CE LVD
TEST REPORT

For

FIRE RATED LED DOWNLIGHT

Model No.: VT-885, VT-18D, VT-7077, VT-7710

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.
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Report Number : GST.190708.J201S

Issued Date : July 12, 2019

Date of Report : July 12, 2019

Note:
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EN60598-1 Luminaires—Part 1 :General requirements and tests EN60598-2-2 Part 2-2:Particular requirments Section Two – Recessed luminaires	
Report reference No. ……..…:	GST.190708.J201S
Testing laboratory ……:	Global-Standard Testing Service Co., Ltd.
Location……..:	Room 1505, Building B, Chuangxin Plaza，Pingshan Avenue, Pingshan District, Shenzhen, 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 60598-1:2015+A1: 2018 EN 60598-2-2:2012 EN 61347-1: 2015 EN 61347-2-13: 2014+A1:2017 EN 62031:2008+A1:2013+A2:2015 EN 62471:2008 EN 62493:2015
Procedure deviation……:	N/A
Non-standard test method……..:	N/A
Type of test equipment ……....:	FIRE RATED LED DOWNLIGHT
Trade mark……:	V-TAC
Model/Type designation……..:	VT-885, VT-18D, VT-7077, VT-7710
Rating……:	200-240V~, 50/60Hz, Max.5W
Copyright blank test report:	Global-Standard Testing Service Co., Ltd.
Test item particulars:	--
Operating Condition	Continuous
Tested for IT power systems	N/A.
IT testing, phase-phase voltage (V)	N/A.
Class of equipment	Class II equipment
Protection against ingress of water	IP65

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 1505, Building B, Chuangxin Plaza，Pingshan Avenue, Pingshan District, Shenzhen, China

Tested by : John Huang — Signature — July 08, 2019 — Date

John Huang / Engineer
Name/title

Reviewed by : Gloria Wang — Signature — July 12, 2019 — Date

Gloria Wang / Supervisor
Name/title

Approved by : Global-Standard Testing Service Co.,Ltd. [APPROVED] — Signature — July 12, 2019 — Date

Nico Xie / Manager
Name/title

General remarks:	
Clause number between brackets refer to clauses in IEC 60598-1 "(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	Attachment with: 1) Photo documentation

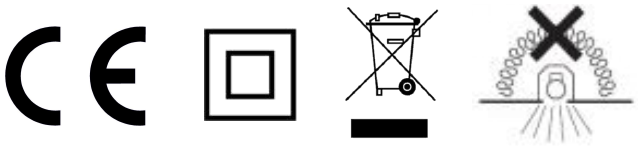
1. This report covers FIRE RATED LED DOWNLIGHT with models VT-885, VT-18D, VT-7077, VT-7710.
2. All the models are the similar construction except size, LED color , Wattage and LED numbers. The control gear matched lamp with different out voltage have different parameters of secondary componets.
3. Model VT-885 was selected as representative sample .
4. The European standard EN 62471 for LED laser product requirement has considered.
5. The Safety specifications of LED modules for general lighting was evaluated with reference to EN 62031
6. The test result presented in this report relate only to the object tested. The samples tested comply with the requirements of this standard.
7. The European standard EN 62493 for requirement has considered.

Label:

(Representative marking)

FIRE RATED LED DOWNLIGHT

Model No.: VT-885
Rating: 200-240V~, 50/60Hz, 5W



V-TAC EXPORTS LIMITED

Note: Due to similarity of the labels, only above label was listed.

- All labels have the same format except for model name and wattage.

- the height of WEEE directive mark is at least 7mm height.

EN 60598-2-2			
Clause	Requirement - Test	Result – Remark	Verdict
2.1 (0)	SCOPE		P
2.2 (0.1)	Information for luminaire disign concerned .....:	Yes ☐ No ☒	—
2.2 (0.3)	More sections applicable.....:	Yes ☐ No ☒	—
2.4 (2)	CLASSIFICATION		P
2.4 (2.2)	Type of protection.....:	Class II	—
2.4 (2.3)	Degree of protection.....:	IP65	—
2.4 (2.4)	Luminaire only suitable for non-combustible surfaces .....:	Yes ☐ No ☒	—
	Luminaire suitable for normally flammable surfaces.....:	Yes ☐ No ☒	—
	Luminaire suitable to be covered by insulating materials .....:	Yes ☒ No ☐	—
2.4 (2.5)	Luminaire for normal use .....:	Yes ☒ No ☐	—
	Luminaire for rough service .....:	Yes ☐ No ☒	—
2.5 (3)	MARKING		P
2.5.1 (-)	Warning notice, if not suitable for insulating ceiling		P
2.5 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
2.5 (3.3)	Additional information		P
	Language of instructions	English	N/A
2.5 (3.3.1)	Combination luminaires		P
2.5 (3.3.2)	Nominal frequency in Hz		N/A
2.5 (3.3.3)	Operating temperatures		N/A
2.5 (3.3.4)	Symbol or warning notice		N/A
2.5 (3.3.5)	Wiring diagram		N/A
2.5 (3.3.6)	Special conditions		N/A
2.5 (3.3.7)	Metal halide lamp luminaire – warning		N/A
2.5 (3.3.8)	Limitation for semi-luminaires		N/A
2.5 (3.3.9)	Power factor and supply current		P
2.5 (3.3.10)	Suitability for use indoor		p
2.5 (3.3.11)	Luminaires with remote control		N/A

EN 60598-2-2			
Clause	Requirement - Test	Result – Remark	Verdict
2.5 (3.3.12)	Clip-mounted luminaire-warning		P
2.5 (3.3.13)	Specifications of protective shields		N/A
2.5 (3.3.14)	Symbol for nature of supply	~	P
2.5 (3.3.15)	Rated current of socket outlet		N/A
2.5 (3.3.16)	Rough service luminaire		N/A
2.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	type Y	P
2.5 (3.3.18)	Non-ordinary luminaires with PVC cable		N/A
2.5 (3.3.101)	Adequate warning on the package (EN)		P
2.5 (3.4)	Test with water	Legible	P
	Test with hexane	Legible	P
	Legible after test	Yes	P
	Label attached	Yes	P

2.6 (4)	CONSTRUCTION		**P**
2.6 (4.2)	Components replaceable without difficulty		N/A
2.6 (4.3)	Wireways smooth and free form sharp edges		P
2.6 (4.4)	Lampholders		N/A
2.6 (4.4.1)	Integral lampholder	Use LED light	N/A
2.6 (4.4.2)	Wiring connection		N/A
2.6 (4.4.3)	Lampholder for end-to-end mounting		N/A
2.6 (4.4.4)	Positioning	No lampholder	N/A
	- pressure test (N).....:		N/A
	- bending test (Nm).....:		N/A
2.6 (4.4.5)	Peak pulse voltage		N/A
2.6 (4.4.6)	Centre contact		N/A
2.6 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
2.6 (4.4.8)	Lamp connectors		N/A
2.6 (4.4.9)	Caps and bases correctly used		N/A
2.6 (4.5)	Starter holders		N/A

EN 60598-2-2			
Clause	Requirement - Test	Result – Remark	Verdict
	Starter holders in luminaires other than class II		P
	Starter holder class II construction		P
2.6 (4.6)	Terminal blocks		N/A
	Tails		N/A
	Unsecured blocks		N/A
2.6 (4.7)	Terminals and supply connections		N/A
2.6 (4.7.1)	Contact to metal parts		N/A
2.6 (4.7.2)	Test 8 mm live conductor		N/A
	Test 8 mm earth conductor		N/A
2.6 (4.7.3)	Terminals for supply conductors		N/A
2.6 (4.7.3.1)	Welded connections:		N/A
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- 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
2.6 (4.7.4)	Terminals other than supply connection		N/A
2.6 (4.7.5)	Heat-resistant wiring/sleeves		N/A
2.6 (4.7.6)	Multi-pole plug		N/A
	- test at 30 N		N/A
2.6 (4.8)	Switches:		N/A
	- adequate rating		N/A
	- adequate fixing		N/A
	- polarized supply		N/A
2.6 (4.9)	Insulating lining and sleeves		N/A
2.6 (4.9.1)	Retainment		N/A
	Method of fixing.....:		N/A
2.6 (4.9.2)	Insulated linings and sleeves		N/A
	a) & c) Insulation resistance and electric strength		N/A
	b) Ageing test. Temperature (°C) .....:		N/A
2.6 (4.10)	Insulation of Class II luminaires		P
2.6 (4.10.1)	No contact, mounting surface - accessible metal parts - wiring of basic insulation		N/A

EN 60598-2-2			
Clause	Requirement - Test	Result – Remark	Verdict
	Safe installation fixed luminaires		N/A
	Capacitors and switches		N/A
	Interference suppression capacitors according to IEC 60384-14		N/A
2.6 (4.10.2)	Assembly gaps:		N/A
	- not coincidental		N/A
	- no straight access with test probe		N/A
2.6 (4.10.3)	Retainment of insulation:		N/A
	- fixed		N/A
	- unable to be replaced; luminaire inoperative		N/A
	- sleeves retained in position		N/A
	- lining in lampholder		N/A
2.6 (4.11)	Electrical connections		N/A
2.6 (4.11.1)	Contact pressure		N/A
2.6 (4.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread- cutting screws		N/A
	- at least two self-tapping screws		N/A
2.6 (4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
2.6 (4.11.4)	Material of current-carrying parts		N/A
2.6 (4.11.5)	No contact to wood		N/A
2.6 (4.11.6)	Electro-mechanical contact systems		N/A
2.6 (4.12)	Mechanical connections and glands		N/A
2.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part.....:	0.80Nm; Fixed cover	P
	Torque test: torque (Nm); part.....:		N/A
	Torque test: torque (Nm); part.....:		N/A

EN 60598-2-2			
Clause	Requirement - Test	Result – Remark	Verdict
2.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
2.6 (4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm)..... :		N/A
	- lampholder; torque (Nm)..... :		N/A
	- push-button switches; torque 0,8 Nm..... :		N/A
2.6 (4.12.5)	Screwed glands; force (N)..... :		N/A
2.6 (4.13)	Mechanical strength		P
2.6 (4.13.1)	Impact tests:		P
2.6.1 (-)	- recessed parts providing protection against electric shock; energy (Nm)..... :		P
	- other recessed parts; energy (Nm)..... :		N/A
2.6 (4.13.1)	- fragile parts; energy (Nm)..... :		N/A
	- other parts; energy (Nm)..... :	0.35Nm	P
	1) live parts		P
	2) linings		N/A
	3) protection		P
	4) covers		N/A
2.6 (4.13.3)	Straight test finger	30N	P
2.6 (4.13.4)	Rough service luminaires		N/A
	- IP54 or higher		N/A
	a) fixed		P
	b) hand-held		P
	c) delivered with a stand		P
	d) for temporary installations and suitable for mounting on a stand		P
2.6 (4.13.6)	Tumbling barrel		N/A
2.6 (4.14)	Suspensions and adjusting devices		P
2.6 (4.14.1)	Mechanical load:		P
	A) four times the weight		P
	B) torque 2,5 Nm ..... :	1h	P

EN 60598-2-2			
Clause	Requirement - Test	Result – Remark	Verdict
	C) bracket arm; bending moment (Nm)..... :		N/A
	D) load track- mounted luminaires		N/A
	E) clip-mounted luminaires, glass-shelve. Thickness (mm)..... :		P
	metal rod. Diameter (mm)..... :		P
	Fixed luminaire or independent control gear without fixing devices		N/A
2.6 (4.14.2)	Load to flexible cables		N/A
	Mass (kg):		N/A
	Stress in conductors (N/mm²):		N/A
	Semi-luminaires - mass (kg):		N/A
	Semi-luminaires - bending moment (Nm):		N/A
2.6 (4.14.3)	Adjusting devices:		N/A
	- flexing test; number of cycles..... :		N/A
	- strands broken		N/A
	- electric strength test afterwards		N/A
2.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
2.6 (4.14.5)	Guide pulleys		N/A
2.6 (4.14.6)	Strain on socket-outlets		N/A
2.6 (4.15)	Flammable materials:		N/A
	- glow- wire test 650 °C		N/A
	- spacing ≥ 30 mm		N/A
	- screen withstanding test of 13.3.1		N/A
	- screen dimensions		N/A
	- no fiercely burning material		N/A
	- thermal protection		N/A
	- electronic circuits exempted		N/A
1.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N/A
	a) construction		N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A
2.6 (4.16)	Luminaires marked with F-symbol		P

EN 60598-2-2			
Clause	Requirement - Test	Result – Remark	Verdict
	No lamp control gear		P
2.6 (4.16.1)	Lamp control gear spacing:		N/A
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
2.6 (4.16.2)	Thermal protection:		N/A
	- in lamp control gear		N/A
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear		N/A
2.6 (4.16.3)	"F" curve measured		P
2.6 (4.17)	Drain holes		N/A
	Clearance at least 5 mm		N/A
2.6 (4.18)	Resistance to corrosion:		N/A
2.6 (4.18.1)	- rust- resistance		N/A
2.6 (4.18.2)	- season cracking in copper		N/A
2.6 (4.18.3)	- corrosion of aluminium		N/A
2.6 (4.19)	Ignitors compatible with ballast		N/A
2.6 (4.20)	Rough service vibration		N/A
2.6 (4.21)	Protective shield:		N/A
2.6 (4.21.1)	Shield fitted		N/A
2.6 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
2.6 (4.21.3)	No direct path		P
2.6 (4.21.4)	Impact test on shield		N/A
	Glow-wire test on lamp compartment		N/A
2.6 (4.22)	Attachments to lamps		N/A
2.6 (4.23)	Semi-luminaires comply class II		P
2.6 (4.24)	UV radiation, metal halide lamps		P
2.6 (4.25)	No sharp point or edges		P
2.6 (4.26)	Short-circuit protection:		P

EN 60598-2-2			
Clause	Requirement - Test	Result – Remark	Verdict
2.6 (4.26.1)	Uninsulated accessible SELV parts		N/A
2.6 (4.26.2)	Short-circuit test		P
2.6 (4.26.3)	Test chain according to Figure 29		P

2.7 (11)	CREEPAGE DISTANCES AND CLEARANCES		P
	Working voltage (V).....:	AC200-240V	—
	Voltage form	Sinusoidal ☒ Non-sinusoidal ☐	— —
	PTI	< 600 ☒ > 600 ☐	—
	Rated pulse voltage (kV).....		—
	(1) Current-carrying parts of different polarity: cr (mm); cl (mm).....:		P
	(2) Current-carrying parts and accessible parts: cr (mm); cl (mm).....:	LED to accessible surface :1.2mm	P
	(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) Not used		N/A
	(6) Current-carrying parts and supporting surface: cr (mm); cl (mm).....:		P

2.8 (7)	PROVISION FOR EARTHING		N/A
2.8 (7.2.1 + 7.2.3)	Accessible metal parts		N/A
	Metal parts in contact with supporting surface		N/A
	Resistance < 0,5 Ω		N/A
	Two self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a grove		N/A
	Earth makes contact first		N/A
2.8 (7.2.2 + 7.2.3)	Earth continuity in joints etc.		N/A
2.8 (7.2.4)	Locking of clamping means		N/A
	Compliance with 4.7.3		N/A
2.8 (7.2.5)	Earth terminal integral part of connector socket		N/A

EN 60598-2-2			
Clause	Requirement - Test	Result – Remark	Verdict
2.8 (7.2.6)	Earth terminal adjacent to mains terminals		N/A
2.8 (7.2.7)	Electrolytic corrosion of the earth terminal		N/A
2.8 (7.2.8)	Material of earth terminal		N/A
	Contact surface bare metal		N/A
2.8 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
2.8 (7.2.11)	Earthing core coloured green-yellow		N/A
	Length of earth conductor		N/A
2.9 (14)	SCREW TERMINALS		N/A
	Separately approved; component list		N/A
	Part of the luminaire		N/A
2.9 (15)	SCREWLESS TERMINALS		N/A
	Separately approved; component list	(see Annex 1)	N/A
	Part of the luminaire	(see Annex 4)	N/A
2.10 (5)	EXTERNAL AND INTERNAL WIRING		P
2.10 (5.2)	Supply connection and external wiring		P
2.10 (5.2.1)	Means of connection.....:		P
	Connecting leads (EN)		P
	- without a means for connection to the supply		N/A
	- terminal block specified		N/A
	- relevant information provided		N/A
	- compliance with 4.6, 4.7.1, 4.7.2, 4.10.1, 11.2, 12 and 13.2 of Part 1		N/A
2.10 (5.2.2)	Type of cable.....:		N/A
	Cables equal to HD21 S2 or HD22 S2 (EN)		N/A
	Nominal cross-sectional area (mm²).....:		N/A
2.10 (5.2.3)	Type of attachment, X, Y or Z	Type Y	P
2.10 (5.2.5)	Type Z not connected to screws		N/A
2.10 (5.2.6)	Cable entries:		P

EN 60598-2-2			
Clause	Requirement - Test	Result – Remark	Verdict
	- suitable for introduction		P
	- adequate degree of protection		P
2.10 (5.2.7)	Cable entries through rigid material have rounded edges		N/A
2.10 (5.2.8)	Insulating bushings:		N/A
	- suitably fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
2.10 (5.2.9)	Locking of screwed bushings		N/A
2.10 (5.2.10)	Cord anchorage:		P
	- covering protected from abrasion		P
	- clear how to be effective		P
	- no mechanical or thermal stress		P
	- no tying of cables into knots etc.		P
	- insulating material or lining		P
2.10 (5.2.10.1)	Cord anchorage for type X attachment:		N/A
	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
2.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		P
2.10 (5.2.10.3)	Tests:		N/A
	- 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

EN 60598-2-2			
Clause	Requirement - Test	Result – Remark	Verdict
	- no movement of conductors		N/A
	- no damage of cable or cord		N/A
2.10 (5.2.11)	External wiring passing into luminaire		N/A
2.10 (5.2.12)	Looping- in terminals		N/A
2.10 (5.2.13)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
2.10 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A
2.10 (5.2.15)	Colour code low voltage (EN)		N/A
2.10 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Appliance couplers of class II type		P
2.10 (5.2.17)	Non standardized interconnecting cables properly assembled		N/A
2.10 (5.2.18)	Used plug in accordance with:		N/A
	- IEC 60083		N/A
	- other standard		N/A
2.10 (5.3)	Internal wiring		P
2.10 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		P
	- not delivered/ mounting instruction		P
	- factory assembled		P
	- socket outlet loaded (A)..... :		N/A
	- temperatures.....:	(see Annex 2)	P
	Green- yellow for earth only		N/A
2.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		N/A
	Cross-sectional area (mm²)..... :		N/A
	Insulation thickness		N/A
	Extra insulation added where necessary		N/A
2.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		P

EN 60598-2-2			
Clause	Requirement - Test	Result – Remark	Verdict
	Adequate cross-sectional area and insulation thickness		P
2.10 (5.3.1.3)	Double or reinforced insulation for class II		P
2.10 (5.3.1.4)	Conductors without insulation		N/A
2.10 (5.3.1.5)	SELV current-carrying parts		P
2.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
2.10 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		P
	Joints, raising/lowering devices		N/A
	Telescopic tubes etc.		N/A
	No twisting over 360°		P
2.10 (5.3.3)	Insulating bushings:		N/A
	- suitable fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- cables with protective sheath		N/A
2.10 (5.3.4)	Joints and junctions effectively insulated		N/A
2.10 (5.3.5)	Strain on internal wiring		N/A
2.10 (5.3.6)	Wire carriers		N/A
2.10 (5.3.7)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
2.11 (8)	PROTECTION AGAINST ELECTRIC SHOCK		P
2.11 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Protection in any position		P
	Double-ended tungsten filament lamp		P
	Insulation lacquer not reliable		P

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Clause	Requirement - Test	Result – Remark	Verdict
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
2.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N/A
2.11 (8.2.3)	Class II luminaire:		P
	- basic insulation not accessible other than during starter or lamp replacement		N/A
	- glass protective shields not used as supplementary insulation		P
	Class I luminaire with BC lampholder		N/A
2.11 (8.2.4)	Portable luminaire:		N/A
	- protection independent of supporting surface		N/A
	- terminal block completely covered		N/A
2.11 (8.2.5)	Compliance with the standard test finger or relevant probe		P
2.11 (8.2.6)	Covers reliably secured		P
2.11 (8.2.7)	Discharging of capacitors ≥ 0,5 μF		N/A
	Portable plug connected luminaire with capacitor		N/A
	Other plug connected luminaire with capacitor		N/A
	Discharge device on or within capacitor		N/A
	Discharge device mounted separately		N/A

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Clause	Requirement - Test	Result – Remark	Verdict
2.12 (12)	ENDURANCE TEST AND THERMAL TEST		P
2.12 (12.3)	Endurance test:		P
	- mounting- position.....:		—
	- test temperature (°C)..... :	35°C	—
	- total duration (h).....:	240h	—
	- supply voltage: Un factor; calculated voltage (V)	254.4V	—
	- lamp used..... :	LED lamp	—
2.12 (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
2.12 (12.4)	Thermal test (normal operation)		P
2.12 (12.5)	Thermal test (abnormal operation)		P
2.12 (12.6)	Thermal test (failed lamp control gear condition):		N/A
2.12 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A) ..... :		—
	- case of abnormal conditions.....:		—
	- electronic lamp control gear		N/A
	- 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
2.12 (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
2.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N/A

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Clause	Requirement - Test	Result – Remark	Verdict
2.12 (12.7.1)	Through wiring or looping-in wiring loaded by a current of (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..... :		N/A
	- calculated temperature of fixing point/ exposed part (°C)..... :		N/A
2.12 (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
2.13 (9)	RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE		P
2.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP..... :	IP65	—
	- mounting position during test..... :		—
	- fixing screws tightened; torque (Nm)..... :		—
	- tests according to clauses..... :		—
	- electric strength test afterwards		N/A
	a) no deposit in dust-proof luminaire		N/A
	b) no talcum in dust- tight luminaire		N/A
	c) no trace of water on current-carrying parts or where it could become a hazard		N/A
	d) i) For luminaires without drain holes – no water entry		N/A
	d) ii) For luminaires with drain holes – no hazardous water entry		N/A
	e) no water in watertight luminaire		N/A
	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
2.13 (9.3)	Humidity test 48 h	25℃, 93%RH, 48h	P

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Clause	Requirement - Test	Result – Remark	Verdict
2.14 (10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH		P
2.14 (10.2.1)	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø .....:		—
	Insulation resistance (MΩ):		P
	SELV:		N/A
	- between current-carrying parts of different polarity .....:	N/A	N/A
	- between current-carrying parts and mounting surface.....:	N/A	N/A
	- between current-carrying parts and metal parts of the luminaire.....:	N/A	N/A
	Other than SELV:		P
	- between live parts of different polarity..... :	100MΩ	P
	- between live parts and mounting surface.....:	100MΩ	P
	- between live parts and metal parts.....:	100MΩ	P
	- between live parts of different polarity through action of a switch.....:		N/A
2.14 (10.2.2)	Electric strength test		P
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test	No ignitor	N/A
	Luminaires with manual ignitors	No manual ignitor	N/A
	Test voltage (V):		N/A
	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
	Other than SELV:		P
	- between live parts of different polarity..... :	3000V	P
	- between live parts and mounting surface.....:	3000V	P
	- between live parts and metal parts.....:	3000V	P
	- between live parts of different polarity through action of a switch.....:		N/A
2.14 (10.3.1)	Leakage current (mA).....:	<0.08mA	P

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Clause	Requirement - Test	Result – Remark	Verdict
2.15 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		P
2.15 (13.2.1)	Ball-pressure test:		P
	- part tested; temperature (°C).....:	PCB: 125°C	P
	- part tested; temperature (°C).....:		N/A
2.15 (13.3.1)	Needle flame test (10 s):		N/A
	- part tested.....:		N/A
	- part tested.....:		N/A
2.15 (13.3.2)	Glow- wire test (650°C):		P
	- part tested.....:	PCB	P
	- part tested.....:		N/A
2.15 (13.4.1)	Tracking test: part tested..... :		N/A

ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		N/A
(2.2)	Class 0 not accepted		N/A
(3.3)	DK: power supply cord with label		N/A
	IT: warning label on Class 0 luminaire		N/A
(4.5.1)	DK: socket- outlets		N/A
(4.5.1)	FR: socket-outlets		N/A
(5.2.1)	CY, DK, FI, SE, GB: type of plug		N/A

ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		N/A
(13.3)	DK: Needle flame test during 30 s		N/A
(13.3)	GB: Requirements according to United Kingdom Building Regulation		N/A
(13.3.2)	FR: Glow-wire test 850°C alt. 750°C for luminaires in premises open to public or 960°C for luminaires in emergency exits		N/A

	ANNEX 3: screw terminals (part of the luminaire)		N/A
(14)	SCREW TERMINALS		N/A
(14.2)	Type of terminal..... :		—
	Rated current (A)..... :		—
(14.3.2.1)	One or more conductors		N/A
(14.3.2.2)	Special preparation		N/A

EN 60598-2-2			
Clause	Requirement - Test	Result – Remark	Verdict
(14.3.2.3)	Terminal size		N/A
	Cross-sectional area (mm²).....:		N/A
(14.3.3)	Conductor space (mm)..... :		N/A
(14.4)	Mechanical tests		
(14.4.1)	Minimum distance		N/A
(14.4.2)	Cannot slip out		N/A
(14.4.3)	Special preparation		N/A
(14.4.4)	Nominal diameter of thread (metric ISO thread)...:	M	N/A
	External wiring		N/A
	No soft metal		N/A
(14.4.5)	Corrosion		N/A
(14.4.6)	Nominal diameter of thread (mm)..... :		N/A
	Torque (Nm)..... :		N/A
(14.4.7)	Between metal surfaces		N/A
	Lug terminal		N/A
	Mantle terminal		N/A
	Pull test; pull (N).....:		N/A
(14.4.8)	Without undue damage		N/A

	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

EN 60598-2-2			
Clause	Requirement - Test	Result – Remark	Verdict
(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 or weded connections (4 samples); pull (N) .....:		N/A
	Pull test pin or tab terminals (4 samples); pull (N) .....:		N/A

TABLE	List of critical components and materials			
Component	manufacturers / trademark	Type / model	Value / rating	Approval/ Reference
Input wire	Various	1007	VW-1, 300V, 90℃, 24AWG	UL and Test with appliance
LED	Various	20W Mature white LED	30-36V, 750mA CCT: 4000-4500K	Test with appliance
LED PCB	Various	Various	.V-0, 130℃,	UL and Test with appliance
PCB	Various	Various	Min.V-0, 90℃	UL and Test with appliance
Driver	Various	Various	Input: 200-265VAC, 50/60Hz. Output: 45-60VDC, 60mA.	Test with appliance
Internal wire	--	1005	VW-1, 80℃, 24AWG	UL and Test with appliance

EN 60598-2-2			
Clause	Requirement - Test	Result – Remark	Verdict

	ANNEX 2: temperature measurements, thermal tests of Section 12		P
	Lamp used.....:	VT-885	—
	Ballast used.....:	Independed LED Driver	—
	Mounting position of luminaire..... :	As in normal use	—
	Supply wattage (W)..... :	5.3W	—
	Supply current (A)..... :	--	—
	Table: measured temperatures corrected for Ta = 25°C:		P
	- abnormal operating mode..... :	—	—
	- test 1: rated voltage.....:	—	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage..... :	1.06 times rated voltage	—
	- 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
Input cord of LED driver	—	42.0	—	75	—	—
LED Driver outside	—	51.2	—	75	—	—
Output cord of LED driver	—	35.4	—	75	—	—
Input cord of LED Light	—	49.6	—	70	—	—
PCB near LED	—	65.4	—	130	—	—
Enclosure outside near LED	—	41.3	—	90	—	—
Metal enclosure	—	48.2	—	90	—	—
Ambient	—	25.4	—	--	—	—

EN 60598-2-2			
Clause	Requirement - Test	Result – Remark	Verdict

ANNEX 3	**Screw terminals (part of the luminaire)**		N/A
(14)	**SCREW TERMINALS**		N/A
(14.2)	Type of terminal.....:		—
	Rated current (A).....:		—
(14.3.2.1)	One or more conductors		N/A
(14.3.2.2)	Special preparation		N/A
(14.3.2.3)	Terminal size		N/A
	Cross-sectional area (mm²).....:		—
(14.3.3)	Conductor space (mm).....:		N/A
(14.4)	Mechanical tests		N/A
(14.4.1)	Minimum distance		N/A
(14.4.2)	Cannot slip out		N/A
(14.4.3)	Special preparation		N/A
(14.4.4)	Nominal diameter of thread (metric ISO thread)..... :		N/A
	External wiring		N/A
	No soft metal		N/A
(14.4.5)	Corrosion		N/A
(14.4.6)	Nominal diameter of thread (mm).....:		N/A
	Torque (Nm).....:		N/A
(14.4.7)	Between metal surfaces		N/A
	Lug terminal		N/A
	Mantle terminal		N/A
	Pull test; pull (N)..... :		N/A
(14.4.8)	Without undue damage		N/A

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

EN 60598-2-2			
Clause	Requirement - Test	Result – Remark	Verdict
(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
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N/A
(15.5.2)	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
(15.6)	Terminals external wiring		N/A
	Terminal size and rating		N/A
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) ..... :		N/A
	Pull test pin or tab terminals (4 samples); pull (N) .....:		N/A

Appendix 1
Photo Documentation

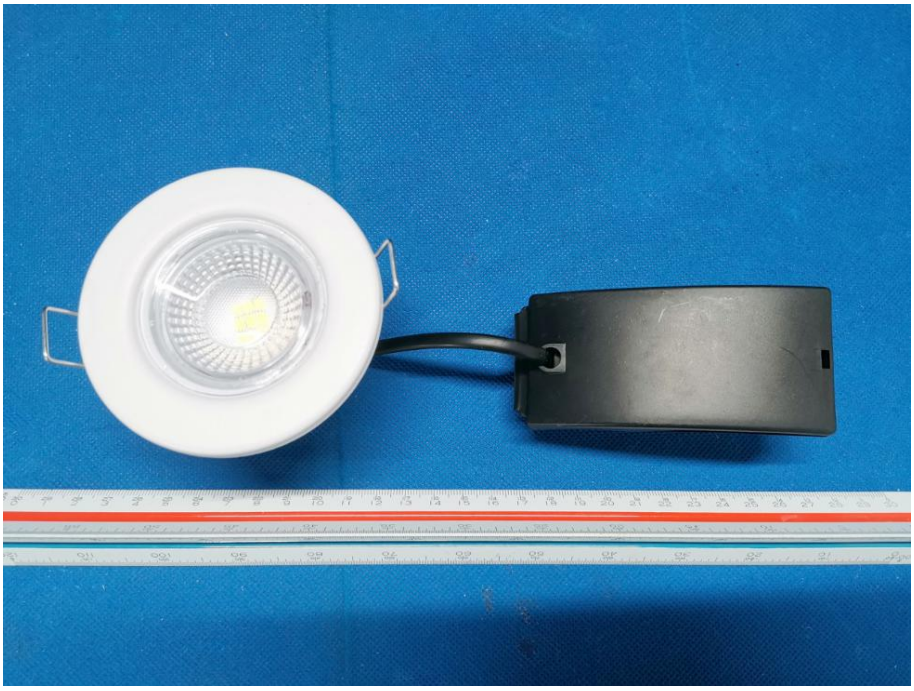
Photo 1 View: [√] Front [ ] Rear [ ] Right side [ ] Left side [ ] Top [ ] Bottom [ ] Internal	

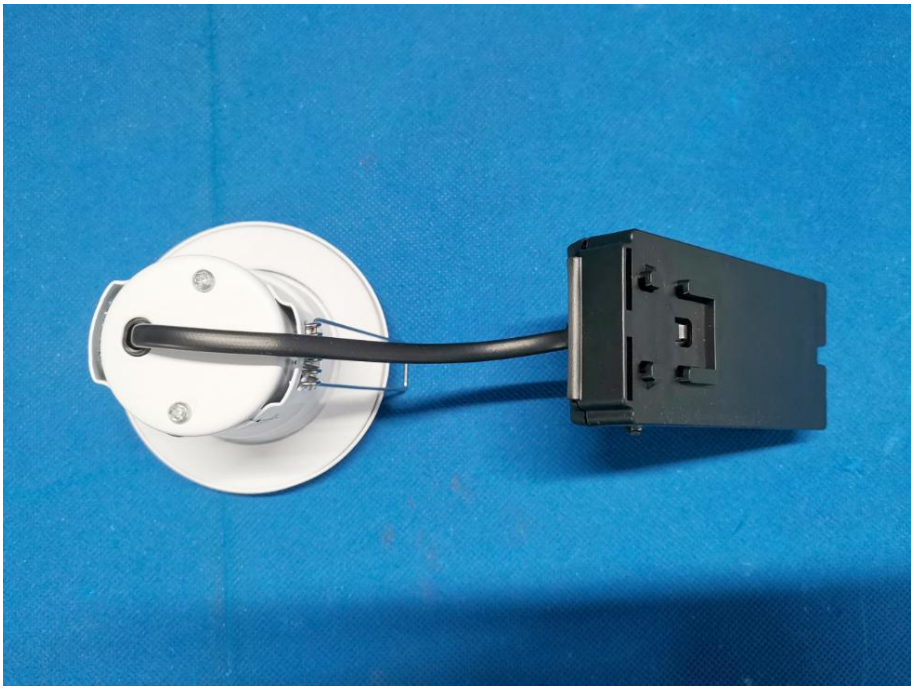
Photo 2 View: [ ] Front [√] Rear [ ] Right side [ ] Left side [ ] Top [ ] Bottom [ ] Internal	

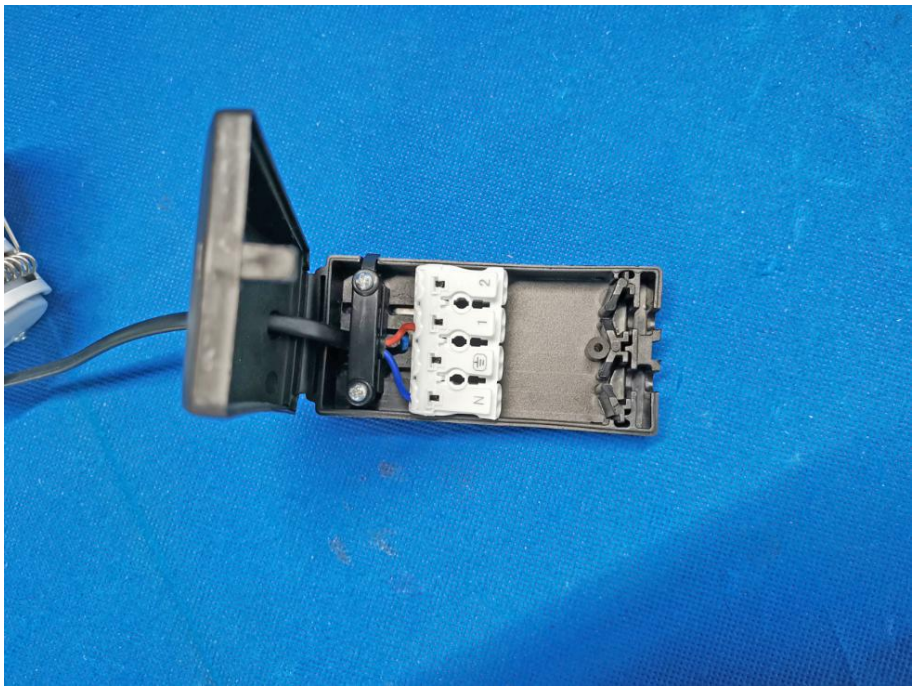
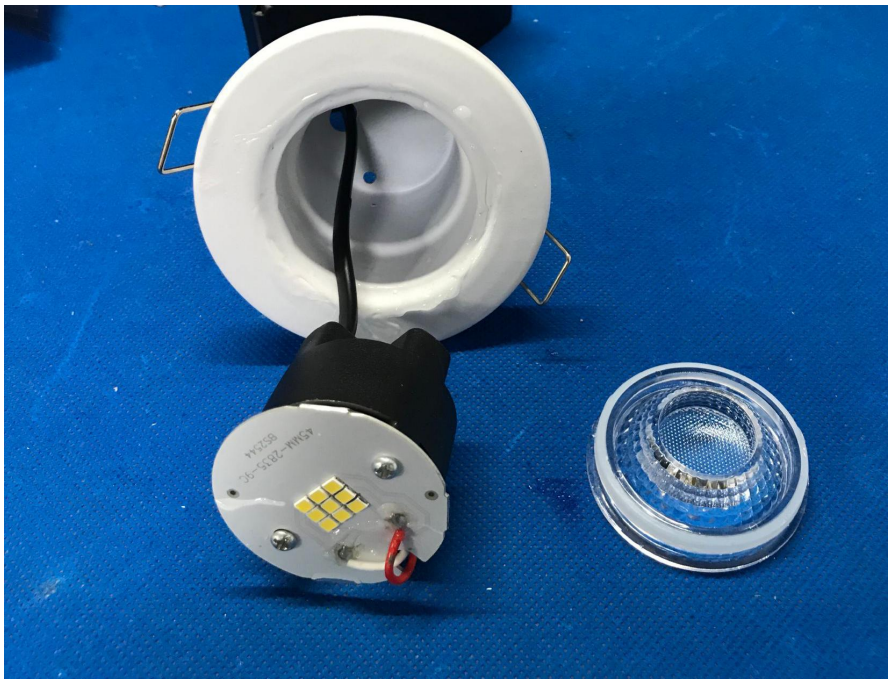
Photo 3 View: [ ] Front [ ] Rear [ ] Right side [ ] Left side [ ] Top [ ] Bottom [√] Internal [ ] LED	

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

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