

# Certificate of Compliance



No. 2S190306.TES0036

Certificate's  
Holder:

TTAF ELEKTRONİK SANAYİ VE TİCARET  
ANONİM ŞİRKETİ  
Kavaklı Mah. İstanbul Cad. No:21 Beylikdüzü /  
İstanbul / TURKEY

Certification ECM  
Mark:



Product:  
Model(s):

Portable Light Tower  
UFLED - UF-XXX  
2700-6500 K, (150 W-240 W)

Verification to:

Standard:  
EN 60598-1:2015/A1:2018, EN 60598-2-4:2018

related to CE Directive(s):  
2014/35/EU (Low Voltage)

**Remark:** The product(s) has been verified on a voluntary basis. The product(s) satisfies the requirements of the Certification Mark of ECM, in reference to the above listed Standard(s). The above Compliance Mark can be affixed on the product(s) accordingly to the ECM regulation about its release and its use. The regulation can be found at [www.entecerma.it](http://www.entecerma.it). This Certificate of Compliance can be checked for validity at [www.entecerma.it](http://www.entecerma.it)

This verification doesn't imply assessment of the production of the product(s).

Additional information, clarification about the **CE** Marking:



We attest that a TCF for the **CE** Marking process is in place. Whereas the Manufacturer is Responsible to start the **CE Marking Certification Procedure** and to perform all the necessary activities, as required by the Directive before placing the **CE** Mark on the product(s).

Date of issue 06 March 2019

Expiry date 05 March 2024

Chief Manager  
Mafra Morina

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Amanda Payne

Ente Certificazione Macchine Srl

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# Ente Certificazione Macchine

Via Cà Bella, 243 40053 Valsamoggia Località Castello di  
Serravalle (Bo) Italy



Turkish Branch: Testroof Engineering and Certification Co., Ltd.

## Technical Requirement Assesment

**EN 60598-1:2015/AC:2016, EN 60598-2-4:2018**

**Luminaires - Part 2: Particular requirements - Section 4: Portable  
general purpose luminaires**

Report reference No. ....:	19-0050/02	
Date of issue .....	19.02.2019	
Testing laboratory .....	Testroof Engineering and Certification Co, Ltd.	
Address .....	İnönü, Kayışdağı Cad. No:150-3, 34755 Ataşehir/İstanbul	
Testing location .....	As above	
Applicant.....	<b>TTAF ELEKTRONİK SANAYİ VE TİCARET ANONİM ŞİRKETİ</b>	
Address .....	Kavaklı Mah. İstanbul Cad. No:21 Beylikdüzü/İstanbul/TURKEY	
Standard.....	EN 60598-1:2015/AC:2016, EN 60598-2-4:2018	
Number of pages (Report) .....	25	
Tested Model(s).....	<b>Portable Light Tower / UFLED - UF-XXX</b>	
Model(s).....	UFLED - UF-XXX 2700-6500 K, (150 W-240 W)	
Manufacturer.....	The same as applicant	
Compiled by.....		
Signature Eng. E. Cengiz		Signature Eng. M. Kocas 
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)	
General Remarks		

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

"(see appended table)" refers to a table appended to the report.

Through out this report a comma is used as the decimal separator.

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## GENERAL PRODUCT INFORMATION:

### Report Summary

All applicable tests according to the referenced standard(s) have been carried out.

### Technical Data

Power	150 - 240 W
Operating Voltage	20-28 V DC
Color Temp.	2700-6500 K,
Operating Temp.	- 40°C ~ +55°C
IP Class	IP 65
Insulation Class	Class III



Date/ Engineer:

Eng. E CENGİZ  
2019-02-19

Control:

Eng. M. KOCAS  
2019-02-19





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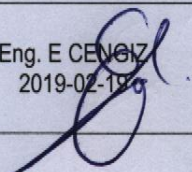
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Clause	Requirement - Test	Result - Remark	Verdict
<b>4.4 (0)</b>	<b>GENERAL TEST REQUIREMENTS</b>		
4.4 (0.1)	Information for luminaire design considered	Yes	
4.4 (0.3)	More sections applicable.....:	No	
<b>4.5 (2)</b>	<b>CLASSIFICATION</b>		
4.5 (2.2)	Type of protection (Class 0 excluded).....:	Class III	
4.5 (2.3)	Degree of protection (Requirement: Ordinary) .....	IP65	
4.5 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces .....	No	
4.5 (2.5)	Luminaire for normal use .....	Yes	
	Luminaire for rough service .....	No	
4.5.1	According to the intended use: – ordinary luminaires are classified for indoor use only; – luminaires which are other than ordinary are classified “for indoor use only”, if they are marked according to 4.6.1; – luminaires which are other than ordinary (see also 4.5.2) are classified for outdoor use. As the requirements for outdoor use are more severe than those for indoor use, these luminaires are also suitable for indoor use	Indoor & Outdoor use	
4.5.2	According to the degree of protection against dust and moisture, portable luminaires for outdoor use shall be classified IPX4 or higher	IP65	
4.5.3	According to the material of the supporting surface, portable luminaires designed for standing on a floor or table shall be classified as suitable for direct mounting on normally flammable surfaces		P
<b>4.6 (3)</b>	<b>MARKING</b>		
4.6 (3.2)	Mandatory markings	See Marking Label	P
	Position of the marking	Bottom of the product	P
	Format of symbols/text	The height of symbols more than 5 mm , text more than 2 mm	P
4.6 (3.3)	Additional information		
	Language of instructions	English	P
4.6 (3.3.1)	Combination luminaires	Not combination Luminaire	N/A
4.6 (3.3.2)	Nominal frequency in Hz		N/A
4.6 (3.3.3)	Operating temperature	- 40°C ~ +55°C -	N/A
4.6 (3.3.4)	Symbol or warning notice	DC is used	N/A
4.6 (3.3.5)	Wiring diagram		N/A
4.6 (3.3.6)	Special conditions		N/A
4.6 (3.3.7)	Metal halide lamp luminaire – warning		N/A

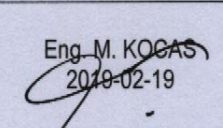
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Clause	Requirement - Test	Result - Remark	Verdict
4.6 (3.3.8)	Limitation for semi-luminaires		N/A
4.6 (3.3.9)	Power factor and supply current		N/A
4.6 (3.3.10)	Suitability for use indoors		P
4.6 (3.3.11)	Luminaires with remote control		N/A
4.6 (3.3.12)	Clip-mounted luminaire – warning		N/A
4.6 (3.3.13)	Specifications of protective shields		N/A
4.6 (3.3.14)	Symbol for nature of supply		P
4.6 (3.3.15)	Rated current of socket outlet		N/A
4.6 (3.3.16)	Rough service luminaire		N/A
4.6 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	Type Y	P
4.6 (3.3.18)	Non-ordinary luminaires with PVC cable		N/A
4.6 (3.3.19)	Protective conductor current in instruction if applicable		N/A
4.6 (3.3.20)	Provided with information if not intended to be mounted within arms reach		N/A
4.6 (3.4)	Test with water	15 s	P
	Test with hexane	15 s	P
	Legible after test	Still Legible	P
	Label attached	Still Attached	P
4.6.1	<p>The provisions of 3.3.18 of IEC 60598-1 apply with the following addition.</p> <p>Luminaires which are other than ordinary, and not suitable for outdoor application (e.g. provided with a PVC supply cord), shall be marked with the appropriate symbol as shown in Figure 1. The symbol shall be explained in the instructions</p> 	Suitable for outdoor use	P
4.6.2	In addition to the provisions of 3.3.15 of IEC 60598-1, for luminaires for outdoor use, the maximum power calculated from the maximum current rating of the supply cable shall be marked in close proximity to the mains socket-outlet(s) incorporated in the luminaire		P
4.7 (4)	<b>CONSTRUCTION</b>		
4.7 (4.2)	Components replaceable without difficulty		P
4.7 (4.3)	Wireways smooth and free from sharp edges		P
4.7 (4.4)	Lampholders		

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Clause	Requirement - Test	Result - Remark	Verdict
4.7 (4.4.1)	Integral lampholder		N/A
4.7 (4.4.2)	Wiring connection		N/A
4.7 (4.4.3)	Lampholder for end-to-end mounting		P
4.7 (4.4.4)	Positioning		
	- pressure test (N) .....		P
	After test the lampholder comply with relevant standard sheets and show no damage		P
	After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation		P
	- bending test (N) .....		P
	After test the lampholder have not moved from its position and show no permanent deformation		P
4.7 (4.4.5)	Peak pulse voltage		P
4.7 (4.4.6)	Centre contact		P
4.7 (4.4.7)	Parts in rough service luminaires resistant to tracking		P
4.7 (4.4.8)	Lamp connectors		P
4.7 (4.4.9)	Caps and bases correctly used		P
4.7 (4.5)	Starter holders		N/A
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
4.7 (4.6)	Terminal blocks		
	Tails		P
	Unsecured blocks		P
4.7 (4.7)	Terminals and supply connections		P
4.7 (4.7.1)	Contact to metal parts		P
4.7 (4.7.2)	Test 8 mm live conductor		P
	Test 8 mm earth conductor		P
4.7 (4.7.3)	Terminals for supply conductors		P
4.7 (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

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Clause	Requirement - Test	Result - Remark	Verdict
	- electrical test according to 15.9		N/A
	- heat test according to 15.9.2.3 and 15.9.2.4		N/A
4.7 (4.7.4)	Terminals other than supply connection		P
4.7 (4.7.5)	Heat-resistant wiring/sleeves		N/A
4.7 (4.7.6)	Multi-pole plug		N/A
	- test at 30 N		N/A
4.7 (4.8)	Switches:		P
	- adequate rating		P
	- adequate fixing		P
	- polarized supply		P
	- compliance with 61058-1 for electronic switches		P
4.7 (4.9)	Insulating lining and sleeves		N/A
4.7 (4.9.1)	Retainment		N/A
	Method of fixing..... :		N/A
4.7 (4.9.2)	Insulated linings and sleeves		N/A
	Resistant to a temperature > 20 °C to the wire temperature or		N/A
	a) & c) Insulation resistance and electric strength		N/A
	b) Ageing test. Temperature (°C)..... :		N/A
4.7 (4.10)	Insulation of Class II luminaires		N/A
4.7 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		N/A
	Safe installation fixed luminaires		N/A
	Capacitors and switches		N/A
	Interference suppression capacitors according to IEC 60384-14		N/A
4.7 (4.10.2)	Assembly gaps:		N/A
	- not coincidental		N/A
	- no straight access with test probe		N/A
4.7 (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
4.7 (4.11)	Electrical connections		P

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Clause	Requirement - Test	Result - Remark	Verdict
4.7 (4.11.1)	Contact pressure		P
4.7 (4.11.2)	Screws:		
	- self-tapping screws		P
	- thread-cutting screws		N/A
4.7 (4.11.3)	Screw locking:		
	- spring washer		P
	- rivets		N/A
4.7 (4.11.4)	Material of current-carrying parts		P
4.7 (4.11.5)	No contact to wood or mounting surface		P
4.7 (4.11.6)	Electro-mechanical contact systems		P
4.7 (4.12)	Mechanical connections and glands		N/A
4.7 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part .....		P
	Torque test: torque (Nm); part .....		P
	Torque test: torque (Nm); part .....		P
4.7 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
4.6 (4.12.4)	Locked connections:		
	- fixed arms; torque (Nm).....		P
	- lampholder; torque (Nm).....		P
	- push-button switches; torque 0,8 Nm.....		P
4.7 (4.12.5)	Screwed glands; force (Nm) .....		N/A
4.7 (4.13)	Mechanical strength		P
4.7 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm).....	Translucent cover: 0,35Nm	P
	- other parts; energy (Nm) .....		N/A
	1) live parts		P
	2) linings		P
	3) protection		P
	4) covers		P
4.7 (4.13.3)	Straight test finger		N/A
4.7 (4.13.4)	Rough service luminaires		N/A
	- IP54 or higher		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	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
4.7 (4.13.6)	Tumbling barrel		N/A
4.7 (4.14)	Suspensions and adjusting devices		P
4.7 (4.14.1)	Mechanical load:		N/A
	A) four times the weight		N/A
	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
	Fixed luminaire or independent control gear without fixing devices		N/A
4.7 (4.14.2)	Load to flexible cables		N/A
	Mass (kg) .....		N/A
	Stress in conductors (N/mm <sup>2</sup> ) .....		N/A
	Mass (kg) of semi-luminaire .....		N/A
	Bending moment (Nm) of semi-luminaire .....		N/A
4.7 (4.14.3)	Adjusting devices:		P
	- flexing test; number of cycles .....	1500 cycles	P
	- strands broken		P
	- electric strength test afterwards		P
4.7 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
4.7 (4.14.5)	Guide pulleys		N/A
4.7 (4.14.6)	Strain on socket-outlets		N/A
4.7 (4.15)	Flammable materials:		P
	- glow-wire test 650 °C	Translucent cover; Base enclosure	P
	- spacing ≥ 30 mm		N/A
	- screen withstanding test of 13.3.1		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	- screen dimensions		N/A
	- no fiercely burning material		P
	- thermal protection		N/A
	- electronic circuits exempted		N/A
4.7 (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
4.7 (4.16)	Luminaires for mounting on normally flammable surfaces		N/A
	No lamp control gear		N/A
4.7 (4.16.1)	Lamp control gear spacing:		N/A
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
4.7 (4.16.2)	Thermal protection:		P
	- in lamp control gear		N/A
	- external		N/A
	- fixed position		P
	- temperature marked lamp control gear		P
4.7 (4.16.3)	Design to satisfy the test of 12.6	(see 12.6)	N/A
4.7 (4.17)	Drain holes		N/A
	Clearance at least 5 mm		N/A
4.7 (4.18)	Resistance to corrosion:		
4.7 (4.18.1)	- rust-resistance		P
4.7 (4.18.2)	- season cracking in copper		N/A
4.7 (4.18.3)	- corrosion of aluminium	Stainless Steel	N/A
4.7 (4.19)	Ignitors compatible with ballast		N/A
4.7 (4.20)	Rough service vibration		N/A
4.7 (4.21)	Protective shield:		N/A
4.7 (4.21.1)	Shield fitted		N/A
	Shield of glass if tungsten halogen lamps		N/A
4.7 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
4.7 (4.21.3)	No direct path		N/A
4.7 (4.21.4)	Impact test on shield		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	Glow-wire test on lamp compartment		N/A
4.7 (4.22)	Attachments to lamps		N/A
4.7 (4.23)	Semi-luminaires comply Class II		N/A
4.7 (4.24)	UV radiation for tungsten halogen lamps and metal halide lamps (Annex P)		N/A
4.7 (4.25)	No sharp point or edges		P
4.7 (4.26)	Short-circuit protection:		N/A
4.7 (4.26.1)	Uninsulated accessible SELV parts		N/A
4.7 (4.26.2)	Short-circuit test		N/A
4.7 (4.26.3)	Test chain according to Figure 29		N/A
4.7 (4.27)	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
	Pull test of terminal fixing (20 N)		N/A
	After test, resistance < 0,05 Q		N/A
	Pull test of mechanical connection (50 N)		N/A
	After test, resistance < 0,05 Q		N/A
	Voltage drop test, resistance < 0,05 Q		N/A
4.7.1	Portable luminaires shall be designed so that the insulation of flexible cables and cords is unlikely to be damaged when moving or adjusting the luminaire or when placing it on its support.		P
4.7.2	Wiring shall be fixed by means of wire carriers, clips or similar devices of insulating material, at all places where it might otherwise rub against metal parts in the normal movement of the luminaire, if such rubbing will impair safety. Carriers and clips for flexible cords shall be of insulating material, or shall be provided with a fixed insulating lining if they are accessible or are in contact with accessible metal parts		P
4.7.3	Portable luminaires shall have adequate stability. Compliance shall be checked by placing the luminaire in the most unfavourable adjustment position of normal use on a plane inclined at an angle of: – 6° to the horizontal for luminaires for indoor use; – 15° to the horizontal for luminaires for outdoor use, the surface of the plane being such that the luminaire does not slide. Any instructions supplied by the manufacturer with the luminaire shall receive due consideration in respect of the stability test. For the test, the luminaire shall be provided with appropriate light source according to the intended use. The luminaire shall not overturn		P
4.7.4	Candlestick luminaires shall be provided with a switch.		N/A

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	This switch shall, in candlestick luminaires with E5 or E10 lampholders, switch all lamps on and off simultaneously. The switch shall be part of the luminaire or, if in the cord, shall be within 300 mm of the luminaire.		
4.7.5	E5 lampholders shall be used only if the rated voltage does not exceed 25 V per lampholder and the rated voltage of E10 lampholders (60 V for series connection or 250 V for parallel connection) shall be respected. The maximum rated wattage of the luminaire shall not exceed 100 W.		N/A
4.7.6	Portable luminaires for outdoor use shall not be provided with tails. Clause 4.6 of Section 4 of IEC 60598-1 does not apply		P
4.7.7	Portable luminaires for outdoor use shall not have more than two cable entries		P
4.7.8	In portable luminaires for outdoor use, the connection between the socket-outlet for providing power to other luminaires and the associated plug shall be in accordance with at least the same degree of protection as the luminaires but not less than IPX4. This degree of protection shall be maintained with or without a plug inserted into the socket-outlet.  Mains socket-outlets mounted on Class II luminaires shall comply with IEC, national or regional standards so as to allow connection only to these outlets of other Class II luminaires.  Mains socket-outlets mounted on Class I luminaires shall allow connection only of Class I or Class II luminaires and shall conform to IEC, national or regional standards	IP 65	P
4.7.9	In portable luminaires for outdoor use, lampholders and plugs shall be of material resistant to tracking.  Compliance shall be checked by the test described in Clause 13.4 of Section 13 of IEC 60598-1		P
<b>4.8 (11)</b>	<b>CREEPAGE DISTANCES AND CLEARANCES</b>		
	Working voltage (V) .....	20-28 V DC	
	Voltage form	Sinusoidal Non-sinusoidal	
	PTI	< 600 > 600	
	Impulse withstand category (Normal category II) (Category III Annex U)	Category III	
	Rated pulse voltage (kV) .....	--	
	(1) Current-carrying parts of different polarity: cr (mm); cl (mm).....	No values are specified for working voltage below 60VDC as the test voltage of 500V is considered sufficient.	N/A
	(2) Current-carrying parts and accessible parts: cr (mm); cl (mm).....		N/A
	(3) Parts becoming live due to breakdown of basic insulation and		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	metal parts: cr (mm); cl (mm) .....		
	(4) Outer surface of cable where it is clamped and metal parts: cr (mm); cl (mm).....		N/A
	(6) Current-carrying parts and supporting surface: cr (mm); cl (mm) .....		N/A
<b>4.9 (7)</b>	<b>PROVISION FOR EARTHING</b>		
<b>4.9 (7.2.1 + 7.2.3)</b>	Accessible metal parts		N/A
	Metal parts in contact with supporting surface		N/A
	Resistance < 0,5 Q		N/A
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a groove		N/A
	Earth makes contact first		N/A
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
<b>4.9 (7.2.2 + 7.2.3)</b>	Earth continuity in joints etc.		N/A
<b>4.9 (7.2.4)</b>	Locking of clamping means		N/A
	Compliance with 4.7.3		N/A
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
<b>4.9 (7.2.5)</b>	Earth terminal integral part of connector socket		N/A
<b>4.9 (7.2.6)</b>	Earth terminal adjacent to mains terminals		N/A
<b>4.9 (7.2.7)</b>	Electrolytic corrosion of the earth terminal		N/A
<b>4.9 (7.2.8)</b>	Material of earth terminal		N/A
	Contact surface bare metal		N/A
<b>4.9 (7.2.10)</b>	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
<b>4.9 (7.2.11)</b>	Earthing core coloured green-yellow		N/A
	Length of earth conductor		N/A
<b>4.10 (14)</b>	<b>SCREW TERMINALS</b>		
	Separately approved; component list	(see Annex 1)	N/A
	Part of the luminaire	(see Annex 3)	N/A
<b>4.10 (15)</b>	<b>SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS</b>		
	Separately approved; component list	(see Annex 1)	N/A

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	Part of the luminaire	(see Annex 4)	P
<b>4.11 (5)</b>	<b>EXTERNAL AND INTERNAL WIRING</b>		
4.11 (5.2)	Supply connection and external wiring		P
4.11 (5.2.1)	Means of connection .....	DC inlet	P
4.11 (5.2.2)	Type of cable.....	Class III, PVC, U ≤ 60V	P
	Nominal cross-sectional area (mm <sup>2</sup> ) .....		P
	Cables equal to IEC 60227 or IEC 60245	IEC 60227	P
4.11 (5.2.3)	Type of attachment, X, Y or Z	Type X	P
4.11 (5.2.5)	Type Z not connected to screws		N/A
4.11 (5.2.6)	Cable entries:		
	- suitable for introduction		P
	- adequate degree of protection	Waterproof connector	P
4.11 (5.2.7)	Cable entries through rigid material have rounded edges		N/A
4.11 (5.2.8)	Insulating bushings:		N/A
	- suitably fixed	Class III	N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
4.11 (5.2.9)	Locking of screwed bushings		N/A
4.11 (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
4.11 (5.2.10.1)	Cord anchorage for type X attachment:		P
	a) at least one part fixed		P
	b) types of cable		P
	c) no damaging of the cable		P
	d) whole cable can be mounted		P
	e) no touching of clamping screws		P
	f) metal screw not directly on cable		P
	g) replacement without special tool		P

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Clause	Requirement - Test	Result - Remark	Verdict
	Glands not used as anchorage		P
	Labyrinth type anchorages		P
4.11 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		N/A
4.11 (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
	- no movement of conductors		N/A
	- no damage of cable or cord		N/A
4.11 (5.2.11)	External wiring passing into luminaire		N/A
4.11 (5.2.12)	Looping-in terminals		N/A
4.11 (5.2.13)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
4.11 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug	DC inlet	P
4.11 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Appliance couplers of class II type		N/A
4.11 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
4.11 (5.2.18)	Used plug in accordance with		N/A
	- IEC 60083		N/A
	- other standard		N/A
4.11 (5.3)	Internal wiring		P
4.11 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		N/A
	- not delivered/ mounting instruction		N/A
	- factory assembled		N/A
	- socket outlet loaded (A) .....		N/A
	- temperatures .....	(see Annex 2)	N/A
	Green-yellow for earth only		N/A
4.11 (5.3.1.1)	Internal wiring connected directly to fixed wiring		N/A
	Cross-sectional area (mm <sup>2</sup> ) .....		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	Insulation thickness		N/A
	Extra insulation added where necessary		N/A
4.11 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		N/A
	Adequate cross-sectional area and insulation thickness		N/A
4.11 (5.3.1.3)	Double or reinforced insulation for class II		N/A
4.11 (5.3.1.4)	Conductors without insulation		N/A
4.11 (5.3.1.5)	SELV current-carrying parts		P
4.11 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
4.11 (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
4.11 (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
4.11 (5.3.4)	Joints and junctions effectively insulated		P
4.11 (5.3.5)	Strain on internal wiring		N/A
4.11 (5.3.6)	Wire carriers		N/A
4.11 (5.3.7)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		P
4.11.1	The requirement whereby at least one part of the cord anchorage shall be fixed to or be integral with the luminaire does not apply to table lamps for indoor use of glass or ceramic material.		P
4.11.2	For class I and class II portable luminaires for indoor use with a mass less than 1 kg, a rated current not exceeding 2,5 A and provided with a flexible cable of length not greater than 2 m, the cable shall have a nominal cross-sectional area of copper conductor not less than 0,5 mm <sup>2</sup> .		P
4.11.3	Portable luminaires for outdoor use delivered without a flexible cable or cord and a plug shall be provided with terminals, a cord anchorage and an inlet opening for the proper connection of the flexible cable or cord		P
4.11.4	For class I and class II portable luminaires for outdoor use, non-detachable flexible cables or cords shall be not lighter than cords of the type H05RN-F		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
<b>4.12 (8)</b>	<b>PROTECTION AGAINST ELECTRIC SHOCK</b>		
4.12 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		N/A
	Basic insulated parts not accessible with standard test finger on portable and adjustable luminaires		P
	Basic insulated parts not accessible with Ø 50 mm probe from outside, within arms reach, on wall-mounted luminaires		N/A
	Lampholder and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N/A
	Basic insulation only accessible under lamp or starter replacement		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
4.12 (8.2.2)	Portable luminaire adjusted in most unfavourable position		P
4.12 (8.2.3.a)	Class II luminaire:		N/A
	- basic insulated metal parts not accessible during starter or lamp replacement	Class III	N/A
	- basic insulation not accessible other than during starter or lamp replacement		N/A
	- glass protective shields not used as supplementary insulation		N/A
4.12 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed		N/A
4.12 (8.2.3.c)	Class III luminaires with exposed SELV parts:		
	Ordinary luminaire:		N/A
	- touch current .....		N/A
	- no-load voltage.....		N/A
	Other than ordinary luminaire:		N/A
	- nominal voltage .....	28 V DC	P
4.12 (8.2.4)	Portable luminaire have protection independent of supporting surface		P
4.12 (8.2.5)	Compliance with the standard test finger or relevant probe		N/A
4.12 (8.2.6)	Covers reliably secured		N/A
4.12 (8.2.7)	Discharging of capacitors :2 0,5 1F		N/A
	Portable plug connected luminaire with capacitor		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	Other plug connected luminaire with capacitor		N/A
	Discharge device on or within capacitor		N/A
	Discharge device mounted separately		N/A
4.12.1 (-)	Class I luminaire with bayonet lampholder:		N/A
	- cap not accessible with test finger		N/A
	- metal lampholder is earthed		N/A
<b>4.13 (12)</b>	<b>ENDURANCE TEST AND THERMAL TEST</b>		
4.13 (-)	If IP > IP 20 relevant test of (12.4), (12.5), (12.6) and (12.7) after (9.2) before (9.3) specified in 4.14		
4.13 (12.3)	Endurance test:		P
	- mounting-position..... :	As in normal use	
	- test temperature (oC)..... :	60°C ± 2°C, ta:55°C	
	- total duration (h)..... :	28	
	- supply voltage: Un factor; calculated voltage (V):	28V D.C. x 1.1 =30.8V D.C.	
	- lamp used..... :	LED	
4.13 (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
4.13 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
4.13 (12.5)	Thermal test (abnormal operation)	(see Annex 2)	P
4.13 (12.6)	Thermal test (failed lamp control gear condition):		N/A
4.13 (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 (oC): at 1,1 Un :		
	- measured mounting surface temperature (oC) at 1,1 Un..... :		N/A
	- calculated mounting surface temperature (oC) . :		N/A
	- track-mounted luminaires		N/A
4.13 (12.6.2)	Temperature sensing control		N/A
	- case of abnormal conditions..... :		

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Clause	Requirement - Test	Result - Remark	Verdict
	- thermal link		N/A
	- manual reset cut-out		N/A
	- auto reset cut-out		N/A
	- measured mounting surface temperature (oC) ... :		N/A
	- track-mounted luminaires		N/A
4.13 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N/A
4.13 (12.7.1)	Luminaire without temperature sensing control		N/A
4.13 (12.7.1.1)	Luminaire with fluorescent lamp \$ 70W		N/A
	Test method 12.7.1.1 or Annex W .....		
	Test according to 12.7.1.1:		N/A
	- 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 W:		N/A
	- case of abnormal conditions		
	- measured winding temperature (oC): at 1,1 Un . :		
	- measured temperature of fixing point/exposed part (oC): at 1,1 Un .....		
	- calculated temperature of fixing point/exposed part (oC) .....		
	Ball-pressure test:		N/A
	- part tested; temperature (oC) .....		N/A
	- part tested; temperature (oC) .....		N/A
4.13 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA		N/A
	- case of abnormal conditions		
	- measured winding temperature (oC): at 1,1 Un . :		
	- measured temperature of fixing point/exposed part (oC): at 1,1 Un .....		
	- calculated temperature of fixing point/exposed part (oC) .....		
	Ball-pressure test:		N/A
	- part tested; temperature (oC) .....		N/A
	- part tested; temperature (oC) .....		N/A
4.13	Luminaire with short circuit proof transformers		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
(12.7.1.3)	\$ 10 VA		
	- case of abnormal conditions		
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
4.13 (12.7.2)	Luminaire with temperature sensing control		
	- thermal link	Yes	
	- manual reset cut-out	No	
	- auto reset cut-out	Yes	
	- case of abnormal conditions		
	- highest measured temperature of fixing point/exposed part (°C):..... :		
	Ball-pressure test:		N/A
	- part tested; temperature (°C)..... :		N/A
	- part tested; temperature (°C)..... :		N/A
4.13 (-)	Test overturned position (overturns < 15°)		N/A
<b>4.14 (9)</b>	<b>RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE</b>		
4.14 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP ..... :	IP 65	
	- mounting position during test..... :	As in normal use	
	- fixing screws tightened; torque (Nm)..... :	--	
	- tests according to clauses ..... :	9.2.0	
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		N/A
	b) no talcum in dust-tight luminaire		P
	c) no trace of water on current-carrying parts or SELV 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		P
	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 (IP3X and IP4X)		N/A
	g) no trace of water on part of lamp requiring protection from splashing water		N/A
	h) no damage of protective shield or glass envelope		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
4.14 (9.3)	Humidity test 48 h	24oC; 91%R.H.	P
4.15 (10)	<b>INSULATION RESISTANCE AND ELECTRIC STRENGTH</b>		
4.15 (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 (MQ)		
	SELV:		P
	- between current-carrying parts of different polarity .....		N/A
	- between current-carrying parts and mounting surface .....	>1 MQ	P
	- between current-carrying parts and metal parts of the luminaire.....	>1 MQ	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts .....		N/A
	- Insulation bushings as described in Section 5 .. :		N/A
	Other than SELV:		P
	- between live parts of different polarity.....		N/A
	- between live parts and mounting surface.....	100MQ (required: 4MQ)	P
	- between live parts and metal parts .....	100MQ (required: 4MQ)	P
	- between live parts of different polarity through action of a switch.....		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts .....		N/A
	- Insulation bushings as described in Section 5 .. :		N/A
4.15 (10.2.2)	Electric strength test		P
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test		N/A
	Luminaires with manual ignitors		N/A
	Test voltage (V):		
	SELV:		P
	- between current-carrying parts of different polarity .....		N/A
	- between current-carrying parts and mounting surface .....	No flashover, 500V D.C. applied,	P
	- between current-carrying parts and metal parts of the luminaire.....	No flashover, 500V D.C. applied,	P

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	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts .....	No flashover, 500V D.C. applied,	P
	- Insulation bushings as described in Section 5 .. :	No flashover, 500V D.C. applied,	P
	Other than SELV:		N/A
	- between live parts of different polarity..... :		N/A
	- between live parts and mounting surface..... :		N/A
	- between live parts and metal parts .....		N/A
	- between live parts of different polarity through action of a switch..... :		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts .....		N/A
	- Insulation bushings as described in Section 5 .. :		N/A
4.15 (10.3)	Touch current or protective conductor current (mA)..... :		N/A
<b>4.16 (13)</b>	<b>RESISTANCE TO HEAT, FIRE AND TRACKING</b>		
4.16 (13.2.1)	Ball-pressure test:		N/A
4.16 (13.3.1)	Needle flame test (10 s):		N/A
4.16 (13.3.2)	Glow-wire test (650°C):		N/A
4.16 (13.4.1)	Tracking test:		N/A

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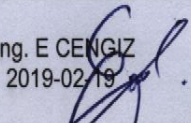
<b>ANNEX 1</b>	Components	Manufacturer List	P
----------------	------------	-------------------	---

<b>ANNEX 2</b>	temperature measurements, thermal tests of Section 12		P
----------------	---	--	---

Type reference.....:	UFLED UF XXX					
Lamp used.....:	LED					
Lamp control gear used.....:	No control gear					
Mounting position of luminaire.....:	As in normal use					
Supply wattage (W).....:	165 W					
Supply current (A).....:	6.5 A					
Calculated power factor.....:	--					
Table: measured temperatures corrected for $t_a = 25 \text{ }^\circ\text{C}$ :		P				
- abnormal operating mode.....:	--					
- test 1: rated voltage.....:	28 V					
- test 2: 1,06 times rated voltage or 1,05 times rated wattage.....:	28V D.C. x 1.1 =30.8V D.C					
- 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	--					
Through wiring or looping-in wiring loaded by a current of A during the test .....	--					
Temperature ( $^\circ\text{C}$ ) of part	Clause 12.4 – normal				Clause 12.5 – abnormal	
	test 1	test 2	test 3	limit	test 4	limit
Metal surface of luminaire	--	26,2	--	60	--	--
LED surface	--	28,9	--	ref	--	--
Plastic enclosure of LED	--	31,1	--	75	--	--
External surface of socket	--	26,8	--	70	--	--
Switch surface	--	28,3	--	55	--	--

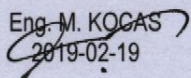
Date/ Engineer:

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2019-02-19



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Eng. M. KOCAS  
2019-02-19







# Ente Certificazione Macchine

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Clause	Requirement - Test	Result - Remark	Verdict
<b>(14)</b>	<b>SCREW TERMINALS</b>		
(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 (mm <sup>2</sup> )..... :		N/A
(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) . :	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

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Clause	Requirement - Test	Result - Remark	Verdict
<b>(15)</b>	<b>SCREWLESS TERMINALS</b>		
(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 25th 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

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Clause	Requirement - Test	Result - Remark	Verdict
(15.8.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) .....		N/A
	Pull test pin or tab terminals (4 samples);		N/A
(15.9)	Contact resistance test		N/A
	Voltage drop (mV) after 1 h		N/A
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)	-- -- -- -- -- -- -- -- -- --		
<b>ANNEX 5</b>	<b>EMF test result according to EN 62493:2010</b>		<b>P</b>

Date/ Engineer:

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