:		N/A
	- a.c. current of 25 A for 1 min between earthing terminal and accessible metal parts		N/A
	- compliance with clause 7.2.1 in EN 60598-1		N/A

8 (10)	**PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS**		**P**
	Protection against accidental contact with live parts in compliance with IEC 61347-1 (clause numbers between parentheses refer to IEC 61347-1)		P
- (10.1)	Controlgear protected against accidental contact with live parts		P
- (A1)	Current measured according to EN 60990, figure 4 and clause 7.1: max. 0,7 mA (peak) or 2,0 mA d.c., for f ≥ 1000 Hz max. 70 mA ..... :		N/A
- (A2)	Voltage at 50 kΩ (V): max. 34 V (peak)..... :		N/A
	Lacquer or enamel not used		N/A
	Adequate mechanical strength on parts providing protection		N/A
- (10.2)	Capacitors > 0,5 μF: voltage after 1 min (V): < 50 V		N/A

11	**MOISTURE RESISTANCE AND INSULATION**	**P**

EN 62031			
Clause	Requirement – Test	Result	Verdict
	Protection against moisture and insulation in compliance with Clause 11, IEC 61347-1		P
	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance with d.c. 500 V (MΩ): ≥ 2 MΩ ..... :	>200MΩ	P
	Adequate insulation between input and output terminals not bounded together in SELV-equivalent controlgear		N/A
	For double or reinforced insulation the resistance exceeds 4 MΩ		N/A

12	**ELECTRIC STRENGTH**		**P**
	Electric strength in compliance with Clause 12 of IEC 61347-1		P
	Immediately after clause 11 electric strength test for 1 min		P
	Working voltage ≤ 42 V, test voltage 500 V		N/A
	Working voltage > 42 V, test voltage (V): 2U + 1000 V..... :	1526 V	P
	Reinforced insulation, test voltage (V)..... :		N/A
	No flashover or breakdown		P
	Windings in separating transformers in SELV-equivalent control gear according to 14.3.2 of EN 60065		N/A

13	**FAULT CONDITIONS**		**P**
13.1	In compliance with IEC 61347-1 (clause numbers between parentheses refer to IEC 61347-1)		P
	When operated under fault conditions the LED-module:		P
	- does not emit flames or molten material	See report of EN 61347-2-13	P
	- does not produce flammable gases		P
	- protection against accidental contact not impaired		P
	Thermally protected controlgear does not exceed the marked temperature value		N/A
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected		P
- (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)		P
	Distances on printed boards provided with coating according to IEC 60664-3		N/A
- (14.2)	Short-circuit or interruption of semiconductor devices		P

EN 62031			
Clause	Requirement – Test	Result	Verdict
- (14.3)	Short-circuit across insulation consisting of lacquer, enamel or textile		N/A
- (14.4)	Short-circuit across electrolytic capacitors		P
- (14.5)	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		P
	After the tests the insulation resistance with d.c. 500 V (MΩ) are ≥ 1 MΩ		P
	Temperature declared thermally protected LED-modules fulfil the requirements in Annex C of IEC 61437-1		N/A
13.2	Module withstands overpower condition >15 min		P
	Module with automatic protective device or power limiter, test performed 15 min. at limit.		P
	During the tests, tissue paper, spread below module, does not ignite		P

15	**CONSTRUCTION**		**P**
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P

16	**CREEPAGE DISTANCES AND CLEARANCES**		**P**
	Creepage and distances and clearances in compliance with IEC 60598-1		P
	Class of protection ..... :	-	—
	Working voltage (V) ..... :	263V	—
	Voltage form ..... :	AC	—
	PTI ..... :	< 600	—
	Rated pulse voltage (kV) ..... :	-	—
	(1) Live parts of different polarity: cr (mm); cl (mm)..... :	> 1,5	P
	(2) Live parts and accessible parts: cr (mm); cl (mm)..... :	Through insulation. See cl.12	N/A
	(3) Parts becoming live: cr (mm); cl (mm) ..... :		N/A
	(4) Outer surface of cable: cr (mm); cl (mm) ..... :		N/A
	(5) Live parts of switches: cr (mm); cl (mm) ..... :		N/A
	(6) Live parts and supporting surface: cr (mm); cl (mm)..... :		N/A

17 (17)	**SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS**		**N/A**
	Screws, current-carrying parts and connections in compliance with IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1)		N/A
(4.11)	Electrical connections:		N/A
(4.11.1)	Contact pressure	See report of EN 60 598-2-1	N/A
(4.11.2)	Screws:		N/A

EN 62031			
Clause	Requirement – Test	Result	Verdict
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
	- at least two self-tapping screws		N/A
(4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
(4.11.4)	Material of current-carrying parts		N/A
(4.11.5)	No contact to wood		N/A
(4.12)	Mechanical connections and glands:		N/A
(4.12.1)	Mechanical stress		N/A
	Screws not made of soft metal		N/A
	Screws of insulating material		N/A
	Torque test: part; torque (Nm) ..... :		N/A
	Torque test: part; torque (Nm) ..... :		N/A
	Torque test: part; torque (Nm) ..... :		N/A
(4.12.2)	Screw diameter < 3 mm screwed into metal		N/A
(4.12.3)	Void		—
(4.12.4)	Locked connections		N/A
(4.12.5)	Screwed glands: force (N) ..... :		N/A

18 (18)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		**P**
	Resistance to Heat, Fire and Tracking in compliance with IEC 61347-1 (clause numbers between parentheses refer to IEC 61347-1)		N/A
(18.1)	Parts of insulating material retaining live parts in position, ball-pressure test:		N/A
	- part; test temperature (°C)..... :	See report of EN 61347-2-13	N/A
	- part; test temperature (°C)..... :		N/A
(18.2)	Printed boards in accordance with IEC 60249-1, 4.3	Flame class V-0	P
(18.3)	External parts of insulating material preventing electric shock glow-wire test 650 °C		N/A
(18.4)	Parts of insulating material retaining live parts in position, needle-flame test 10 s:		N/A
	- flame extinguished within 30 s		N/A
	- no flaming drops igniting tissue paper		N/A
(18.5)	Tracking test		N/A

19	**RESISTANCE TO CORROSION**		**N/A**
	Resistance to corrosion in compliance with IEC 61347-1		N/A
	Rust protection:		N/A
	- test according 4.18.1 of IEC 60598-1	See report of EN 60 598-2-1	N/A
	- adequate varnish on the outer surface		N/A

Appendix 3
Type designation

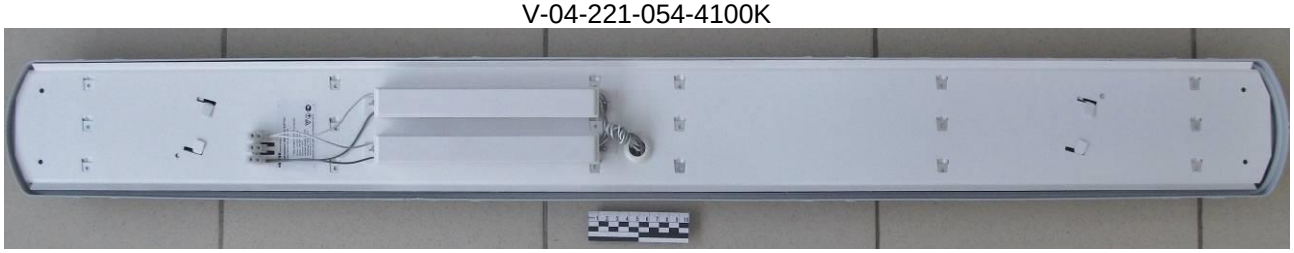
	TABLE:TYPE DESIGNATION				—
Type ref.	Rated wattage	Rated voltage	IP	Class of protection	Controlgear used
V-04-211-018-4100K	18 W	176-264 V	IP65	Class I	EB20-095-0-2120
V-04-210-018-6500K	18 W	176-264 V	IP65	Class I	EB20-095-0-2120
V-04-201-036-4100K	36 W	176-264 V	IP65	Class I	EB40-095-0-280-2180 (OL 107-600*600-4-040-1)
V-04-200-036-6500K	36 W	176-264 V	IP65	Class I	EB40-095-0-280-2180 (OL 107-600*600-4-040-1)
V-04-221-054-4100K	54 W	176-264 V	IP65	Class I	EB30-095-0-2120-2280 (OL 107-600*600-4-040-1)
V-04-220-054-6500K	54 W	176-264 V	IP65	Class I	EB30-095-0-2120-2280 (OL 107-600*600-4-040-1)
V-A4-211-018-4100K	18 W	176-264 V	IP65	Class I	EB20-095-0-2120 and EB 009-090-1-01-220-2*80
V-A4-210-018-6500K	18 W	176-264 V	IP65	Class I	EB20-095-0-2120 and EB 009-090-1-01-220-2*80
V-A4-201-036-4100K	36 W	176-264 V	IP65	Class I	EB40-095-0-280-2180 (OL 107-600*600-4-040-1) and EB 009-090-1-01-220-2*80
V-A4-200-036-6500K	36 W	176-264 V	IP65	Class I	EB40-095-0-280-2180 (OL 107-600*600-4-040-1) and EB 009-090-1-01-220-2*80
V-A4-221-054-4100K	54 W	176-264 V	IP65	Class I	EB30-095-0-2120-2280 (OL 107-600*600-4-040-1) and EB 009-090-1-01-220-2*80
V-A4-220-054-6500K	54 W	176-264 V	IP65	Class I	EB30-095-0-2120-2280 (OL 107-600*600-4-040-1) and EB 009-090-1-01-220-2*80
V-04-212-018-6500K	18 W	176-264 V	IP65	Class I	EB20-095-0-2120
V-04-213-018-4100K	18 W	176-264 V	IP65	Class I	EB20-095-0-2120
V-04-203-036-4100K	36 W	176-264 V	IP65	Class I	EB40-095-0-280-2180 (OL 107-600*600-4-040-1)
V-04-202-036-6500K	36 W	176-264 V	IP65	Class I	EB40-095-0-280-2180 (OL 107-600*600-4-040-1)
V-04-822-018-2700K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120
V-04-821-018-4100K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120
V-04-820-018-6500K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120
V-04-825-027-2700K	27 W	176-264 V	IP67	Class I	EB30-095-0-2120-2280 (OL 107-600*600-4-040-1)
V-04-826-027-4100K	27 W	176-264 V	IP67	Class I	EB30-095-0-2120-2280 (OL 107-600*600-4-040-1)
V-04-827-027-6500K	27 W	176-264 V	IP67	Class I	EB30-095-0-2120-2280 (OL 107-600*600-4-040-1)
V-D4-821-018-4100K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120 -D
V-D4-820-018-6500K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120 -D
V-04-812-018-2700K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120
V-04-811-018-4100K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120
V-04-810-018-6500K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120
V-04-802-036-2700K	36 W	176-264 V	IP67	Class I	EB40-095-0-280-2180 (OL 107-600*600-4-040-1)

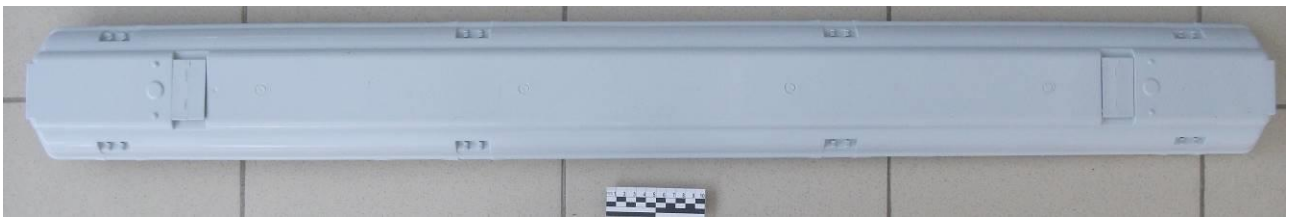
V-04-801-036-4100K	36 W	176-264 V	IP67	Class I	EB40-095-0-280-2180 (OL 107-600*600-4-040-1)
V-04-800-036-6500K	36 W	176-264 V	IP67	Class I	EB40-095-0-280-2180 (OL 107-600*600-4-040-1)
V-04-832-054-2700K	54 W	176-264 V	IP67	Class I	EB30-095-0-2120-2280 (OL 107-600*600-4-040-1)
V-04-831-054-4100K	54 W	176-264 V	IP67	Class I	EB30-095-0-2120-2280 (OL 107-600*600-4-040-1)
V-04-830-054-6500K	54 W	176-264 V	IP67	Class I	EB30-095-0-2120-2280 (OL 107-600*600-4-040-1)
V-A4-811-018-4100K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120 and EB 009-090-1-01-220-2*80
V-A4-810-018-6500K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120 and EB 009-090-1-01-220-2*80
V-A4-801-036-4100K	36 W	176-264 V	IP67	Class I	EB40-095-0-280-2180 (OL 107-600*600-4-040-1) and EB 009-090-1-01-220-2*80
V-A4-800-036-6500K	36 W	176-264 V	IP67	Class I	EB40-095-0-280-2180 (OL 107-600*600-4-040-1) and EB 009-090-1-01-220-2*80
V-A4-831-054-4100K	54 W	176-264 V	IP67	Class I	EB30-095-0-2120-2280 (OL 107-600*600-4-040-1) and EB 009-090-1-01-220-2*80
V-A4-830-054-6500K	54 W	176-264 V	IP67	Class I	EB30-095-0-2120-2280 (OL 107-600*600-4-040-1) and EB 009-090-1-01-220-2*80
V-D4-811-018-4100K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120 -D
V-D4-810-018-6500K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120 -D
V-D4-801-036-4100K	36 W	176-264 V	IP67	Class I	EB40-095-0-280-2180-D
V-D4-800-036-6500K	36 W	176-264 V	IP67	Class I	EB40-095-0-280-2180-D
V-04-824-018-4100K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120
V-04-823-018-6500K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120
V-04-814-018-4100K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120
V-04-813-018-6500K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120
V-04-804-036-4100K	36 W	176-264 V	IP67	Class I	EB40-095-0-280-2180 (OL 107-600*600-4-040-1)
V-04-803-036-6500K	36 W	176-264 V	IP67	Class I	EB40-095-0-280-2180 (OL 107-600*600-4-040-1)
V-04-872-018-2700K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120
V-04-871-018-4100K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120
V-04-870-018-6500K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120
V-04-875-027-2700K	27 W	176-264 V	IP67	Class I	EB30-095-0-2120-2280 (OL 107-600*600-4-040-1)
V-04-876-027-4100K	27 W	176-264 V	IP67	Class I	EB30-095-0-2120-2280 (OL 107-600*600-4-040-1)
V-04-877-027-6500K	27 W	176-264 V	IP67	Class I	EB30-095-0-2120-2280 (OL 107-600*600-4-040-1)
V-D4-870-018-6500K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120 -D
V-D4-871-018-4100K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120 -D
V-04-862-018-2700K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120
V-04-861-018-4100K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120
V-04-860-018-6500K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120
V-04-852-036-2700K	36 W	176-264 V	IP67	Class I	EB40-095-0-280-2180 (OL 107-600*600-4-040-1)
V-04-851-036-4100K	36 W	176-264 V	IP67	Class I	EB40-095-0-280-2180 (OL 107-600*600-4-040-1)
V-04-850-036-6500K	36 W	176-264 V	IP67	Class I	EB40-095-0-280-2180 (OL 107-600*600-4-040-1)

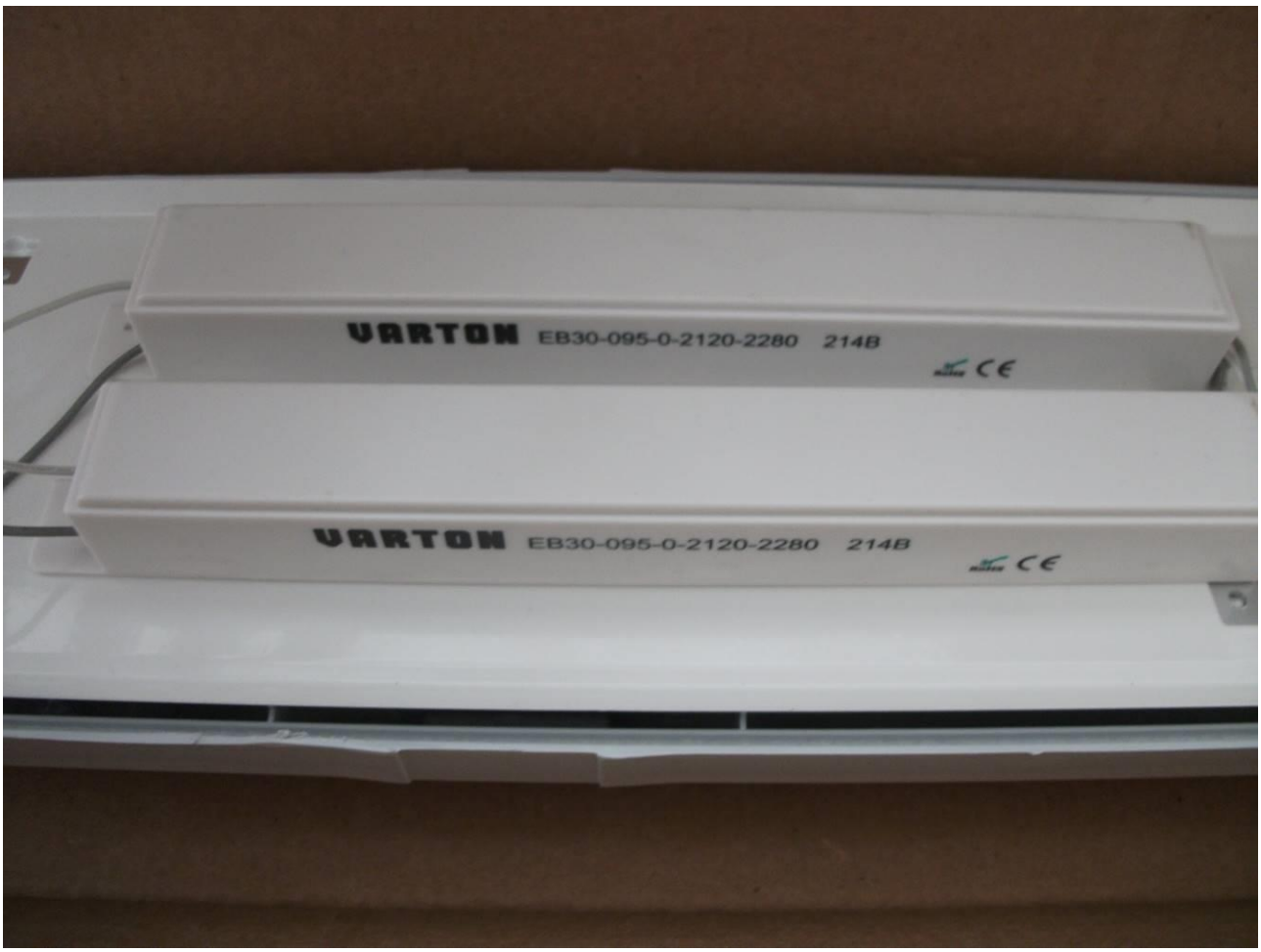
V-04-882-054-2700K	54 W	176-264 V	IP67	Class I	EB30-095-0-2120-2280 (OL 107-600*600-4-040-1)
V-04-881-054-4100K	54 W	176-264 V	IP67	Class I	EB30-095-0-2120-2280 (OL 107-600*600-4-040-1)
V-04-880-054-6500K	54 W	176-264 V	IP67	Class I	EB30-095-0-2120-2280 (OL 107-600*600-4-040-1)
V-A4-861-018-4100K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120 and EB 009-090-1-01-220-2*80
V-A4-860-018-6500K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120 and EB 009-090-1-01-220-2*80
V-A4-851-036-4100K	36 W	176-264 V	IP67	Class I	EB40-095-0-280-2180 (OL 107-600*600-4-040-1) and EB 009-090-1-01-220-2*80
V-A4-850-036-6500K	36 W	176-264 V	IP67	Class I	EB40-095-0-280-2180 (OL 107-600*600-4-040-1) and EB 009-090-1-01-220-2*80
V-A4-881-054-4100K	54 W	176-264 V	IP67	Class I	EB30-095-0-2120-2280 (OL 107-600*600-4-040-1) and EB 009-090-1-01-220-2*80
V-A4-880-054-6500K	54 W	176-264 V	IP67	Class I	EB30-095-0-2120-2280 (OL 107-600*600-4-040-1) and EB 009-090-1-01-220-2*80
V-04-874-018-4100K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120
V-04-873-018-6500K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120
V-04-864-018-4100K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120
V-04-863-018-6500K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120
V-04-854-036-4100K	36 W	176-264 V	IP67	Class I	EB40-095-0-280-2180 (OL 107-600*600-4-040-1)
V-04-853-036-6500K	36 W	176-264 V	IP67	Class I	EB40-095-0-280-2180 (OL 107-600*600-4-040-1)
V-D4-870-018-6500K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120 -D
V-D4-871-018-4100K	18 W	176-264 V	IP67	Class I	EB20-095-0-2120 -D
V-D4-850-036-6500K	36 W	176-264 V	IP67	Class I	EB40-095-0-280-2180-D
V-D4-851-036-4100K	36 W	176-264 V	IP67	Class I	EB40-095-0-280-2180-D

Appendix 4
Photos

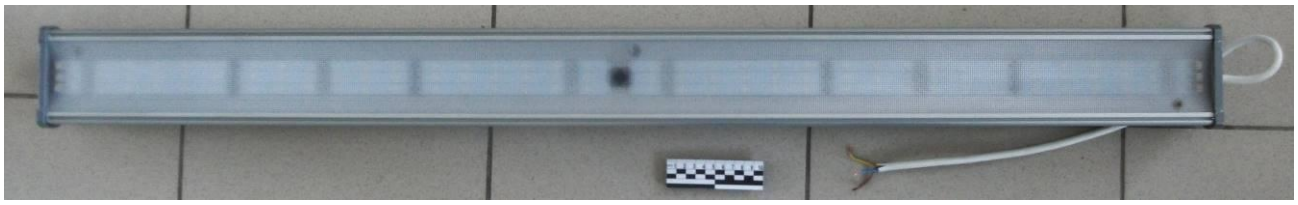
V-04-221-054-4100K

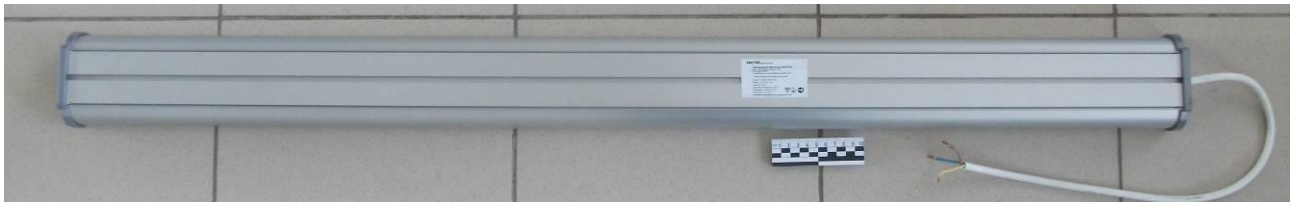


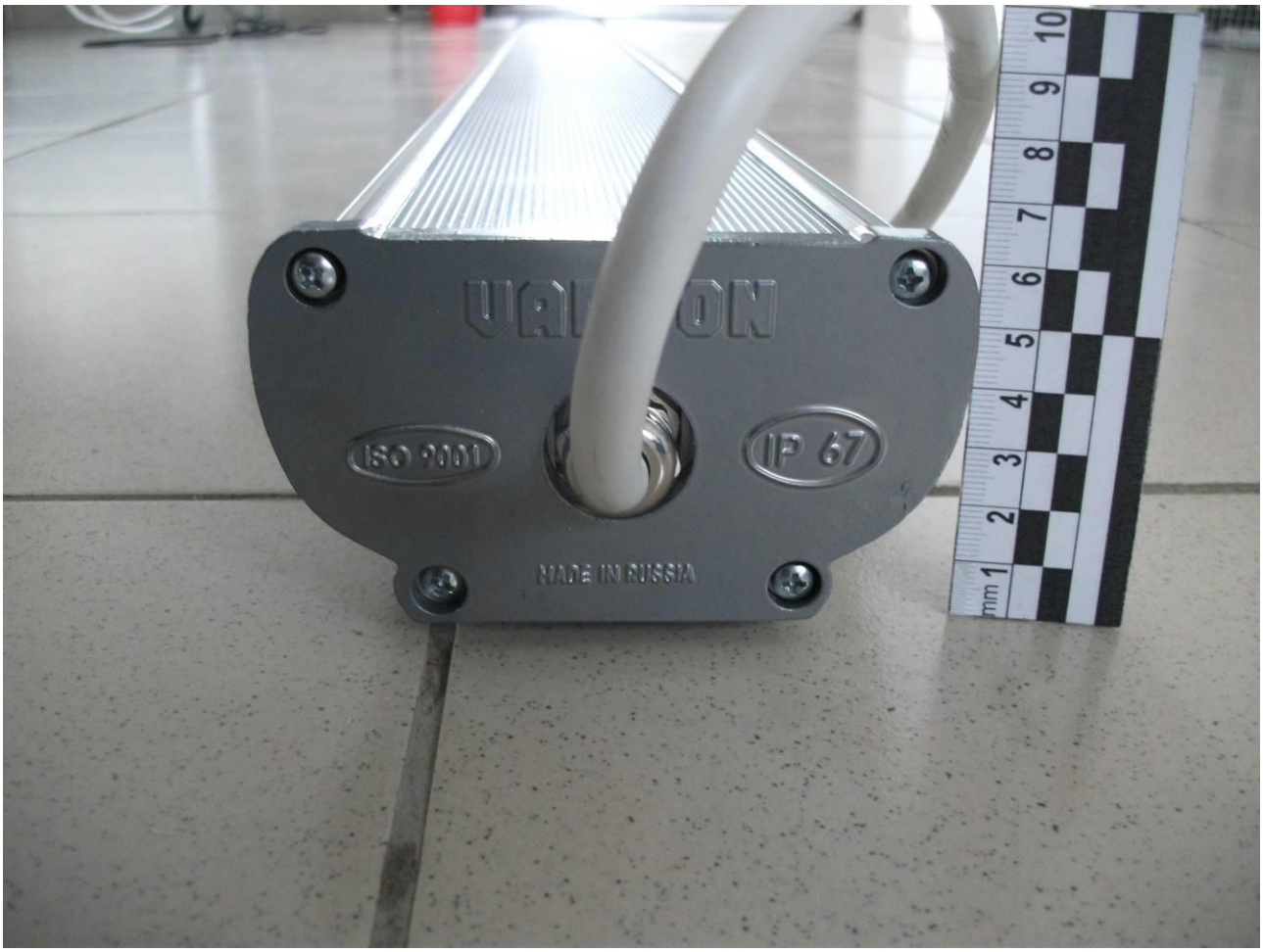




V-04-831-054-4100K







Appendix 5
Schemes

Controlgear
EB 40-095-0-280