Zakłady Badań i Atestacji "ZETOM"
im. Prof. F. Stauba w Katowicach sp. z o.o.
Institutions for Research and Certification "ZETOM" Ltd.
ul. Ks. Bpa H. Bednorza 17, 40-384 Katowice; tel. 032 2569257 e-mail: zetom@zetomkatowice.com.pl
Laboratorium Badawcze i Wzorcujące
Laboratorium badawcze akredytowane przez
Polskie Centrum Akredytacji, sygnatariusza porozumień EA MLA i ILAC MRA
dotyczących wzajemnego uznawania świadectw wzorcowania.
Nr akredytacji AB 024

PRZEDSIĘBIORSTWO FAIR PLAY

AB 024

Digitally signed by Galciuc Igor
Date: 2019.01.11 16:03:36 EET
Reason: MoldSign Signature
Location: Moldova

TEST REPORT

Ref. no. B/2017/158 dated 12/06/2017

Subject: Examination of the degree of protection IK09 for the URBINO street lighting fixture.

Tested for:	LUG Light Factory Sp. z o.o.		
	ul. Gorzowska 11		
	65-127 Zielona Góra		
Tested at:	Institutes for Research and Certification "ZETOM" Katowice		
	Testing and Calibration Laboratory "ZETOM" Katowice.		
Customer Order Index:	Order (e-mail)	dated:	26/05/2017
Laboratory Log Reference No. of Order: B/2017/144			
Test start date:	06/06/2017	**Test end date:**	08/06/2017
This Test Report contains:	5 pages		

3 copies hereof are issued to the following recipients:

1. LUG Light Factory Sp. z o.o.
2. LUG Light Factory Sp. z o.o.
3. LT

Test supervisor:	Katarzyna Hadam Ph.D.	
Tested and measured by:	Piotr Jureczko, MSc Eng.	Lab Section: WE
	Kamil Długajczyk	Lab Section: WE

Test Report prepared by: Kamil Długajczyk

Authorised by:

Z-ca Kierownika Zespołu ds. Badań
mgr inż. Piotr Jureczko

Approved by:

p.o. Z-ca Dyrektora ds. Badań i Wzorcowania
Kierownik Laboratorium Badawczego i Wzorcującego
dr Katarzyna Hadam

Zakłady Badań i Atestacji „ZETOM”

im. Prof. F. Stauba w Katowicach sp. z o.o.

Institutions for Research and Certification “ZETOM” Ltd.

EU Notified Body no. 1436,

for the following Directives: Construction, Low Voltage & Machinery

ul. Ks. Bpa H. Bednorza 17; 40-384 Katowice, Poland

Phone: 0048(032) 2569-257, 0048(032) 2569-273, 0048(032) 2569-353

PROVISIONS

A. Obligatory:

1. The Test Report shall be property of the Customer who has ordered to have the test done.
2. The Test Report and all information contained therein shall only be used with the consent of the Test Report owner.
3. This Test Report shall only be used in full.
4. All test and measurement reports listed herein refer to the test objects only and shall not be construed as a quality approval thereof.
5. The work covered herein has been carried out according to its Work Plan and in line with the Management System requirements specified in the Testing and Calibration Laboratory Quality Manual.
6. All reference to this Test Report shall be made with the following statement (or its equivalent in meaning):

Tested by the Testing and Calibration Laboratory "ZETOM" in Katowice, a unit accredited by the Polish Centre for Accreditation seated in Warsaw within the scope of the Certificate No. AB 024 Annex.

B. Complementary (listed in this Test Report) Section

C. Anomalies (listed in this Test Report) Section

When using the contents of this Test Report, the owner hereof shall state that they use the results produced by the Testing and Calibration Laboratory at the Institutes for Research and Certification "ZETOM" in Katowice, accredited by the Polish Centre for Accreditation in Warsaw.

1. BASIS OF TESTING

1.1. Customer's document title: Order LUG Light Factory Sp. z o.o. to do the research in the Research and Calibration Laboratory "ZETOM" Katowice

1.2. Customer's document identification: Order (e-mail) dated: 26/05/2017

1.3. Subject: Performance test IK09 degree for lighting fixture

2. TESTING OBJECTIVE Verification of properties and characteristics according to PN-EN 50102:2001

3. TEST OBJECT

3.1. Nazwa przedmiotu: URBINO street lighting luminaire

3.2. Customer: LUG Light Factory Sp. z o.o.

3.3. Supplier/Manufacturer: LUG Light Factory Sp. z o.o.

3.4. Place of production: ul. Gorzowska 11; 65-127 Zielona Góra

3.5. Method of object delivery for testing: delivered by the Customer

3.6. Objects collected at: LUG Light Factory Sp. z o.o.

3.7. Collect Report: -

3.8. Date of receiving the test objects: 31/05/2017

3.9. Collector's additional labelling applied: -

3.10. Object packaging: cardboard box

3.11. In-laboratory labelling of objects:

Object labelling in prior of delivery to the Lab	Labelling of objects made at the Lab[1)]	Notes
-	2017/144	-
[1)] Remains the Sample Index		

4. TESTING PROGRAM

The Testing Program includes the testing's cope of the following reference standards:

- PN-EN 50102:2001 "Degree of protection against external mechanical impacts provided by enclosures of electrical equipment (IK code)".

5. Results

5.1 Results of the IK degree of protection provided by the URBINO street lighting fixture

Degree of protection IK09
The test was done by hitting a 5.0 kg hammer with an energy equivalent to 10 J impact on the outside of the luminaire. Three hits in different lighting fixtures (total with a translucent glass shade) did not cause distortion of the housing body or cracks in the glass cover. **Proper protection provided by the luminaire is ensured.**

Photos of the lighting fixture tested:

ELECTROTECHNICAL TESTING INSTITUTE
Pod Lisem 129
171 02 Praha 8 - Troja

No. of pages: 4
No. of annexes/No. of an. pages: 0/0

No. of the Test Report: 604927-01/01

Issued: 8. 11. 2016

TEST REPORT

Name of product:	LED lamp
Type of product:	URBINO LED, URBANO LED
Ratings:	-
Serial number:	-
Manufacturer:	LUG Light Factory Sp. z o.o., ul. Gorzowska 11, 65-127 Zielona Góra, the Republic of Poland
Production site:	LUG Light Factory Sp. z o.o., ul. Gorzowska 11, 65-127 Zielona Góra, the Republic of Poland
Ordering firm:	LUG Light Factory Sp. z o.o., ul. Gorzowska 11, 65-127 Zielona Góra, the Republic of Poland
Number of tested samples:	2
Samples submitted on:	24. 10. 2016
Location of testing:	EZÚ
Tested from	2. 11. 2016 **through** 4. 11. 2016
Other data:	-
The product was tested according to:	ČSN EN 60068-2-6 ed.2:08, idt EN 60068-2-6:08 idt. IEC 60068-2-6:07

Compiled by: Jiří Bažant

elektrotechnický zkušební ústav ezú -11- zkušební laboratoř

Approved by: Jarmil Mikulík
Testing laboratory manager

SPECIMEN DESCRIPTION

There were submitted LED lamps for testing, type URBINO LED and URBANO LED.

TESTING

The tests were performed according to ČSN EN 60068-2-6 ed.2:2008 (idt EN 60068-2-6:08, idt. IEC 60068-2-6:2007), Vibration test with parameters according to ČSN EN 60598-1 ed. 6:2015 (mod IEC 60598-1:2014).

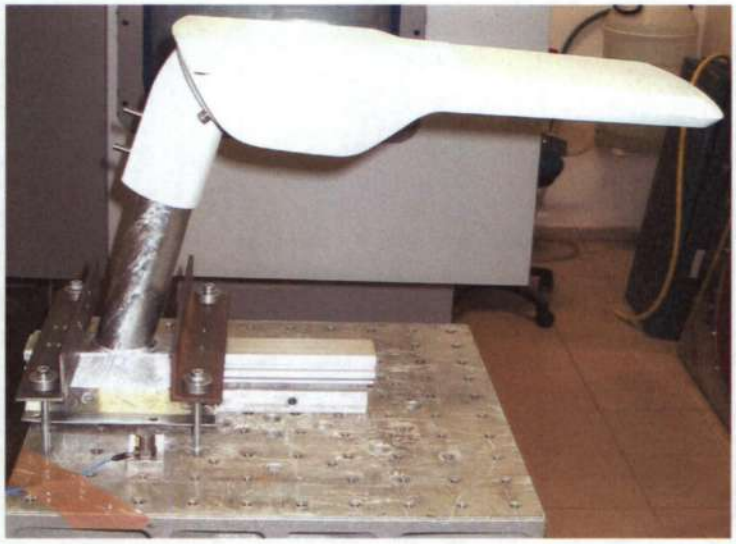
Testing equipment

Vibration testing system LDS - V830-335 SPA8-16K	inv. No. 110128/1-5
Control system PUMA, testing program SINUS	inv. No. 110148
Acceleration sensor 353B33, manufacturer PCB	inv. No. 551333

Parameters of test

Frequency range	10 Hz, 55 Hz, 10 Hz
Amplitude	0,35 mm
Sweep rate	1 octave / min
Duration	30 min
Direction	the most onerous direction

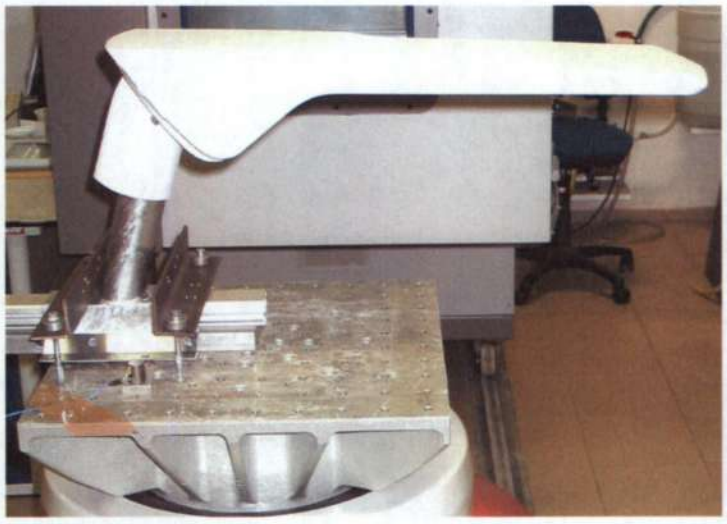
Specimen 1



clamping of specimen

functional test

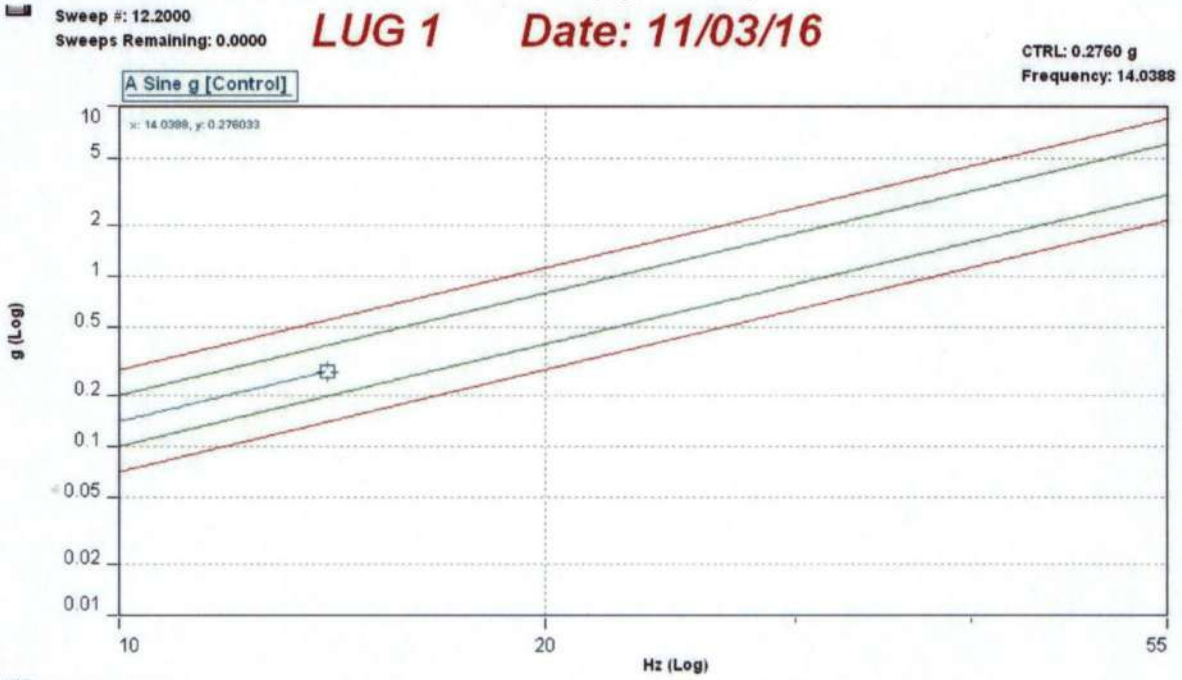
Specimen 2

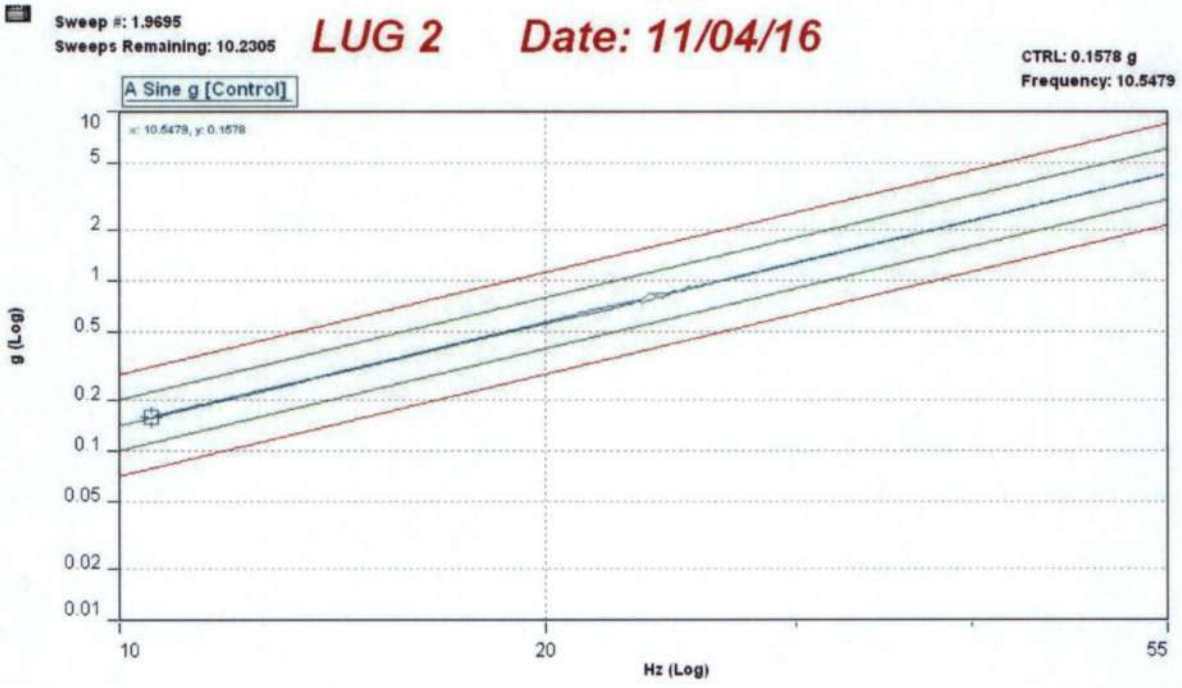


clamping of specimen

functional test

Record of test courses - Vibration test (operation)





TEST RESULT

After the tests there were detected no visible mechanical damage on the specimen, the test did not affected the specimen's functionality.

Tested by: J. Bažant

RU

URBINO LED

Каталожная группа: ИНФРАСТРУКТУРНОЕ ОСВЕЩЕНИЕ

130222.5L041.041
URBINO LED 55W 6150lm 4000K IP66 O5 - для внутриквартальных дорог серый I

Светодиодный светильник для уличного освещения, выполненный в современном дизайне.

МЕХАНИЧЕСКИЕ ХАРАКТЕРИСТИКИ

Монтаж: на столбе ø60/48 мм, на столбе ø76 мм - модификация .829, на кронштейне ø60/48 мм, на кронштейне ø76 мм - модификация .829
Корпус: литий под давлением алюминий
Боковая площадь, подверженная воздействию ветра: 0.039 m^2
Цвет: серый
RAL: 7035
Диапазон рабочих температур [°C]: -40 ... +55

ЭЛЕКТРИЧЕСКИЕ ХАРАКТЕРИСТИКИ

Эффективность драйвера: >95%
Напряжение питания: 220-240V 50/60Hz
Источник света в комплекте: Да
Выходной ток [mA]: 700
Тип оснащения: ED
Источник света: LED
Электрическое подключение: кабель max 3x2,5 mm^2

ОПТИЧЕСКИЕ ХАРАКТЕРИСТИКИ

Тип освещения: прямой
Тип оптики: O5 - для внутриквартальных дорог
Плафон: закаленное стекло
CRI/Ra: >70
Световой поток LED [лм]: 7150
Световой поток светильника [лм]: 6150
Цветовая температура [K]: 4000
ULOR / DLOR: 0% / 100%

ОБЩИЕ ДАННЫЕ

Расчетный срок службы (L80B10): 100 000 h
Доступно под заказ: DALI, DIM 1..10V, LLOC, сумеречный датчик, ножевой разъем, защита от перенапряжения 10kV, термозащита, NTC
Дополнительная информация: Регулировка угла наклона скачка: от -15° до +15° (каждые 5°)
Дополнительное оборудование: дополнительная защита от коррозии (расширение индекса: .985), доступ к ячейке драйвера без использования инструментов (расширение индекса: .825), светильник с держателем для крепления на колонке ø76мм (расширение индекса: .829)
Примечания: полюс и стрела не являются частью светильника
Гарантия: 5 лет
Применение: скоростные дороги, муниципальные дороги, городские дороги, дороги в границах жилых районов, пешеходные переходы, освещение территорий, прогулочные аллеи, прогулочные зоны, велосипедные дорожки

Код	Класс защиты	Тип оптики	Мощность светильника [Вт]	Световой поток светильника [лм]	Эффективность [lm/W]	Цветовая температура [K]	CRI/Ra	Диапазон рабочих температур [°C]

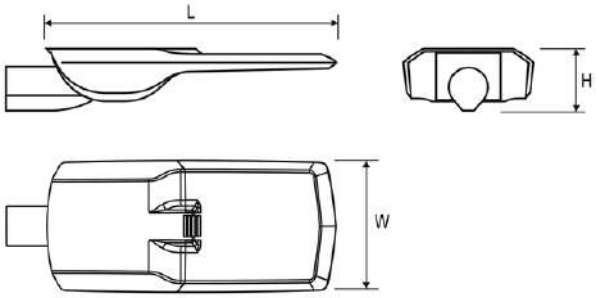
Обратите внимание, что стандартный светильник не предназначен для использования в среде с повышенной коррозионной категорией. Использование светильника для работы в среде, для которой требуется дополнительная защита от коррозии, требует использования индекса с расширением .985 (по запросу).
Чтобы применить светильник в агрессивной среде, например, с повышенной концентрацией серы, соли или других агрессивных веществ, необходима консультация с Технической подготовкой филиала LUG.
Толерантность светового потока +/- 10%.
Допуск мощности +/- 5%.
Световой поток, распределение силы света и эффективность светоотдачи были исследованы согласно нормы EN ISO 17025:2005 для серии норм EN13032, а так же нормы LM-79.
Актуальная информация о продукте, а так же Общие условия гарантии доступны на нашем сайте www.luglightfactory.ru

URBINO LED

Каталожная группа: ИНФРАСТРУКТУРНОЕ ОСВЕЩЕНИЕ

130222.5L041.041	I	05 - для внутриквартальных дорог	55	6150	112	4000	>70	-40 ... +55

Код	Размеры [mm] L W H	Количество на паллете	Количество в упаковке	Вес нетто [кг]
130222.5L041.041	550 250 100	20	1	6,8



ACCESSORIES

□ 150170.00818
■ 150173.00906

Настенный кронштейн ø60мм

Обратите внимание, что стандартный светильник не предназначен для использования в среде с повышенной коррозионной категорией. Использование светильника для работы в среде, для которой требуется дополнительная защита от коррозии, требует использования индекса с расширением .985 (по запросу).
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RU

URBINO LED

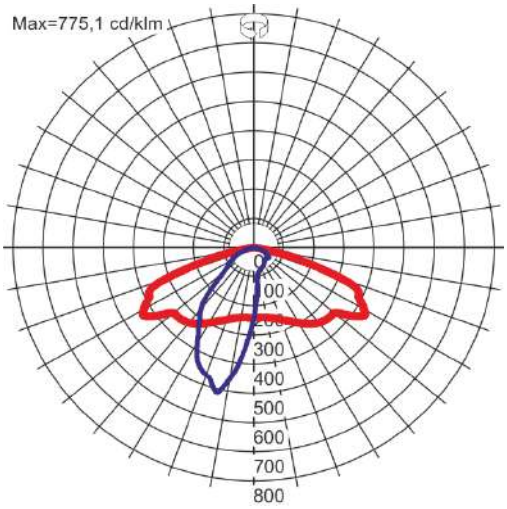
Каталожная группа: ИНФРАСТРУКТУРНОЕ ОСВЕЩЕНИЕ

ДРУГИЕ ФОТОГРАФИИ

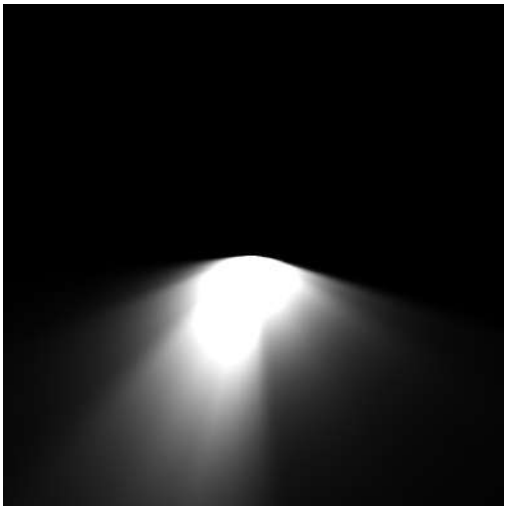





КРИВЫЕ СВЕТОВОГО ПУЧКА



СПОСОБ ОСВЕЩЕНИЯ



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Актуальная информация о продукте, а так же Общие условия гарантии доступны на нашем сайте www.luglightfactory.ru

ELEKTROTECHNICKÝ ZKUŠEBNÍ ÚSTAV

ELECTROTECHNICAL TESTING INSTITUTE - CZECH REPUBLIC
ELEKTROTECHNISCHE PRÜFANSTALT - TSCHECHISCHE REPUBLIK
INSTITUT ELECTROTECHNIQUE D'ESSAIS - RÉPUBLIQUE TCHÈQUE
ЭЛЕКТРОТЕХНИЧЕСКИЙ ИСПЫТАТЕЛЬНЫЙ ИНСТИТУТ - ЧЕШСКАЯ РЕСПУБЛИКА

Pod Lisem 129, 171 02 Praha 8 - Troja

CERTIFIKÁT/CERTIFICATE

č./No.: 5160010

Objednatel/Ordering firm: LUG Light Factory Sp. z o.o.
ul. Gorzowska 11, 65-127 Zielona Góra, Polsko/Poland

Výrobce/Držitel licence//Manufacturer/Licence holder: LUG Light Factory Sp. z o.o.
ul. Gorzowska 11, 65-127 Zielona Góra, Polsko/Poland

Výrobek/Name of product: Fixed general purpose luminaires, road and street lighting

Obchodní značka/Trade mark:

Typ/Type of product: URBINO LED

Přesná specifikace výrobku je uvedena v příloze 1, která tvoří nedílnou součást tohoto certifikátu./Specification of the product is in the annex 1 that forms an integral part of this certificate.

Elektrotechnický zkušební ústav na základě splnění požadavku certifikačního schématu „ENEC" uděluje licenci na užívání značky/Electrotechnical Testing Institute is granting according to the certification scheme „ENEC" a licence for using the following mark

Touto značkou může být označován výrobek specifikovaný v tomto certifikátu po dobu platnosti níže uvedené smlouvy na užívání značky ENEC, při dodržení všech pravidel uvedených v této smlouvě./This mark may be used for the product specified in this certificate within validity of the Agreement on the use of the ENEC Mark by implementing all the rules stated in the Agreement.

Právo označovat výrobek výše uvedenou značkou je založeno na/The right to use the above mentioned mark for the product is based on:

- protokolu o zkouškách č./Test report No.: 601205-01/01 ze dne/of 13.06.2016

Vzorek zkoušeného výrobku je ve shodě s požadavky/A sample of the product was tested and found to be in conformity with:
EN 60598-1:15, EN 60598-2-3:03+A1:11

- provedení inspekce v místě výroby – viz inspekční zpráva č./inspection in the place of manufacture – see inspection report No.: 602766-01
- smlouvě na užívání značky ENEC mezi objednavatelem a Elektrotechnickým zkušebním ústavem č./the Agreement on the use of the ENEC Mark concluded between the ordering firm and the Electrotechnical Testing Institute No.: 601205

16.06.2016

V Praze dne/Prague

Mgr. Miroslav Sedláček
Vedoucí certifikačního orgánu/
Head of Certification Body

elektrotechnický zkušební ústav ezú Pod Lisem 129, 171 02 Praha 8 - Troja -1-

razítko/Stamp

CER/5160010

601205-01

Příloha č. 1 licence č. 5160010 **Annex No. 1 to Licence No. 5160010**	
Držitel licence Licensee	**LUG Light Factory Sp. Z o.o.** Ul. Gorzowska 11, 65-127 Zielona Góra, Poland
Výrobce Manufacturer	**LUG Light Factory Sp. Z o.o.** Ul. Gorzowska 11, 65-127 Zielona Góra, Poland
Druh svítidla Kind of luminaire	**Luminaires for road and street lighting** Svítidla pro osvětlení cest a ulic
Typ svítidla Type reference	URBINO LED IP66
Obchodní značka Trade mark	LUG
Protokol o zkoušce Test report	601205-01/01
Národní normy National standard(s)	ČSN EN 60598-1:2015 ČSN EN 60598-2-3:2003 +A1:2011
Evropské normy European standard(s)	EN 60598-1:2015 EN 60598-2-3:2003 +A1:2011
Jmenovité napětí Rated voltage	220÷240 V
Jmenovitý příkon a počet zdrojů Rated wattage and number of lamps	28, 37, 55, 84, 110 W
Typ světelného zdroje Lamp identification	LED modul LED module
Stupeň krytí Degree of protection	IP 66
Připojení napájení Supply connection	Svorkovnice Terminal block
Podkladová plocha Supporting surface	normálně hořlavý podklad normally flammable surface
Druh ochrany Protection against electric shock	Cl. I

Příloha č. 1 licence č. 5160010 Annex No. 1 to Licence No. 5160010			
EN 60 598-2-1			
Clause	Requirement – Test	Result – Remark	Verdict
	ANNEX ZB, SPECIAL NATIONAL CONDITIONS ENEC-301 – AMENDMENT B RESTRICTIONS		
(2.2)	Class 0 not accepted		OK
(3.3)	DK: power supply cord with label		---
	IT: warning label on Class 0 luminaire		---
(4.5.1)	DK, FR: socket-outlets		---
(5.2.1)	DK, FI, SE, GB: type of plug		---
ZC	**ANNEX ZC, NATIONAL CONDITIONS ENEC-301 – AMENDMENT B RESTRICTIONS**		
(13.3)	DK: needle-flame or glow-wire test		---
(13.3.2 + 13.3.3)	FR: glow-wire test		---
IEC 598-1	**COMMON MODIFICATIONS**		
3.2.12	NL - cable without mains plug		---
3.3.3.c	fixed wiring		---
4.11.6	Electro-mechanical contact systems		---
5.2.2	Type of cable .....:		---
5.2.15	Colour code low voltage		---

elektrotechnický zkušební ústav
ezú
Pod Lisem 129, 171 02 Praha 8 - Trója
-1-

ELEKTROTECHNICKÝ ZKUŠEBNÍ ÚSTAV

ELECTROTECHNICAL TESTING INSTITUTE - CZECH REPUBLIC
ELEKTROTECHNISCHE PRÜFANSTALT - TSCHECHISCHE REPUBLIK
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Pod Lisem 129, 171 02 Praha 8 - Troja

CERTIFIKÁT/CERTIFICATE

č./No.: 5160011

Objednatel/Ordering firm: LUG Light Factory Sp. z o.o.
ul. Gorzowska 11, 65-127 Zielona Góra, Polsko/Poland

Výrobce/Držitel licence//Manufacturer/Licence holder: LUG Light Factory Sp. z o.o.
ul. Gorzowska 11, 65-127 Zielona Góra, Polsko/Poland

Výrobek/Name of product: Fixed general purpose luminaires, road and street lighting

Obchodní značka/Trade mark:

Typ/Type of product: URBINO LED

Přesná specifikace výrobku je uvedena v příloze 1, která tvoří nedílnou součást tohoto certifikátu./Specification of the product is in the annex 1 that forms an integral part of this certificate.

Elektrotechnický zkušební ústav na základě splnění požadavků certifikačního schématu „ENEC" uděluje licenci na užívání značky/Electrotechnical Testing Institute is granting according to the certification scheme „ENEC" a licence for using the following mark

Touto značkou může být označován výrobek specifikovaný v tomto certifikátu po dobu platnosti níže uvedené smlouvy na užívání značky ENEC, při dodržení všech pravidel uvedených v této smlouvě./This mark may be used for the product specified in this certificate within validity of the Agreement on the use of the ENEC Mark by implementing all the rules stated in the Agreement.

Právo označovat výrobek výše uvedenou značkou je založeno na/The right to use the above mentioned mark for the product is based on:

- protokolu o zkouškách č./Test report No.: 601209-01/01 ze dne/of: 13.06.2016

Vzorek zkoušeného výrobku je ve shodě s požadavky/A sample of the product was tested and found to be in conformity with:
EN 60598-1:15, EN 60598-2-3:03+A1:11

- provedení inspekce v místě výroby - viz inspekční zpráva č./inspection in the place of manufacture – see inspection report No.: 602766-01
- smlouvě na užívání značky ENEC mezi objednavatelem a Elektrotechnickým zkušebním ústavem č./the Agreement on the use of the ENEC Mark concluded between the ordering firm and the Electrotechnical Testing Institute No.: 601209

elektrotechnický zkušební ústav ezú -1- Pod Lisem 129, 171 02 Praha 8 - Troja

16.06.2016

V Praze dne/Prague

Mgr. Miroslav Sedláček
Vedoucí certifikačního orgánu/
Head of Certification Body

razítko/Stamp

Příloha č.1 licence č. 5160011 **Annex No. 5160011 to Licence No. 5160011**	
Držitel licence Licensee	**LUG Light Factory Sp. Z o.o.** Ul. Gorzowska 11, 65-127 Zielona Góra, Poland
Výrobce Manufacturer	**LUG Light Factory Sp. Z o.o.** Ul. Gorzowska 11, 65-127 Zielona Góra, Poland
Druh svítidla Kind of luminaire	**Luminaires for road and street lighting** Svítidla pro osvětlení cest a ulic
Typ svítidla Type reference	URBINO LED IP66
Obchodní značka Trade mark	LUG
Protokol o zkoušce Test report	601209-01/01
Národní normy National standard(s)	ČSN EN 60598-1:2015 ČSN EN 60598-2-3:2003 +A1:2011
Evropské normy European standard(s)	EN 60598-1:2015 EN 60598-2-3:2003 +A1:2011
Jmenovité napětí Rated voltage	220÷240 V
Jmenovitý příkon a počet zdrojů Rated wattage and number of lamps	28, 37, 55, 84, 110 W
Typ světelného zdroje Lamp identification	LED modul LED module
Stupeň krytí Degree of protection	IP 66
Připojení napájení Supply connection	Svorkovnice Terminal block
Podkladová plocha Supporting surface	normálně hořlavý podklad normally flammable surface
Druh ochrany Protection against electric shock	Cl. II

Příloha č.1 licence č. 5160011 Annex No. 5160011 to Licence No. 5160011			
EN 60 598-2-1			
Clause	Requirement – Test	Result – Remark	Verdict
	ANNEX ZB, SPECIAL NATIONAL CONDITIONS ENEC-301 – AMENDMENT B RESTRICTIONS		
(2.2)	Class 0 not accepted		OK
(3.3)	DK: power supply cord with label		---
	IT: warning label on Class 0 luminaire		---
(4.5.1)	DK, FR: socket-outlets		---
(5.2.1)	DK, FI, SE, GB: type of plug		---
ZC	**ANNEX ZC, NATIONAL CONDITIONS ENEC-301 – AMENDMENT B RESTRICTIONS**		
(13.3)	DK: needle-flame or glow-wire test		---
(13.3.2 + 13.3.3)	FR: glow-wire test		---
IEC 598-1	**COMMON MODIFICATIONS**		
3.2.12	NL - cable without mains plug		---
3.3.3.c	fixed wiring		---
4.11.6	Electro-mechanical contact systems		---
5.2.2	Type of cable .....:		---
5.2.15	Colour code low voltage		---

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ELECTROTECHNICAL TESTING INSTITUTE
Pod Lisem 129
171 02 Praha 8 - Troja

No. of pages: 2
No. of annexes/No. of an. pages: 0/0

No. of the Test Report: 601205-01/03

Issued: 13. 6. 2016

TEST REPORT

Name of product:	Fixed general purpose luminaires, road and street lighting
Type of product:	URBINO LED
Ratings:	220-240 V, 50/60 Hz, 28, 37, 55, 84, 110 W, IP 66, class I
Serial number:	-
Manufacturer:	LUG Light Factory Sp. z o.o., ul. Gorzowska 11, 65-127 Zielona Góra, the Republic of Poland
Production site:	LUG Light Factory Sp. z o.o., ul. Gorzowska 11, 65-127 Zielona Góra, Poland
Ordering firm:	LUG Light Factory Sp. z o.o., ul. Gorzowska 11, 65-127 Zielona Góra, the Republic of Poland
Number of tested samples:	1
Samples submitted on:	8. 6. 2016
Location of testing:	EZÚ
Tested from	9. 6. 2016 **through** 9. 6. 2016
Other data:	Tested on: 1300222.5L111.031
The product was tested according to:	ČSN EN 62471.09

Compiled by: Pavel Vodrážka

Approved by: Lukáš Burda
Testing laboratory technical manager

Measured values

Risk	Symbol	Measured value	Group
Blue light	L_B	161 $W.m^{-2}.sr^{-1}$	exempt

Measured with supply voltage 230 V. Ambient temperature 25 °C. Measured at 500 lx distance.

Conclusion

Light source can be considered as low risk light source – Risk Group 1 (RG 1).

Emission limits for risk groups of continuous wave lamps						
Risk	Action spectrum	Symbol	Units	Emission Measurement		
				Exempt	Low risk	Mod risk
				Limit	Limit	Limit
Blue light	B(λ)	L_B	$W•m^{-2}•sr^{-1}$	100	10000	4000000

Measured by: Lukáš Burda

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No. of pages: 36
No. of annexes/No. of an. pages: 0/0

No. of the Test Report: 601205-01/02

Issued: 6. 5. 2016

TEST REPORT

Name of product:	Fixed general purpose luminaires, road and street lighting
Type of product:	URBINO LED
Ratings:	220-240 V, 50/60 Hz, 28, 37, 55, 84, 110 W, IP 66, IK 09, class I
Serial number:	Not specified
Manufacturer:	LUG Light Factory Sp. z o.o., ul. Gorzowska 11, 65-127 Zielona Góra, the Republic of Poland
Production site:	LUG Light Factory Sp. z o.o., ul. Gorzowska 11, 65-127 Zielona Góra, Poland
Ordering firm:	LUG Light Factory Sp. z o.o., ul. Gorzowska 11, 65-127 Zielona Góra, the Republic of Poland
Number of tested samples:	1 + 1
Samples submitted on:	25.4.2016
Location of testing:	EZÚ
Tested from	28 April **through** 3 May 2016
Other data:	Tested type representative: 130222.5L021.031 and 130222.5L111.031
The product was tested according to:	ČSN EN 55015 ed. 4:14, ČSN EN 61547: ed. 2:10, ČSN EN 61000-3-3 ed. 3 :14, ČSN EN 61000-3-2 ed.4:15

Compiled by: Karel Pařízek

elektrotechnický zkušební ústav ezú -7- zkušební laboratoř

Approved by: Miroslav Vondra
Testing laboratory
technical manager

1. Emise - Emission

ČSN EN 55015 ed.4:2014	***Meze a metody měření charakteristik rádiového rušení způsobeného elektrickými svítidly a podobným zařízením***
EN 55015:2013	***Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment***
ČSN EN 61000-3-2 ed.4:2015	***Elektromagnetická kompatibilita (EMC) - Meze - Meze pro emise harmonického proudu***
EN 61000-3-2:2014	***Electromagnetic compatibility (EMC) - Limits - Limits for harmonic current emission***
ČSN EN 61000-3-3: ed. 3:2014	***Elektromagnetická kompatibilita (EMC) -*** Část 3-3: ***Meze - Omezování změn napětí, kolísání napětí a flikru v rozvodných sítích nízkého napětí pro zařízení se jmenovitým fázovým proudem ≤16A, které není přemětem podmíněného připojení***
EN 61000-3-3 :2013	***Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤16A per phase and not subject to conditional connection***

Výrobek - Product: Fixed general purpose luminaires, road and street lighting

Typ - Type: URBINO LED IP66

Varianty – Variants: 130222.5L021.031, 130222.5L051.031, 130222.5L111.031

Požadavky při zkouškách - Requirements at tests:

Norma -Standard	Kmitočtové pásmo - Frequency band	Mezní hodnoty - Allowed values	Poznámka - Note
(ČSN) EN 55015 Čl. - Art. 4.3.1	f [MHz] 0.009 - 0.05 0.05 - 0.15 0.15 - 0.5 0.5 - 5 5 - 30	QP / AV [dB(µV)] 110 / --- 90 - 80 / --- 66 - 56 / 56 - 46 56 / 46 60 / 50	Vyhovuje - Pass
(ČSN) EN 55015 Čl. - Art. 4.4.1 (d=2m)	f [MHz] 0.009 - 0.07 0.07 - 0.15 0.15 - 3 3 - 30	QP [dB(µA)] 88 88 - 58 58 - 22 22	Vyhovuje - Pass
(ČSN) EN 55015 Čl. - Art. 4.4.2	f [MHz] 30 - 230 230 - 300	QP [dB(µV/m)] 30 d=10m 37	Vyhovuje - Pass
(ČSN) EN 6100-3-2 Čl. - Art. 7.3	0 - 2 kHz	Třída C/ Class C	Vyhovuje - Pass
(ČSN) EN 6100-3-3	50Hz	---	Nevztahuje se - Not applicable *)

Poznámky - Notes:
Testovány reprezentativní typy - Tested representative types: 130222.5L021.031, 130222.5L111.031

Výsledky zkoušek uvedených v protokolu se týkají zařízení s elektronickými předřadníky - The results of the tests specified in the protocol relating to device with electronic ballasts:
Varianta –Variant: 130222.5L021.031 (25W):
OSRAM OPTOTRONIC OT 50/120-277/800 2DIMLT2 P
Varianty –Variants: 130222.5L051.031, 130222.5L111.031 (50W, 100W):
OSRAM OPTOTRONIC OT 100/120-277/800 2DIMLT2 P

*) Podle ČSN EN61000-3-3, čl. A2 - According to EN 61000-3-3, Art. A2

Výsledek - Test result: Vyhovuje - Pass

Zpracoval - Compiled by: Pařízek Datum - Date: 6.5. 2016 Místo měření - Measured at: EZÚ

Měření rušivých napětí zaváděných do sítě
Measurement of interference voltages introduced into the mains
Podle - According to: (ČSN) EN 55015 čl. 4.3.1 - art. 4.3.1

Výrobek - Product: Fixed general purpose luminaires, road and street lighting

Typ - Type: URBINO LED IP66

Varianty – Variants: 130222.5L021.031, 130222.5L051.031, 130222.5L111.031

Provozní podmínky - Operating conditions:
230V, 50Hz, minimálně 15 minut v provozu - minimally 15 minutes in operation
Teplota - Temperature: 23°C Rel. vlhkost - Rel. humidity: 28%

Aplikované meze - Applied limits:

Pásmo - Band	Meze dB(μV), kvazivrcholová/střední Limits dB(μV), quasi-peak/average
9kHz - 50kHz	110 /--
50kHz - 150kHz	90 - 80 /--
150kHz - 0,5MHz	66 - 56 / 56 - 46
0,5MHz - 5,0MHz	56 / 46
5,0MHz - 30MHz	60 / 50

Uspořádání při měření - Measuring arrangement:

Poznámky - Notes:
Naměřené hodnoty viz následující stránky - For measured values see next pages

Výsledek - Test result: Vyhovuje - Pass

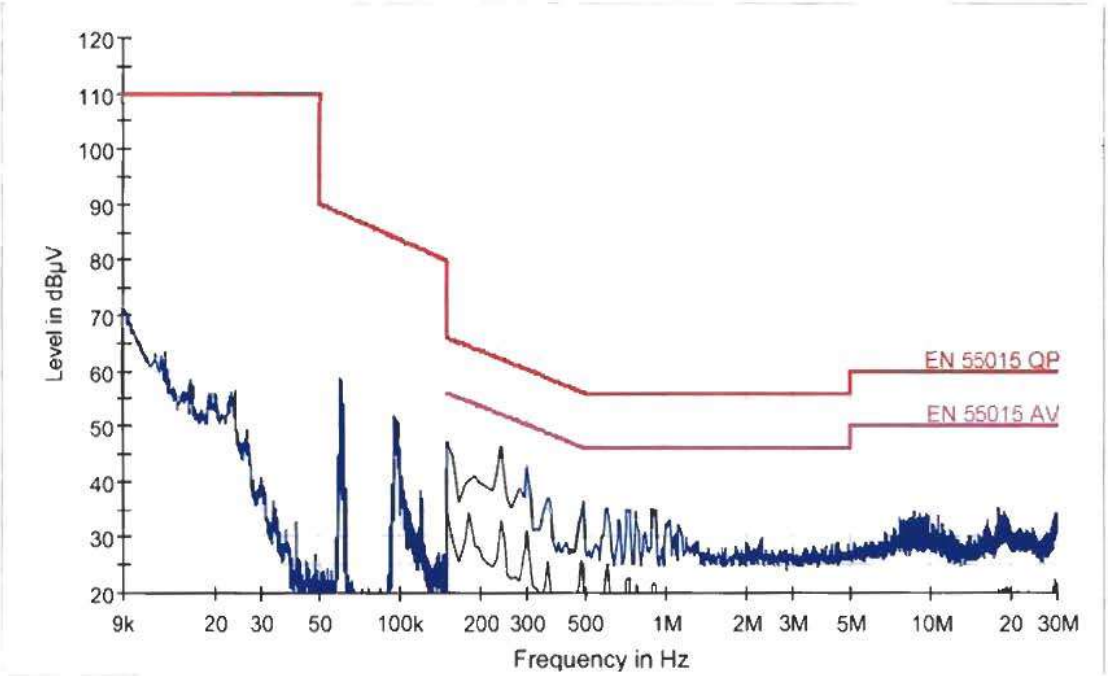
Měřil - Measured by: Pařízek Datum - Date: 2.5. 2016 Místo měření - Measured at: EZÚ

EMI Measurement

Common Information

EUT Name:	URBINO LED
Type	130222.5L021.031
Test Description	EN 55015
Operating Conditions	230V, 50Hz, P=25W
Operator Name:	Parizek
Comment:	L, N

Voltage 55015



2.5.2016 11:18:08

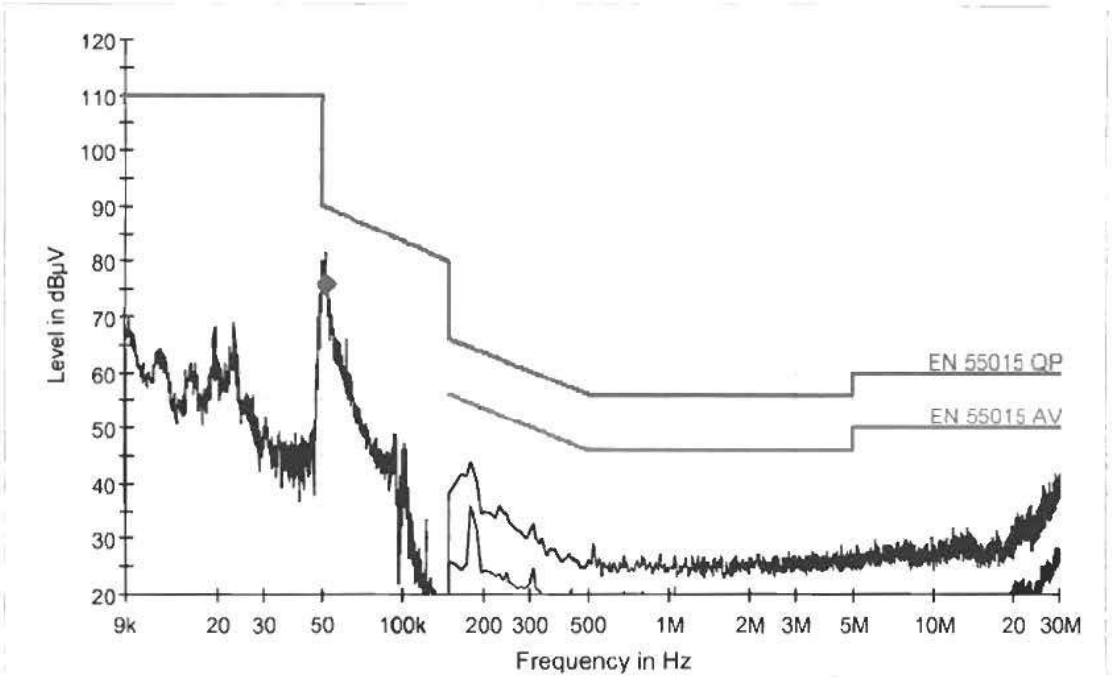
Měřil - Measured by: Pařízek Datum - Date:2.5. 2016 Místo měření - Measured at: EZÚ

EMI Measurement

Common Information

EUT Name:	URBINO LED
Type	130222.5L111.031
Test Description	EN 55015
Operating Conditions	230V, 50Hz, P=100W
Operator Name:	Parizek
Comment:	L, N

Voltage 55015



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.051480	75.8	1000.000	0.200	GND	N	11.1	14.2	90

2.5.2016 11:07:09

Měřil - Measured by: Pařízek Datum - Date:2.5. 2016 Místo měření - Measured at: EZÚ

Měření rušivého elektromagnetického vyzařování v pásmu 9 kHz - 30 MHz
Measurement of interfering radiation in the 9 kHz - 30 MHz band
Podle - According to: (ČSN) EN 55015 čl.- art. 4.4.1

Výrobek - Product: Fixed general purpose luminaires, road and street lighting

Typ - Type: URBINO LED IP66

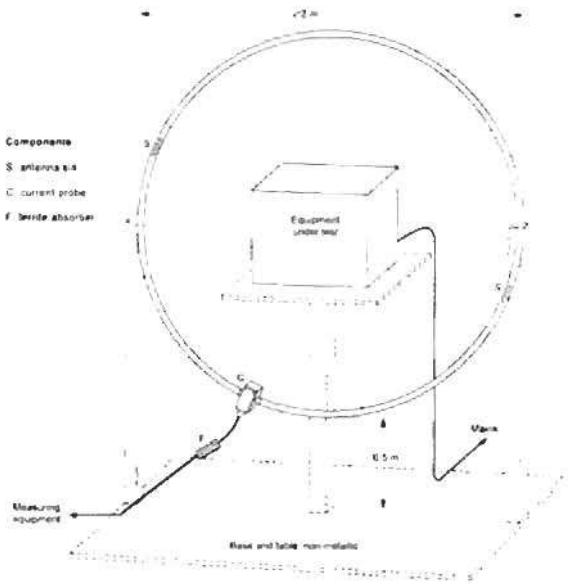
Varianty – Variants: 130222.5L021.031, 130222.5L051.031, 130222.5L111.031

Provozní podmínky - Operating conditions:
230V, 50Hz, minimálně 15 minut v provozu - minimally 15 minutes in operation
Teplota - Temperature: 23°C Rel. vlhkost - Rel. humidity: 28%

Aplikované meze - Applied limits:

Pásmo - Band	Meze dB(µA), kvazivrcholová Limits dB(µA), quasi-peak
9 - 70 kHz	88
70 - 150 kHz	88 - 58
150 kHz - 3 MHz	58 - 22
3 - 30 MHz	22

Uspořádání při měření - Measuring arrangement:



Poznámky - Notes:
Naměřené hodnoty viz následující stránky - For measured values see next pages

Výsledek - Test result: Vyhovuje - Pass

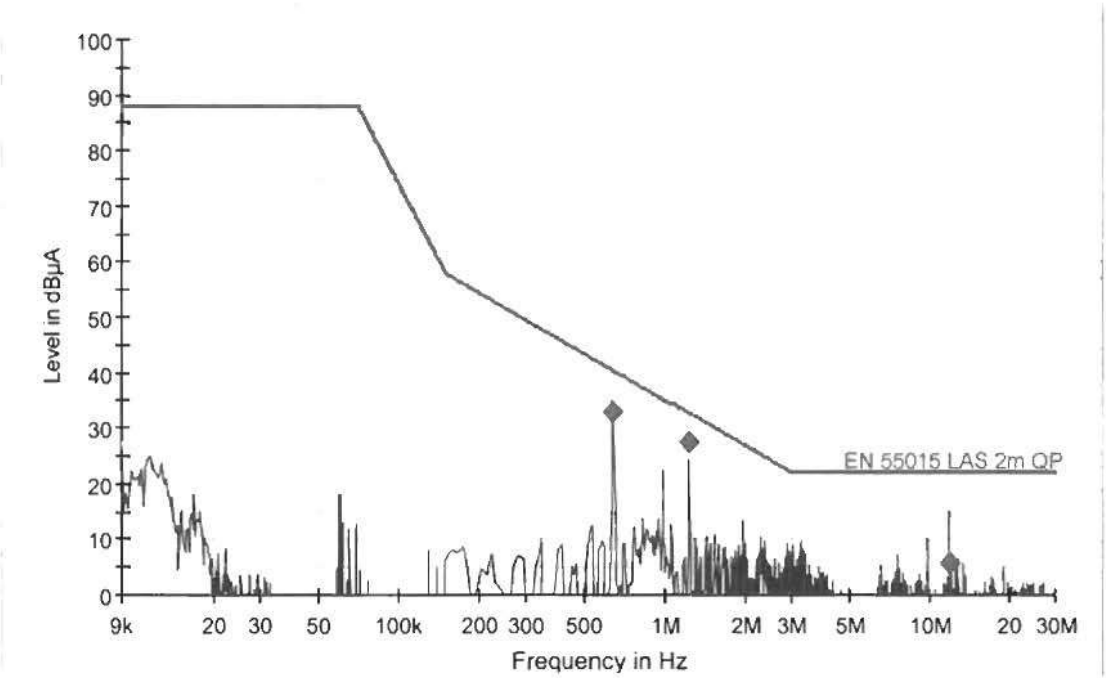
Měřil - Measured by: Pařízek Datum - Date:2.5. 2016 Místo měření - Measured at: EZÚ

EMI Measurement

Common Information

EUT Name:	URBINO LED
Type	130222.5L021.031
Test Description	EN 55015
Operating Conditions	230V, 50Hz, P=25W
Operator Name:	Parizek
Comment:	Axis x

EFS with Scans EZU KRUH2M2



Final Result 1

Frequency (MHz)	QuasiPeak (dBµA)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Margin (dB)	Limit (dBµA)
0.638000	32.9	1000.00	9.000	1.0	7.7	40.6
1.230000	27.5	1000.00	9.000	0.9	5.2	32.7
11.854000	5.9	1000.00	9.000	0.8	16.1	22.0

2.5.2016 9:23:55

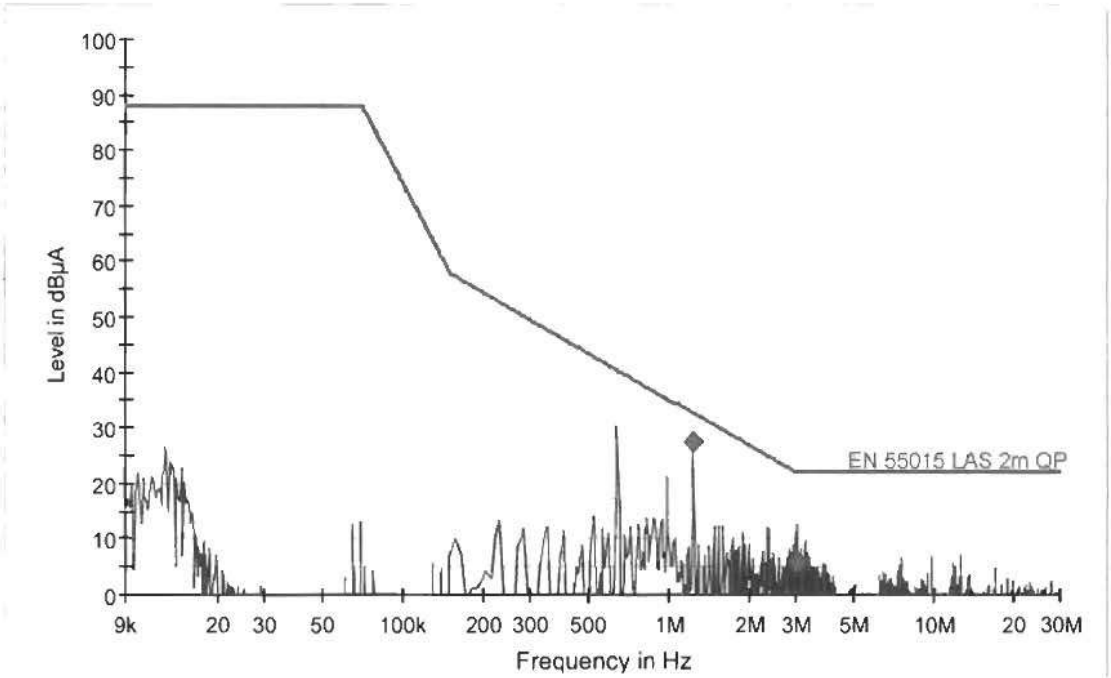
Měřil - Measured by: Pařízek Datum - Date:2.5. 2016 Místo měření - Measured at: EZÚ

EMI Measurement

Common Information

EUT Name:	URBINO LED
Type	130222.5L021.031
Test Description	EN 55015
Operating Conditions	230V, 50Hz, P=25W
Operator Name:	Parizek
Comment:	Axis y

EFS with Scans EZU KRUH2M2



Final Result 1

Frequency (MHz)	QuasiPeak (dBµA)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Margin (dB)	Limit (dBµA)
1.230000	27.6	1000.00	9.000	0.9	5.1	32.7
3.030000	5.9	1000.00	9.000	0.8	16.1	22.0

2.5.2016 9:29:02

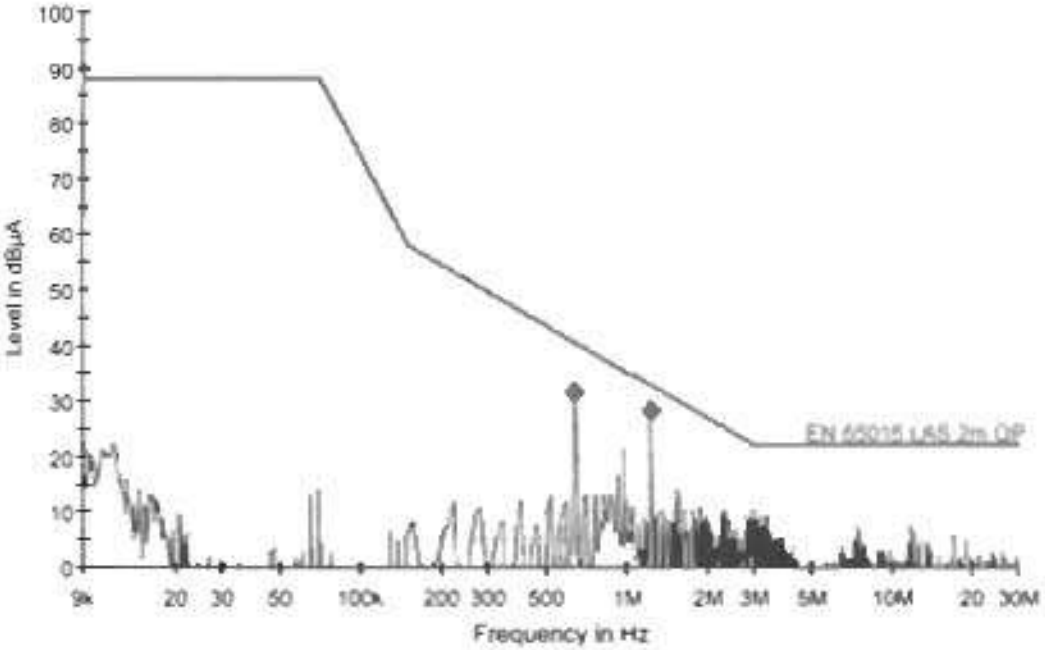
Měřil - Measured by: Pařízek Datum - Date:2.5. 2016 Místo měření - Measured at: EZÚ

EMI Measurement

Common Information

EUT Name:	URBINO LED
Type	130222 5L021 031
Test Description	EN 55015
Operating Conditions	230V, 50Hz, P=25W
Operator Name:	Parizek
Comment:	Axis z

EFS with Scans EZU KRUH2M2



Final Result 1

Frequency (MHz)	QuasiPeak (dBµA)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Margin (dB)	Limit (dBµA)
0.638000	31.5	1000.00	9.000	1.0	9.1	40.6
1.230000	28.4	1000.00	9.000	0.9	4.3	32.7

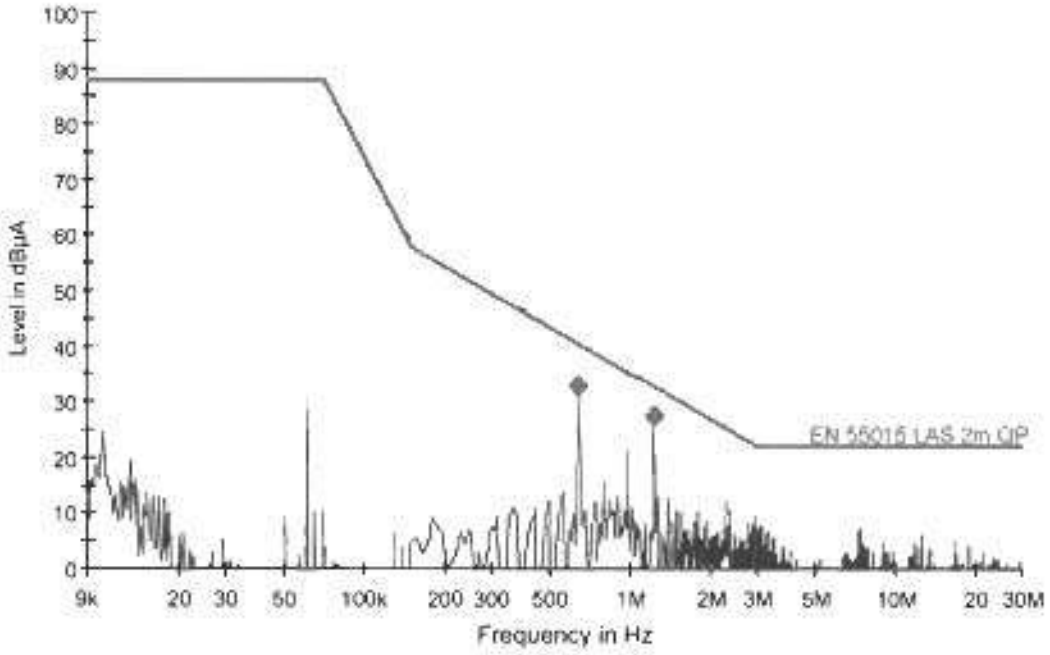
2.5.2016 9:32:13

EMI Measurement

Common Information

EUT Name	URBINO LED
Type	130222 5L111 031
Test Description	EN 55015
Operating Conditions	230V, 50Hz, P=100W
Operator Name:	Parizek
Comment:	Axis x

EFS with Scans EZU KRUH2M2



Final Result 1

Frequency (MHz)	QuasiPeak (dBµA)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Margin (dB)	Limit (dBµA)
0.638000	32.9	1000.00	9.000	1.0	7.7	40.6
1.230000	27.5	1000.00	9.000	0.9	5.2	32.7

2.5.2016 9:37:44

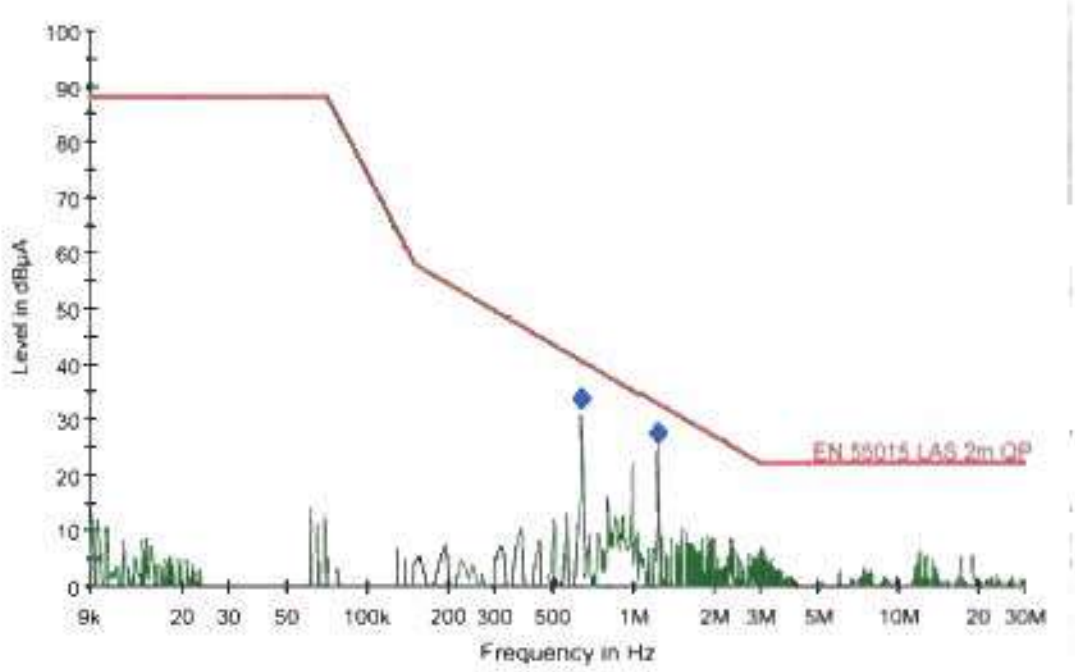
Měřil - Measured by: Pařízek Datum - Date:2.5. 2016 Místo měření - Measured at: EZÚ

EMI Measurement

Common Information

EUT Name:	URBINO LED
Type	130222 5L111 031
Test Description	EN 55015
Operating Conditions	230V, 50Hz, P=100W
Operator Name:	Parizek
Comment:	Axis y

EFS with Scans EZU KRUH2M2



Final Result 1

Frequency (MHz)	QuasiPeak (dBµA)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Margin (dB)	Limit (dBµA)
0.638000	33.6	1000.00	9.000	1.0	7.0	40.6
1.230000	27.5	1000.00	9.000	0.9	5.2	32.7

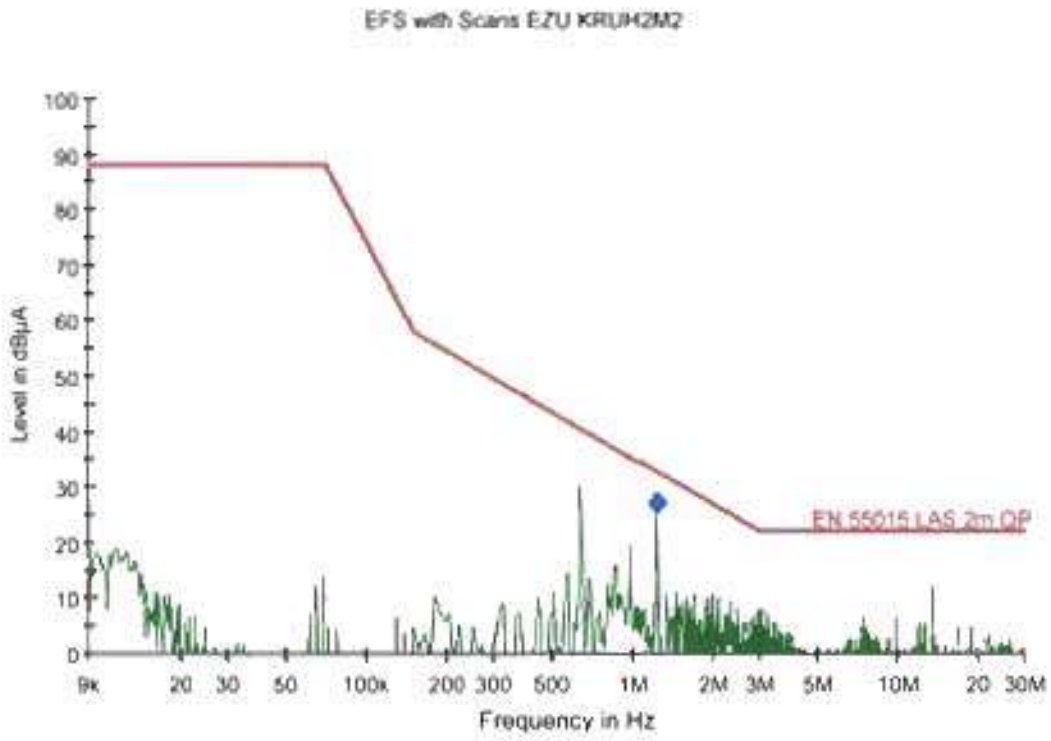
2.5.2016 9:42:15

Měřil - Measured by: Parizek Datum - Date: 2.5.2016 Místo měření - Measured at: EZU

EMI Measurement

Common Information

EUT Name	URBINO LED
Type	130222 5L111 031
Test Description	EN 55015
Operating Conditions	230V, 50Hz, P=100W
Operator Name:	Paruzek
Comment:	Axis z



Final Result 1

Frequency (MHz)	QuasiPeak (dBµA)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB)	Margin (dB)	Limit (dBµA)
1.230000	27.0	1000.00	9.000	0.9	5.7	32.7

2.5.2016 9:46:45

Měřil - Measured by: Pařízek Datum - Date: 2.5. 2016 Místo měření - Measured at: EZÚ

Měření rušivého vyzařování v pásmu 30 - 300 MHz
Measurement of interfering radiation in the 30 - 300 MHz band
Podle - According to: (ČSN) EN 55015 čl. - art. 4.4.2

Výrobek - Product: Fixed general purpose luminaires, road and street lighting

Typ - Type: URBINO LED IP66

Varianty – Variants: 130222.5L021.031, 130222.5L051.031, 130222.5L111.031

Provozní podmínky - Operating conditions:
230V, 50Hz, minimálně 15 minut v provozu - minimally 15 minutes in operation
Teplota - Temperature: 23°C Rel. vlhkost - Rel. humidity: 28%

Aplikované meze - Applied limits:

Pásmo - Band (MHz)	Meze dB(µV/m), kvazivrcholová Limits dB(µV/m), quasi-peak		
30 - 300	*)	30	(d=10m)
230 - 300	*)	37	(d=10m)

Uspořádání při měření - Measuring arrangement:

Poznámky - Notes:
Naměřené hodnoty viz následující stránky - For measured values see next pages
*) Limity a hodnoty přepočteny na měřicí vzdálenost 3m - Limits and values converted to 3 m measuring distance

Výsledek - Test result: Vyhovuje - Pass

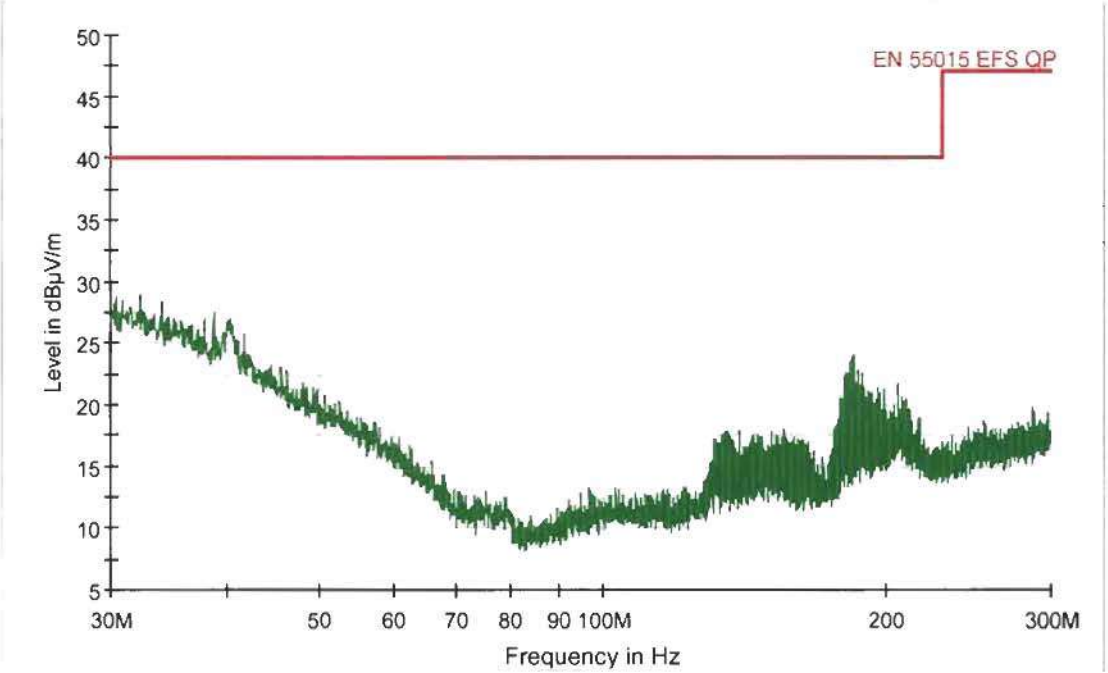
Měřil - Measured by: Pařízek Datum - Date:2.5. 2016 Místo měření - Measured at: EZÚ

EMI Measurement

Common Information

EUT Name:	URBINO LED
Type	130222.5L021.031
Test Description	EN 55015
Operating Conditions	230V, 50Hz, P=25W
Operator Name:	Parizek
Comment:	H polarization

EFS EZU Luminaire



2.5.2016 9:05:06

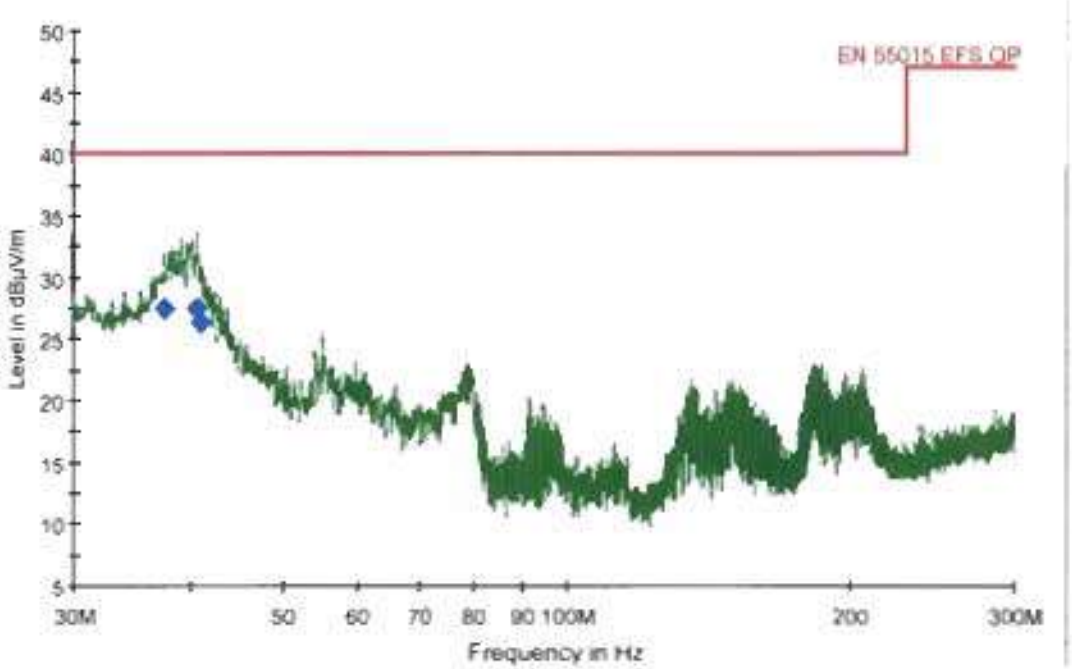
Měřil - Measured by: Pařízek Datum - Date:2.5. 2016 Místo měření - Measured at: EZÚ

EMI Measurement

Common Information

EUT Name:	URBINO LED
Type	130222 5L021.031
Test Description	EN 55015
Operating Conditions	230V, 50Hz, P=25W
Operator Name:	Panzek
Comment:	V polarization

EFS EZU Luminaire



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
37.440000	27.5	116.0	V	189.0	23.8	12.5	40.0
40.500000	27.6	150.0	V	188.0	22.4	12.4	40.0
40.920000	26.4	115.0	V	90.0	22.2	13.6	40.0

2.5.2016 8:51:09

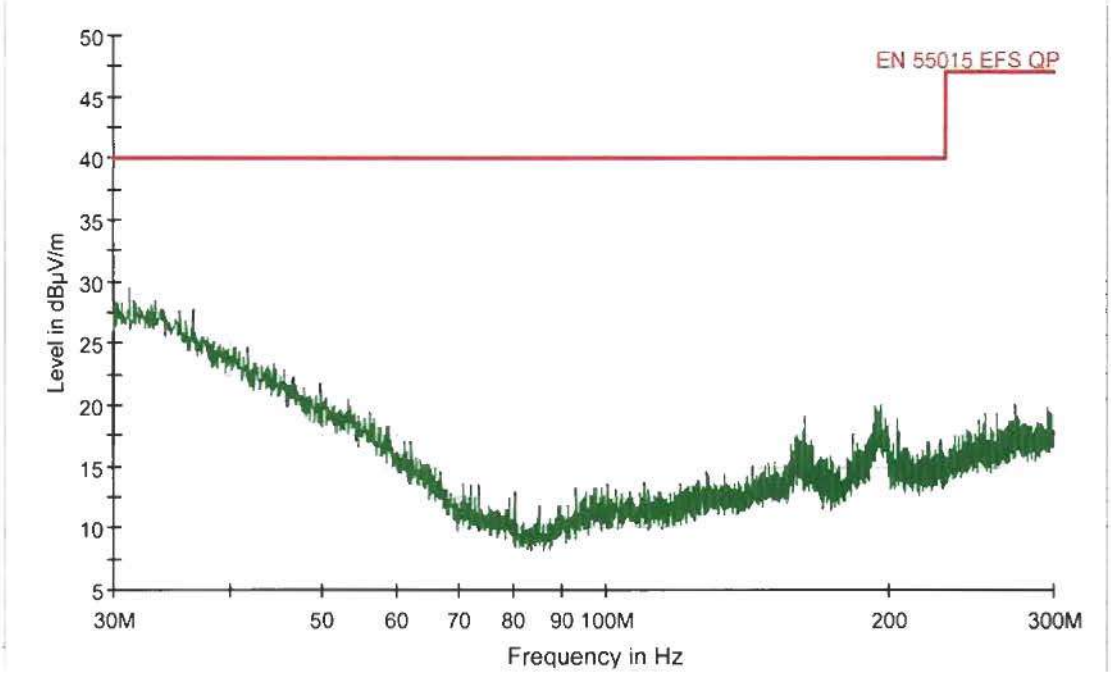
Měřil - Measured by: Panzek Datum - Date: 2.5. 2016 Místo měření - Measured at: EZÚ

EMI Measurement

Common Information

EUT Name:	URBINO LED
Type	130222.5L111.031
Test Description	EN 55015
Operating Conditions	230V, 50Hz, P=100W
Operator Name:	Parizek
Comment:	H polarization

EFS EZU Luminaire



2.5.2016 8:25:35

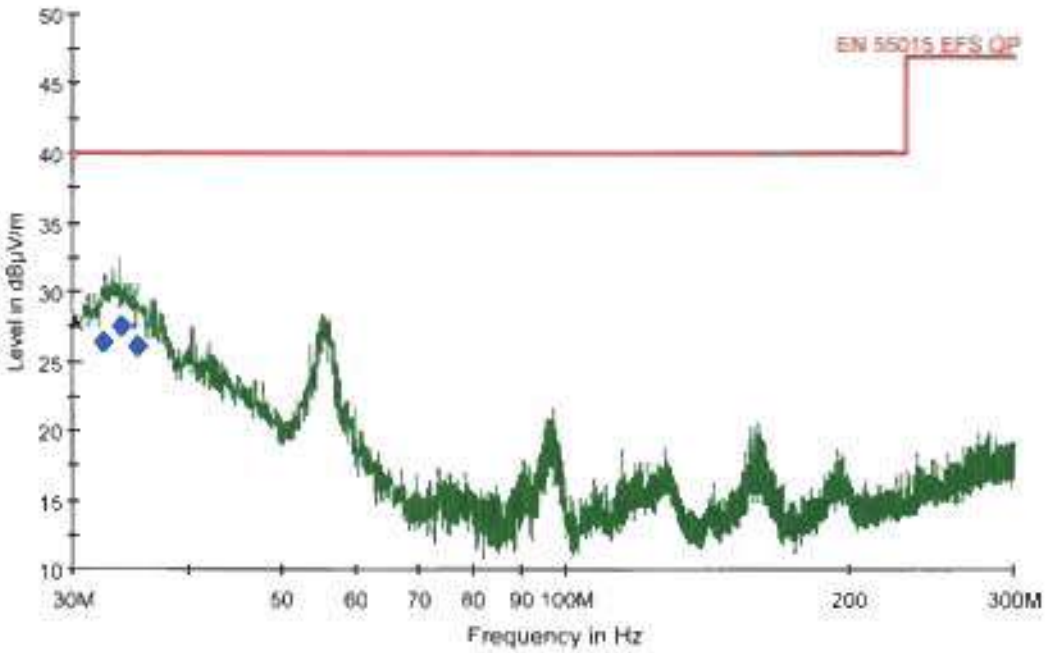
Měřil - Measured by: Pařízek Datum - Date:2.5. 2016 Místo měření - Measured at: EZÚ

EMI Measurement

Common Information

EUT Name:	URBINO LED
Type	130222 5L111.031
Test Description	EN 55015
Operating Conditions	230V, 50Hz, P=100W
Operator Name:	Panzek
Comment:	V polarization

EFS EZU Luminaire



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
32.280000	26.4	115.0	V	90.0	26.4	13.6	40.0
33.780000	27.6	115.0	V	115.0	25.9	12.4	40.0
35.040000	26.1	110.0	V	197.0	25.2	13.9	40.0

2.5.2016 8.34 10

Měřil - Measured by: Pařízek Datum - Date:2.5. 2016 Misto měření - Measured at: EZÚ

Elektromagnetická kompatibilita (EMC) - Meze -
Meze pro emise harmonického proudu
Electromagnetic compatibility (EMC) - Limits -
Limits for harmonic current emission
Podle - According to: (ČSN) EN 61000-3-2 čl. 7.3 - art. 7.3

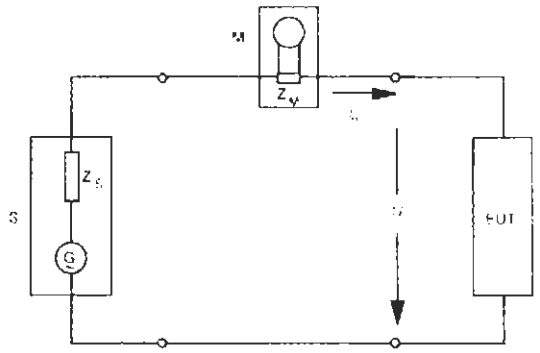
Výrobek - Product: Fixed general purpose luminaires, road and street lighting

Typ - Type: URBINO LED IP66

Varianty – Variants: 130222.5L021.031, 130222.5L051.031, 130222.5L111.031

Provozní podmínky - Operating conditions:
230V, 50Hz, minimálně 15 minut v provozu - minimally 15 minutes in operation
Teplota - Temperature: 22°C Rel. vlhkost - Rel. humidity: 30%

Uspořádání při měření - Measuring arrangement:



S napájecí zdroj - source
EUT zkoušené zařízení - tested equipment
M analyzátor harmonických - harmonic analyser
Z_M měřicí bočník - measuring shunt
Z_S vnitřní impedance napájecího zdroje - internal impedance of source
I_n n-té harmonické proudu ve fázovém/středním vodiči - n^{th} harmonic component of current in the phase/neutral line

Aplikované meze - Applied limits:

Řád harmonické - Order of harmonics	Limit (%I1) P >25W	Limit (%I1) P ≤25W
2	2	--
3	30.λ	86
5	10	61
7	7	--
9	5	--
n 11 - 39 (jen liché - only odd)	3	--

λ= účiník - power factor

Poznámky - Notes:
Zařízení třídy C - Equipment class C
Naměřené hodnoty viz následující stránky - For measured values see next pages

Výsledek - Test result: Vyhovuje - Pass

Měřil - Measured by: Pařízek Datum - Date:29.4. 2016 Místo měření - Measured at: EZÚ

Test Report ISMDPA

Report title:	601205-01/02
Company Name:	EZU
Date of test:	7:33 29.Apr 2016
Measurement file name:	Harmonics_3_2_Ed4.rsd
Tester:	Parizek
Standard used:	EN/IEC 61000-3-2 Ed.4 Quasi-stationary Equipment class C
Observation time:	10s
Windows width:	10 periods - (EN/IEC 61000-4-7 Edition 2002 + A1:2008)
Customer:	NAREX
E. U. T.:	URBINO LED 130222.5L021.031
Temperature :	22
Humidity :	30
Comment:	230 V, 50 Hz, P=33W
Measurement smoothed data:	Fund. Current: 0.144A Power Factor: 0.945

Test Result	
E. U. T.:	PASS
Power Source:	PASS

29.Apr 2016
(Date)

Pařízek
(Sign)

E. U. T. Result

Check harmonics 2..40 [exception odd 21..39]:

Harmonic(s) > 150%:	
Order (n):	None
Harmonic(s) with average > 100%:	
Order (n):	None

Check odd harmonics 21..39:

All Partial Odd Harmonics below partial limits.	
Harmonic(s) > 150%:	
Order (n):	None
Harmonic(s) with average > 150%:	
Order (n):	None

Power Source Result

First dataset out of limit:	
DS (time):	None
Harmonic(s) out of limit:	
Order (n):	None

Average harmonic current results

Hn	Ieff [A]	Ieff [%]	Limit [%]	Result
1	144.211E-3	99.967		
2	575.446E-6	0.399		PASS
3	18.680E-3	12.949	28.36	PASS
4	470.560E-6	0.326		PASS
5	7.109E-3	4.928	10.00	PASS
6	480.496E-6	0.333		PASS
7	4.370E-3	3.029		PASS
8	441.514E-6	0.306		PASS
9	2.894E-3	2.006		PASS
10	436.638E-6	0.303		PASS
11	1.784E-3	1.237		PASS
12	406.854E-6	0.282		PASS
13	744.416E-6	0.516		PASS
14	395.683E-6	0.274		PASS
15	411.544E-6	0.285		PASS
16	412.329E-6	0.286		PASS
17	548.328E-6	0.380		PASS
18	403.445E-6	0.280		PASS
19	744.938E-6	0.516		PASS
20	455.536E-6	0.316		PASS
21	747.293E-6	0.518		PASS
22	431.778E-6	0.299		PASS
23	601.700E-6	0.417		PASS
24	431.307E-6	0.299		PASS
25	590.051E-6	0.409		PASS
26	417.861E-6	0.290		PASS
27	462.597E-6	0.321		PASS
28	386.157E-6	0.268		PASS
29	395.828E-6	0.274		PASS
30	396.636E-6	0.275		PASS
31	386.496E-6	0.268		PASS
32	401.925E-6	0.279		PASS
33	433.972E-6	0.301		PASS
34	385.419E-6	0.267		PASS
35	457.373E-6	0.317		PASS
36	386.779E-6	0.268		PASS
37	446.058E-6	0.309		PASS
38	365.642E-6	0.253		PASS
39	503.804E-6	0.349		PASS
40	372.236E-6	0.258		PASS

Harmonic currents less than 0.6% of the input current measured under the test conditions, or less than 5 mA, whichever is greater, are disregarded.

Test Report ISMDPA

Report title:	601205-01/02
Company Name:	EZU
Date of test:	7:59 29.Apr 2016
Measurement file name:	Harmonics_3_2_Ed4.rsd
Tester:	Parizek
Standard used:	EN/IEC 61000-3-2 Ed.4 Quasi-stationary Equipment class C
Observation time:	10s
Windows width:	10 periods - (EN/IEC 61000-4-7 Edition 2002 + A1:2008)
Customer:	LUG
E. U. T.:	URBINO LED 130222.5L111.031
Temperature :	22
Humidity :	30
Comment:	230 V, 50 Hz, P=117W
Measurement smoothed data:	Fund. Current: 0.509A Power Factor: 0.983

Test Result	
E. U. T.:	PASS
Power Source:	PASS

29.Apr 2016
(Date)

Pařizek
(Sign)

E. U. T. Result

Check harmonics 2..40 [exception odd 21..39]:

Harmonic(s) > 150%:		
	Order (n):	None
Harmonic(s) with average > 100%:		
	Order (n):	None

Check odd harmonics 21..39:

All Partial Odd Harmonics below partial limits.		
Harmonic(s) > 150%:		
	Order (n):	None
Harmonic(s) with average > 150%:		
	Order (n):	None

Power Source Result

First dataset out of limit:		
	DS (time):	None
Harmonic(s) out of limit:		
	Order (n):	None

Average harmonic current results

Hn	Ieff [A]	Ieff [%]	Limit [%]	Result
1	509.057E-3	99.949		
2	993.964E-6	0.195		PASS
3	40.048E-3	7.863	29.49	PASS
4	1.410E-3	0.277		PASS
5	17.901E-3	3.515	10.00	PASS
6	965.849E-6	0.190		PASS
7	12.428E-3	2.440	7.00	PASS
8	909.569E-6	0.179		PASS
9	9.779E-3	1.920	5.00	PASS
10	882.364E-6	0.173		PASS
11	7.073E-3	1.389	3.00	PASS
12	879.482E-6	0.173		PASS
13	4.446E-3	0.873		PASS
14	971.053E-6	0.191		PASS
15	2.833E-3	0.556		PASS
16	1.012E-3	0.199		PASS
17	1.938E-3	0.381		PASS
18	990.428E-6	0.194		PASS
19	1.444E-3	0.283		PASS
20	1.065E-3	0.209		PASS
21	1.072E-3	0.210		PASS
22	1.111E-3	0.218		PASS
23	1.064E-3	0.209		PASS
24	1.056E-3	0.207		PASS
25	1.096E-3	0.215		PASS
26	1.062E-3	0.209		PASS
27	1.167E-3	0.229		PASS
28	1.047E-3	0.206		PASS
29	1.153E-3	0.226		PASS
30	1.067E-3	0.210		PASS
31	1.298E-3	0.255		PASS
32	1.042E-3	0.205		PASS
33	1.141E-3	0.224		PASS
34	976.366E-6	0.192		PASS
35	1.081E-3	0.212		PASS
36	981.026E-6	0.193		PASS
37	1.018E-3	0.200		PASS
38	954.208E-6	0.187		PASS
39	968.726E-6	0.190		PASS
40	882.122E-6	0.173		PASS

Harmonic currents less than 0.6% of the input current measured under the test conditions, or less than 5 mA, whichever is greater, are disregarded.

2. Odolnost - Immunity

(ČSN) EN 61547 ***Zařízení pro všeobecné osvětlovací účely - EMC - požadavky odolnosti***
Equipment for general lighting purposes - EMC - immunity requirements

Výrobek - Product: LED svítidlo - LED luminaire

Typ - Type: UQ3A/600/700ND/IP54

Požadavky při zkouškách - Requirements at tests:

Kmenová norma - Generic standard	Úroveň - Level	Povolená chyba - Allowed error *1)	Poznámka - Note
(ČSN) EN61000-4-2	±4kV / ±8 kV	B	Vyhovuje - Pass
(ČSN) EN61000-4-3	3V/m 80 - 1000 MHz	A	Vyhovuje - Pass
(ČSN) EN61000-4-4	±1kV	B	Vyhovuje - Pass
(ČSN) EN61000-4-5	±1kV / ±2kV	C	Vyhovuje - Pass
(ČSN) EN61000-4-6	3 V 0,15 - 80 MHz	A	Vyhovuje - Pass
(ČSN) EN61000-4-8	3 A/m	A	*2) Vyhovuje - Pass
(ČSN) EN61000-4-11	200 ms / 70%U_T 10 ms / 0% U_T	C B	Vyhovuje - Pass

Poznámky - Notes:
Testovány reprezentativní typy - Tested representative types: 130222.5L021.031, 130222.5L111.031

Výsledky zkoušek uvedených v protokolu se týkají zařízení s elektronickými předřadníky - The results of the tests specified in the protocol relating to device with electronic ballasts:
Varianta –Variant: 130222.5L021.031 (25W):
OSRAM OPTOTRONIC OT 50/120-277/800 2DIMLT2 P
Varianty –Variants: 130222.5L051.031, 130222.5L111.031 (50W, 100W):
OSRAM OPTOTRONIC OT 100/120-277/800 2DIMLT2 P

*1) Funkční kritéria A, B, C dle (ČSN) EN 61547, čl.4.2 -
Performance criteria according (ČSN) EN 61547, art. 4.2
*2) Zařízení neobsahují prvky citlivé na magnetické pole -
Devices do not contain parts sensitive to the magnetic field

Výsledek - Test result: Vyhovuje - Pass

Zpracoval - Compiled by: Pařízek Datum - Date: 6.5. 2016 Místo měření - Measured at: EZÚ

Zkouška odolnosti proti elektrostatickým výbojům
Test of electric discharge resistance
Podle - According to: (ČSN) EN 61000-4-2

Výrobek - Product: Fixed general purpose luminaires, road and street lighting

Typ - Type: URBINO LED IP66

Varianty – Variants: 130222.5L021.031, 130222.5L051.031, 130222.5L111.031

Provozní podmínky - Operating conditions:
230V, 50Hz, minimálně 15 minut v provozu - minimally 15 minutes in operation
Teplota - Temperature: 24°C Rel. vlhkost - Rel. humidity: 29%

Požadované kritérium - Allowed criterion: B

Počet zkušebních výbojů: 10/10 kontaktních/vzduchových výbojů do každého testovaného místa v obou polaritách, mimo to nepřímé kontaktní výboje do vodorovné a svislé vazební desky
Number of testing discharges: 10/10 contact/air discharge to every test-places in each polarity, besides indirect contact discharges into a horizontal and vertical coupling plane

Testovaná místa: Kontaktní výboj do kovových částí a do vodorovné a svislé vazební desky. Vzduchový výboj do skleněného krytu
Tested points: Contact discharge into the metal parts and to the horizontal and vertical coupling plane. Air discharge to the glass cover

Zkušební napětí - Testing voltage [kV]: ± 4 - kontaktní výboj - contact / ±8 - vzduchový výboj - air

Splněné kritérium - Achieved criterion: A

Zkušební uspořádání - Measuring arrangement:

Poznámky - Notes: → **kontakt – contact,** → vzduch. výboj - air

Výsledek - Test result: Vyhovuje - Pass

Měřil - Measured by: Pařízek Datum - Date:28.4. 2016 Místo měření - Measured at: EZÚ

Zkouška odolnosti proti vf elektromagnetickým polím
Immunity test - radiated electromagnetic field requirements
Podle - According to: (ČSN) EN 61000-4-3

Výrobek - Product: Fixed general purpose luminaires, road and street lighting

Typ - Type: URBINO LED IP66

Varianty – Variants: 130222.5L021.031, 130222.5L051.031, 130222.5L111.031

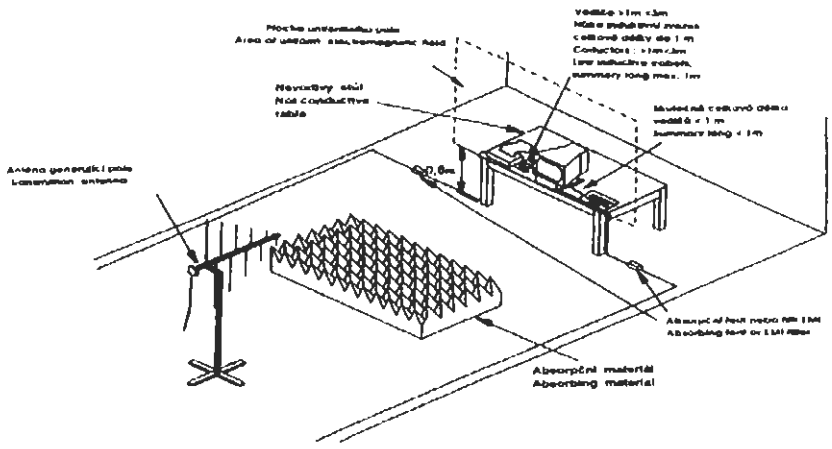
Provozní podmínky - Operating conditions:
230V, 50Hz, minimálně 15 minut v provozu - minimally 15 minutes in operation
Teplota - Temperature: 23°C Rel. vlhkost - Rel. humidity: 29%

Aplikované meze - Applied limits:
Kmitočtový rozsah - Scan spectrum: 80 - 1000 MHz
Intenzita pole - Intensity of field: 3 V/m (80% AM, 1kHz)

Požadované kritérium - Allowed criterion: A

Splněné kritérium - Achieved criterion: A

Uspořádání při měření - Measuring arrangement:



Poznámky - Notes:

Výsledek - Test result: Vyhovuje - Pass

Měřil - Measured by: Pařízek Datum - Date:3.5. 2016 Místo měření - Measured at: EZÚ

Zkouška rychlými přechodovými jevy
Test by quick transient burst
Podle - According to: (ČSN) EN 61000-4-4

Výrobek - Product: Fixed general purpose luminaires, road and street lighting

Typ - Type: URBINO LED IP66

Varianty – Variants: 130222.5L021.031, 130222.5L051.031, 130222.5L111.031

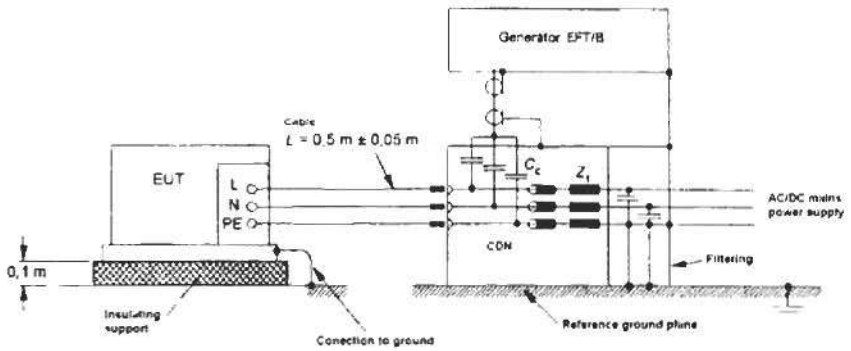
Provozní podmínky - Operating conditions:
230V, 50Hz, minimálně 15 minut v provozu - minimally 15 minutes in operation
Teplota - Temperature: 24°C Rel. vlhkost - Rel. humidity: 29%

Požadované kritérium - Allowed criterion: B

Aplikované zkušební napětí: - Testing voltage applied:

Aplikované napětí - Applied voltage	Zkušební úroveň - Testing level	Splněné kritérium - Performance criterion	Poznámka - Remark
L,N,L+N	±1kV	A	Vazební sítí do napájení - Coupling networks to power supply
L+PE	±1kV	A	
N+PE	±1kV	A	
L+N+PE	±1kV	A	

Zkušební uspořádání - Measuring arrangement:



Poznámky - Notes:

Výsledek - Test result: Vyhovuje - Pass

Měřil - Measured by: Pařízek Datum - Date:28.4. 2016 Místo měření - Measured at: EZÚ

Zkouška rázovou vlnou
Surge immunity test
Podle - According to: (ČSN) EN 61000-4-5

Výrobek - Product: Fixed general purpose luminaires, road and street lighting

Typ - Type: URBINO LED IP66

Varianty – Variants: 130222.5L021.031, 130222.5L051.031, 130222.5L111.031

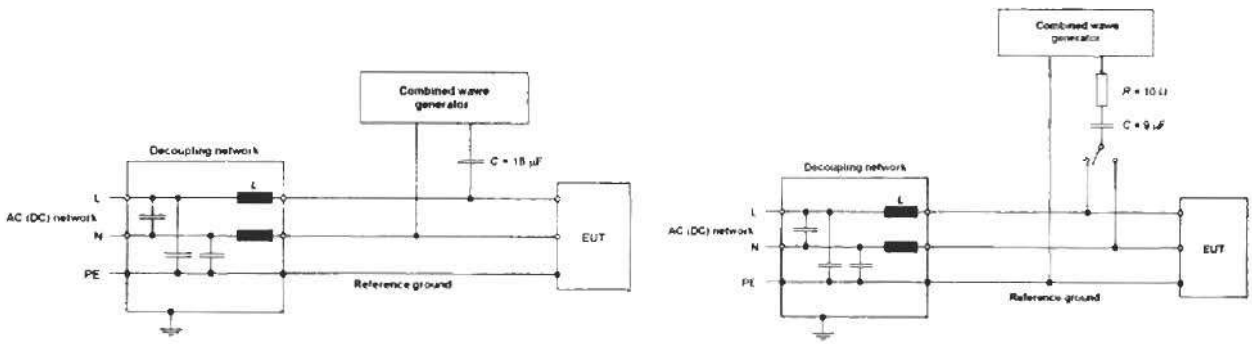
Provozní podmínky - Operating conditions:
230V, 50Hz, minimálně 15 minut v provozu - minimally 15 minutes in operation
Teplota - Temperature: 24°C Rel. vlhkost - Rel. humidity: 29%

Požadované kritérium - Allowed criterion: C

Aplikované zkušební napětí:

Aplikované napětí - Applied voltage	Zkušební úroveň - Testing level	Splněné kritérium - Performance criterion	Poznámka - Remark
L-N	±1kV	B	90°, 270°
L-PE, N-PE, L+N-PE	±2kV	B	90°, 270°

Uspořádání při měření - Measuring arrangement:



Poznámky - Notes:

Výsledek - Test result: Vyhovuje - Pass

Měřil - Measured by: Pařízek Datum - Date:28.4. 2016 Místo měření - Measured at: EZÚ

Zkouška odolnosti proti vf polím šířeným vedením
Immunity test - conducted disturbances induced by radio-frequency fields
Podle - According to: (ČSN) EN 61000-4-6

Výrobek - Product: Fixed general purpose luminaires, road and street lighting

Typ - Type: URBINO LED IP66

Varianty – Variants: 130222.5L021.031, 130222.5L051.031, 130222.5L111.031

Provozní podmínky - Operating conditions:
230V, 50Hz, minimálně 15 minut v provozu - minimally 15 minutes in operation
Teplota - Temperature: 24°C Rel. vlhkost - Rel. humidity: 29%

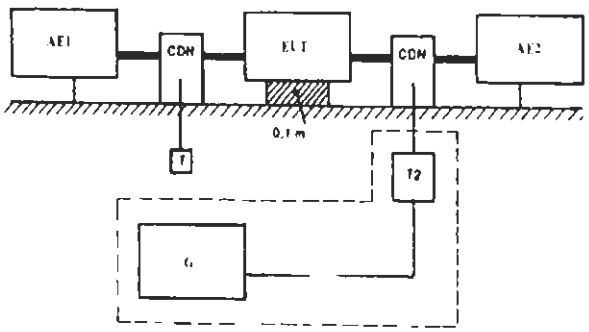
Požadované kritérium - Allowed criterion: A

Aplikované zkušební napětí:

Frekvenční pásmo - Frequency band	Zkušební napětí - Testing voltage level	Poznámka - Note
150kHz - 80MHz	3V (mod. 80% AM / 1 kHz)	Vazebním obvodem do napájení - Applied by coupling network to mains

Splněné kritérium - Achieved criterion: A

Uspořádání při měření - Measuring arrangement:



AE1, AE2 Přidružené zařízení - Associated Equipment
CDN Vazební/oddělovací síť - Coupling/decoupling network
G VF generátor - RF generator
T2 Útlumový člen - Attenuator
T Přizpůsobovací člen 50Ω - Matching circuit 50Ω
EUT Zkoušené zařízení - Equipment under test

Poznámky - Notes:

Výsledek-Test result: Vyhovuje - Pass

Měřil - Measured by: Pařízek Datum - Date:28.4. 2016 Místo měření - Measured at: EZÚ

Krátkodobé poklesy napětí, krátká přerušení a pomalé změny napětí
Voltage dips, short interruptions and voltage variations
Podle - According to: (ČSN) EN 61000-4-11

Výrobek - Product: Fixed general purpose luminaires, road and street lighting

Typ - Type: URBINO LED IP66

Varianty – Variants: 130222.5L021.031, 130222.5L051.031, 130222.5LI11.031

Provozní podmínky - Operating conditions:
230V, 50Hz, minimálně 15 minut v provozu - minimally 15 minutes in operation
Teplota - Temperature: 24°C Rel. vlhkost - Rel. humidity: 29%

Požadované kritérium - Allowed criterion: C, B

Požadavky při zkouškách - Tests requirements:

Zkušební úroveň - Test level [%] Ut	Doba trvání - Duration [ms]	Požadované kritérium Allowed criterion	Splněné kritérium - Achieved criterion
0	10	B	B
70	200	C	B

Poznámky - Notes:

Výsledek - Test result: Vyhovuje - Pass

Měřil - Measured by: Pařízek Datum - Date:28.4. 2016 Místo měření - Measured at: EZÚ

Zkušební zařízení - Measuring equipment used:

☒ Měřicí přijímač- Test receiver RaS	ESIB26	110097	01.2017
☐ Harmonic analyser SEAWARD	ORB	97-5947	09.2016
☒ Harmonic analyzer EM TEST	DPA503N	110272	08.2017
☒ Continuos wawe simulátor EM Test	CWS500N1	110233	03.2017
☐ Combination Wave Simulator EM Test	VCS 500N	110182	08.2017
☐ Combined 3-Phase CDN EM Test	CNI503	110181	08.2017
☒ EM Test	PFS 500	98-6040	10.2017
☒ Ultra Compact Simulator EM Test	UCS 500N	110235	01.2017
☒ ESD generator	ESD30N	110196	03.2017
☒ Artificial mains EMCO	3825/2	95-5852	06.2016
☐ Artificial mains Narda	PMM L3-32	110250	10.2016
☒ Antenna Frankonia	BTA-M	00-6321	10.2017

Pomocná zařízení - Auxiliary equipment:

☒ Field probe Narda	EP603	110273	10.2016
☐ Amplifier BONN ELEKTRONIK	BLWA0810-100	96-5871	
☐ Amplifier BONN ELEKTRONIK	BSA0115-50	98-6038	
☒ Amplifier PRÁNA	AP32 LT225	07-110145	
☐ Amplifier MILMEGA	AS0822-100	98-6038	
☐ Amplifier MILMEGA	AS0204-125	110144	
☐ Amplifier MILMEGA	AS1860-100	110219	
☒ Signal generator RaS	SMF100A	110167	11.2016
☐ MPEG2 Measurement generator	DVG	110120	
☐ TV Test Transmitter	SFL-T	110121	
☐ Tester mag. pole - Exposure Level Tester Narda	ELT-40	110130	09.2016
☐ Antenna Van den Hoofden	VDH-01	000WX30108	
☐ Antenna Double Ridged R&S	HF907	110177	08.2016
☐ Counter	PM6613	20200	
☐ Probe RFT	TK12	700044	
☐ Coupling/dec. EM TEST	CDN M2N	552097	10.2016
☒ Coupling/dec. EM TEST	CDN M3N	110233/1	10.2016
☐ Coupling/dec. EM TEST	CDN M5N	552097	06.2018
☐ Coupling. SCHAFFNER	T440		
☐ Capacitive coupling clamp	Haefely		
☐ Coupling filter Haefely	FP 16 / 3-1		
☐ Current probe	P MP-120		
☐ Current probe	AM503	79-4221	
☐ 8-Wire network Schwarzbeck	NTFM8158	110270	08.2017
☐ Elektromag. kleště- Electromag. injection clamp	EM-101	110233	10.2016
☐ Ferite clamp 1-1000 MHz	EZ-24	10003	
☒ Anechoic chamber - Euroshield Oy	RFMSD-F/A	EZÚ	06.2016
☒ Notebook Dell	Dell D531	551492	
☒ Notebook Dell	Dell D531	551171	
☒ Notebook Dell	Dell E6520	552020	

Kabely - Cables:
- ☐ K1
- ☒ K22 , ESH3-Z2
- ☐ K14 , K15a , K16
- ☐ KB01, KB02, KB04
- ☐ K7 , K10 , ESH3-Z2
- ☒ KB12
- ☐ K23
- ☒ K24

EZU přípravky – EZU equipments:
- ☐ PR-01 - Coupling resistance 40 Ω
- ☐ PR-02 - Coupling capacitor 0,5μF
- ☒ Regulating transformer - ZPA RA20
- ☐ PR-21 - Stabilized power supply DF 3010
- ☐ PR-15 - Variable resistor 2,35 Ω /16A
- ☐ PR-57 - Isolation transformer 0 - 2kV
- ☐ P13 - Oddělovací přípravek - Separating preparation
- ☒ PR52 - VCP

Fotodokumentace - Photo-documentation

Výrobek - Product: Fixed general purpose luminaires, road and street lighting

Typ - Type: URBINO LED IP66

Varianta – Variant: 130222.5L021.031

Celkový pohled - Overview

Zdroj s předřadníkem - Source and LED controller

Výrobní štítek - Name plate

Varianta – Variant: 130222.51.051.031

Celkový pohled - Overview

Zdroj s předřadníkem - Source and LED controller

Výrobní štítek - Name plate

Varianta – Variant: 130222.5L111.031

Celkový pohled – Overview

Výrobní štítek - Name plate

ELECTROTECHNICAL TESTING INSTITUTE
Pod Lisem 129
171 02 Praha 8 - Troja

No. of the Test Report: 601205-01/01

Issued: 13. 6. 2016

TEST REPORT

Name of product:	Luminaires for road and street lighting
Type of product:	URBINO LED IP66
Ratings:	220-240 V, 50/60 Hz, 28, 37, 55, 84, 110 W, IP 66, class I
Serial number:	---
Manufacturer:	LUG Light Factory Sp. z o.o., ul. Gorzowska 11, 65-127 Zielona Góra, Poland
Production site:	LUG Light Factory Sp. z o.o., ul. Gorzowska 11, 65-127 Zielona Góra, Poland
Ordering firm:	LUG Light Factory Sp. z o.o., ul. Gorzowska 11, 65-127 Zielona Góra, Poland
Number of tested samples:	1
Samples submitted on:	---
Location of testing:	EZÚ
Tested from	**through**
Other data:	---
The product was tested according to:	IEC 60598-1:2014, IEC 60598-2-3:2002, EN 60598-1:2015, EN 60598-2-3:2003+A1:2011,

Compiled by: Pavel Vodrážka

elektrotechnický zkušební ústav ezú -3- zkušební laboratoř

Approved by: Lukáš Burda
Testing laboratory
technical manager

Test Report issued under the responsibility of:

ezú electrotechnical testing institute

TEST REPORT
IEC 60598-2-3
Luminaires
Part 2: Particular requirements
Section 3: Luminaires for road and street lighting

Report Number ..... :	601205-01/01
Date of issue ..... :	13.06.02016
Total number of pages	37
Name of Testing Laboratory preparing the Report ..... :	**Elektrotechnický zkušební ústav s.p.** **Pod Lisem 129, 171 02 Praha 71 - Troja, Czech Republic**
Applicant's name ..... :	LUG LIGHT FACTORY SP. Z O. O
Address ..... :	65-127 Zielona Góra ul. Gorzowska 11; Polska
Test specification:	
Standard ..... :	IEC 60598-2-3:2002 (Third Edition) + A1:2011 used in conjunction with IEC 60598-1:2014 (Eighth Edition) EN 60598-2-3:2003 (Second Edition) +A1:2011 used in conjunction with EN 60598-1:2015
Test procedure ..... :	CB Scheme + ENEC
Non-standard test method ..... :	N/A
Test Report Form No. ..... :	IEC60598_2_3J
Test Report Form(s) Originator .... :	Intertek Semko AB
Master TRF ..... :	2014-09

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test item description .....:	Luminaires for road and street lighting
Trade Mark .....:	LUG
Manufacturer.....:	LUG LIGHT FACTORY SP. Z O. O 65-127 Zielona Góra ul. Gorzowska 11; Polska
Model/Type reference .....:	URBINO LED IP66
Ratings .....:	220-240 V, 50/60 Hz, LED module 28, 37, 55, 84, 110 W, IP66,

☐ **CB Testing Laboratory:**	**Elektrotechnický zkušební ústav s.p**	
Testing location/ address .....:	**Pod Lisem 129, 171 02 Praha 71-Troja, Czech Republic**	
☐ **Associated CB Testing Laboratory:**		
Testing location/ address .....:	---	
Tested by (name, function, signature) .....:	Pavel Vodrážka	
Approved by (name, function, signature)...:	Lukáš Burda	

☐ **Testing procedure: TMP/CTF Stage 1:**		
Testing location/ address .....:	---	
Tested by (name, function, signature) .....:		
Approved by (name, function, signature)...:		

☐ **Testing procedure: WMT/CTF Stage 2:**		
Testing location/ address .....:	---	
Tested by (name + signature) .....:		
Witnessed by (name, function, signature)..:		
Approved by (name, function, signature)...:		

☐ **Testing procedure: SMT/CTF Stage 3 or 4:**		
Testing location/ address .....:	---	
Tested by (name, function, signature) .....:		
Witnessed by (name, function, signature)..:		
Approved by (name, function, signature)...:		
Supervised by (name, function, signature) :		

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

Annex 1: components (one page)
Annex 2: temperature measurements, thermal tests of Section 12 (two pages)
Annex 5: photo (for pages)
Annex 6: instruction (one page)

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
All required tests.	same address as on page 2.

Summary of compliance with National Differences:

List of countries addressed

☐ **The product fulfils the requirements of _____ (insert standard number and edition and delete the text in parenthesis, leave it blank or delete the whole sentence, if not applicable)**

Copy of marking plate:

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

Variants:

Annex 4, Page 34

Test item particulars ..... :	
Classification of installation and use ..... :	Luminaires for road and street lighting
Supply Connection ..... :	Terminal block
..... :	
Possible test case verdicts:	
- test case does not apply to the test object ..... :	--- (Not applicable)
- test object does meet the requirement ..... :	P (Pass)
- test object does not meet the requirement ..... :	F (Fail)
Testing ..... :	
Date of receipt of test item ..... :	25.04.2016
Date (s) of performance of tests ..... :	16.5.2016÷13.6.2016

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☒ comma / ☐ point is used as the decimal separator.

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

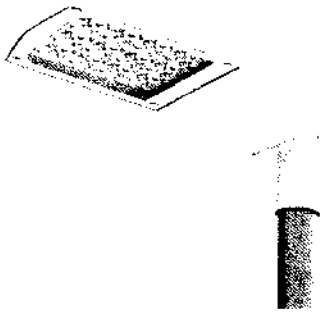
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided..... :	☐ **Yes** ☒ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) ..... : ---

General product information:

Protection class: class I.
Degre of protection: IP 66
Mounting position: column
Supply connection: terminal block
Used light source: LED module
Tested luminaire: URBINO LED 130222.5L111.031



IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

3.2 (0)	**GENERAL TEST REQUIREMENTS**		
3.2 (0.1)	Information for luminaire design considered .....:	Standard Yes ☒ No ☐	—
3.2 (0.3)	More sections applicable .....:	Yes ☐ No ☒	—

3.4 (2)	**CLASSIFICATION**		
3.4 (2.2)	Type of protection .....:	Class I	—
3.4 (2.3)	Degree of protection .....:	IP66	—
3.4 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces .....:	Yes ☒ No ☐	—
3.4 (2.5)	Luminaire for normal use .....:	Yes ☒ No ☐	—
	Luminaire for rough service .....:	Yes ☐ No ☒	—
3.4 (-)	Modes of installation of road or street lighting		—
	a) on a pipe	Yes ☒ No ☐	—
	b) on a mast arm	Yes ☒ No ☐	—
	c) on a post top	Yes ☐ No ☐	—
	d) on span or suspension wires	Yes ☒ No ☒	—
	e) on a wall	Yes ☒ No ☐	—

3.5 (3)	**MARKING**		
3.5 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
3.5 (3.3)	Additional information		P
	Language of instructions		P
3.5 (3.3.1)	Combination luminaires		---
3.5 (3.3.2)	Nominal frequency in Hz		P
3.5 (3.3.3)	Operating temperature		---
3.5 (3.3.4)	Symbol or warning notice		---
3.5 (3.3.5)	Wiring diagram		P
3.5 (3.3.6)	Special conditions		---
3.5 (3.3.7)	Metal halide lamp luminaire – warning		---
3.5 (3.3.8)	Limitation for semi-luminaires		---
3.5 (3.3.9)	Power factor and supply current		---

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.5 (3.3.10)	Suitability for use indoors		---
3.5 (3.3.11)	Luminaires with remote control		---
3.5 (3.3.12)	Clip-mounted luminaire – warning		---
3.5 (3.3.13)	Specifications of protective shields		---
3.5 (3.3.14)	Symbol for nature of supply		---
3.5 (3.3.15)	Rated current of socket outlet		---
3.5 (3.3.16)	Rough service luminaire		---
3.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments		---
3.5 (3.3.18)	Non-ordinary luminaires with PVC cable		---
3.5 (3.3.19)	Protective conductor current in instruction if applicable		---
3.5 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		---
3.5 (3.3.21)	Non-replaceable and non-user replaceable light sources information provided		---
	Cautionary symbol		---
3.5 (3.3.22)	Controllable luminaires, classification of insulation provided		---
3.5 (3.4)	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		P
3.5 (-)	Additional information in instruction leaflet		
	a) Design attitude		P
	b) Weight		P
	c) Overall dimensions		P
	d) Maximum projected area if applicable		P
	e) Cross-sectional area of wires if applicable		P
	f) Suitability for indoors use		---
	g) Dimensions of the compartment		---
	h) Torque setting to be applied to bolts or screws		P
	i) Maximum mounting height		P

3.6 (4)	**CONSTRUCTION**		
3.6 (4.2)	Components replaceable without difficulty		P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.6 (4.3)	Wireways smooth and free from sharp edges		P
3.6 (4.4)	**Lampholders**		
3.6 (4.4.1)	Integral lampholder		---
3.6 (4.4.2)	Wiring connection		---
3.6 (4.4.3)	Lampholder for end-to-end mounting		---
3.6 (4.4.4)	Positioning		---
	- pressure test (N) .....:		—
	After test the lampholder comply with relevant standard sheets and show no damage		---
	After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation		---
	- bending test (N) .....:		—
	After test the lampholder have not moved from its position and show no permanent deformation		---
3.6 (4.4.5)	Peak pulse voltage		---
3.6 (4.4.6)	Centre contact		---
3.6 (4.4.7)	Parts in rough service luminaires resistant to tracking		---
3.6 (4.4.8)	Lamp connectors		---
3.6 (4.4.9)	Caps and bases correctly used		---
3.6 (4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way		---
3.6 (4.5)	**Starter holders**		
	Starter holder in luminaires other than class II		---
	Starter holder class II construction		---
3.6 (4.6)	**Terminal blocks**		
	Tails		---
	Unsecured blocks		---
3.6 (4.7)	**Terminals and supply connections**		
3.6 (4.7.1)	Contact to metal parts	terminal block with an insulating pad	P
3.6 (4.7.2)	Test 8 mm live conductor		P
	Test 8 mm earth conductor		P
3.6 (4.7.3)	Terminals for supply conductors		P
3.6 (4.7.3.1)	Welded method and material		
	- stranded or solid conductor		---

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- spot welding		---
	- welding between wires		---
	- Type Z attachment		---
	- mechanical test according to 15.8.2		---
	- electrical test according to 15.9		---
	- heat test according to 15.9.2.3 and 15.9.2.4		---
3.6 (4.7.4)	Terminals other than supply connection		---
3.6 (4.7.5)	Heat-resistant wiring/sleeves		---
3.6 (4.7.6)	Multi-pole plug		---
	- test at 30 N		---
3.6 (4.8)	**Switches**		
	- adequate rating		---
	- adequate fixing		---
	- polarized supply		---
	- compliance with IEC 61058-1 for electronic switches		---
3.6 (4.9)	**Insulating lining and sleeves**		
3.6 (4.9.1)	Retainment		---
	Method of fixing .....:		—
3.6 (4.9.2)	Insulated linings and sleeves:		
	Resistant to a temperature > 20 °C to the wire temperature or		---
	a) & c) Insulation resistance and electric strength		---
	b) Ageing test. Temperature (°C) .....:		---
3.6 (4.10)	**Double or reinforced insulation**		
3.6 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		---
	Safe installation fixed luminaires		---
	Capacitors and switches		---
	Interference suppression capacitors according to IEC 60384-14		---
3.6 (4.10.2)	Assembly gaps:		
	- not coincidental		---
	- no straight access with test probe		---
3.6 (4.10.3)	Retainment of insulation:		

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- fixed		---
	- unable to be replaced; luminaire inoperative		---
	- sleeves retained in position		---
	- lining in lampholder		---
3.6 (4.11)	**Electrical connections and current-carrying parts**		
3.6 (4.11.1)	Contact pressure		P
3.6 (4.11.2)	Screws:		
	- self-tapping screws		---
	- thread-cutting screws		---
3.6 (4.11.3)	Screw locking:		
	- spring washer		P
	- rivets		---
3.6 (4.11.4)	Material of current-carrying parts		P
3.6 (4.11.5)	No contact to wood or mounting surface		P
3.6 (4.11.6)	Electro-mechanical contact systems		---
3.6 (4.12)	**Screws and connections (mechanical) and glands**		
3.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		---
	Torque test: torque (Nm); part.....:	cover M4: 1,2 Nm	P
	Torque test: torque (Nm); part.....:		---
	Torque test: torque (Nm); part.....:		---
3.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		---
3.6 (4.12.4)	Locked connections:		
	- fixed arms; torque (Nm).....:		---
	- lampholder; torque (Nm) .....:		---
	- push-button switches; torque 0,8 Nm.....:		---
3.6 (4.12.5)	Screwed glands; force (Nm).....:	3,25	P
3.6 (4.13)	**Mechanical strength**		
3.6 (4.13.1)	Impact tests:		
	- fragile parts; energy (Nm).....:	Optical part: 0,5	P
	- other parts; energy (Nm) .....:	Body: 0,7	P
	1) live parts		P
	2) linings		---
	3) protection		P

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	4) covers		P
3.6 (4.13.3)	Straight test finger		P
3.6 (4.13.4)	Rough service luminaires		
	- IP54 or higher		---
	a) fixed		---
	b) hand-held		---
	c) delivered with a stand		---
	d) for temporary installations and suitable for mounting on a stand		---
3.6 (4.13.6)	Tumbling barrel		---
3.6 (4.14)	**Suspensions, fixings and means of adjusting**		
3.6 (4.14.1)	Mechanical load:		
	A) four times the weight		---
	B) torque 2,5 Nm		---
	C) bracket arm; bending moment (Nm) ..... :		---
	D) load track-mounted luminaires		---
	E) clip-mounted luminaires, glass-shelve. Thickness (mm) ..... :		---
	Metal rod. diameter (mm) ..... :		---
	Fixed luminaire or independent control gear without fixing devices		---
3.6 (4.14.2)	Load to flexible cables		
	Mass (kg) ..... :		---
	Stress in conductors (N/mm²) ..... :		---
	Mass (kg) of semi-luminaire ..... :		---
	Bending moment (Nm) of semi-luminaire ..... :		---
3.6 (4.14.3)	Adjusting devices:		
	- flexing test; number of cycles ..... :		---
	- strands broken ..... :		---
	- electric strength test afterwards		---
3.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		---
3.6 (4.14.5)	Guide pulleys		---
3.6 (4.14.6)	Strain on socket-outlets		---
3.6 (4.15)	**Flammable materials**		

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- glow-wire test 650°C .....:	See Test Table 3.15 (13.3.2)	---
	- spacing ≥30 mm		---
	- screen withstanding test of 13.3.1		---
	- screen dimensions		---
	- no fiercely burning material		---
	- thermal protection		---
	- electronic circuits exempted		---
3.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		
	a) construction		---
	b) temperature sensing control		---
	c) surface temperature		---
3.6 (4.16)	**Luminaires for mounting on normally flammable surfaces**		
	No lamp control gear .....:	(compliance with Section 12)	---
3.6 (4.16.1)	Lamp control gear spacing:		
	- spacing 35 mm		P
	- spacing 10 mm		---
3.6 (4.16.2)	Thermal protection:		
	- in lamp control gear		P
	- external		---
	- fixed position		---
	- temperature marked lamp control gear	T120	P
3.6 (4.16.3)	Design to satisfy the test of 12.6	(see clause 12.6)	---
3.6 (4.17)	**Drain holes**		
	Clearance at least 5 mm		---
3.6 (4.18)	**Resistance to corrosion**		
3.6 (4.18.1)	- rust-resistance		---
3.6 (4.18.2)	- season cracking in copper		---
3.6 (4.18.3)	- corrosion of aluminium		---
3.6 (4.19)	Igniters compatible with ballast		---
3.6 (4.20)	Rough service vibration		---
3.6 (4.21)	**Protective shield**		
3.6 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		---
	Shield of glass if tungsten halogen lamps		---

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.6 (4.21.2)	Particles from a shattering lamp not impair safety		---
3.6 (4.21.3)	No direct path		---
3.6 (4.21.4)	Impact test on shield		---
	Glow-wire test on lamp compartment.....:	See Test Table 3.15 (13.3.2)	---
3.6 (4.22)	Attachments to lamps not cause overheating or damage		---
3.6 (4.23)	Semi-luminaires comply Class II		---
3.6 (4.24)	**Photobiological hazards**		
3.6 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		---
3.6 (4.24.2)	Retinal blue light hazard		
	Luminaires with E_{thr}:		---
	a) Fixed luminaires		---
	- distance x m, borderline between RG1 and RG2...:		---
	- marking and instruction according 3.2.23		---
	b) Portable and handheld luminaires		---
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		---
	Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12 not exceed RG1 at 200 mm according to IEC/62778		---
3.6 (4.25)	**Mechanical hazard**		
	No sharp point or edges		P
3.6 (4.26)	**Short-circuit protection**		
3.6 (4.26.1)	Adequate means of uninsulated accessible SELV parts		---
3.6 (4.26.2)	Short-circuit test with test chain according 4.26.3		
	Test chain not melt through		---
	Test sample not exceed values of Table 12.1 and 12.2		---
3.6 (4.27)	**Terminal blocks with integrated screwless earthing contacts**		
	Test according Annex V		---
	Pull test of terminal fixing (20 N)		---
	After test, resistance < 0,05 Ω		---
	Pull test of mechanical connection (50 N)		---
	After test, resistance < 0,05 Ω		---

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Clause	Requirement + Test	Result - Remark	Verdict
	Voltage drop test, resistance < 0,05 Ω		---
3.6 (4.28)	**Fixing of thermal sensing control**		
	Not plug-in or easily replaceable type		---
	Reliably kept in position		---
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		---
	Not outside the luminaire enclosure		---
	Test of adhesive fixing:		
	Max. temperature on adhesive material (°C).....:		---
	100 cycles between t min and t max		---
	Temperature sensing control still in position		---
3.6 (4.29)	**Luminaires with non-replaceable light source**		
	Not possible to replace light source		---
	Live part not accessible after parts have been opened by hand or tools		---
3.6 (4.30)	**Luminaires with non-user replaceable light source**		
	If protective cover provide protection against electric shock and marked with "caution, electric shock risk" symbol:		
	Minimum two fixing means		---
3.6 (4.31)	**Insulation between circuits**		
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		---
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil requirements according 4.31.1 – 4.31.3		---
3.6 (4.31.1)	SELV circuits		
	Used SELV source		---
	Voltage ≤ ELV		---
	Insulating of SELV circuits from LV supply		---
	Insulating of SELV circuits from other non SELV circuits		---
	Insulating of SELV circuits from FELV		---
	Insulating of SELV circuits from other SELV circuits		---
	SELV circuits insulated from accessible parts according Table X.1		---
	Plugs not able to enter socket-outlets of other voltage systems		---

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Clause	Requirement + Test	Result - Remark	Verdict
	Socket outlets does not admit plugs of other voltage systems		---
	Plugs and socket-outlets does not have protective conductor contact		---
3.6 (4.31.2)	FELV circuits		
	Used FELV source		---
	Voltage ≤ ELV		---
	Insulating of FELV circuits from LV supply		---
	FELV circuits insulated from accessible parts according Table X.1		---
	Plugs not able to enter socket-outlets of other voltage systems		---
	Socket outlets does not admit plugs of other voltage systems		---
	Socket-outlets does not have protective conductor contact		---
3.6 (4.31.3)	Other circuits		
	Other circuits insulated from accessible parts according Table X.1		---
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		---
	- conductive parts are connected together		---
	- test according 7.2.3 of above		---
	- conductive part not cause an electric shock in case of an insulation fault		---
	- equipotential bonding in master/slave applications		---
	- master luminaire provided with terminal for accessible conductive parts of slave luminaires		---
	- slave luminaire constructed as class I		---
3.6 (4.32)	**Overvoltage protective devices**		
	Comply with IEC 61643-11		---
	External to controlgear and connected to earth:		
	- only in fixed luminaires		---
	- only connected to protective earth		---
3.6.1 (-)	At least IP X3 or X5 respectively. IP ..... :	IP66	P
	Column-integrated luminaires:		
	- parts below 2,5 m. IP ..... :		---
	- parts above 2,5 m. IP ..... :	min. 6 m, max. 10 m ↕ : IP66	P

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Clause	Requirement + Test	Result - Remark	Verdict
3.6.2 (-)	Suspension on span wires		---
3.6.3 (-)	Means for attaching the luminaire or external parts to its support appropriate to the weight		---
3.6.3.1 (-)	Static load test		
	- drag coefficient ..... :	1,2	P
	- loaded area (m^2) ..... :	0,039	P
	- used load (N) ..... :	77,5	P
	- measured deformation (cm/m) ..... :		P
	- no rotation		P
3.6.4 (-)	Adjustable lampholders		---
3.6.5 (-)	Luminaires installed above 5 m, glass covers shall be:		
	a) glass that fractures into small pieces (test according to 3.6.5.1), or		P
	b) glass having a high impact shock resistance (test according to 3.6.5.2), or		---
	c) protected by any means to retain glass fragments		---
	For tunnel luminaires 3.6.5.1 apply		---
	Method of protection declared by the manufacturer		P
3.6.5.1 (-)	Protection by the use of glass that fractures into small pieces		
	- number of particles is more than 40 ..... :	51	P
3.6.5.2 (-)	Protection by the use of high impact resistant glass		
3.6.5.2.1 (-)	Glass covers have high mechanical strength		---
	Test according IEC 62262 with test apparatus according IEC 60068-2-75 with impact energy of 5J on preconditioned sample		---
3.6.5.2.2 (-)	Glass covers not break into large pieces		---
	- test according 3.6.5.1, number of particles is more than 20 ..... :		P
3.6.6 (-)	Connection compartment of column-integrated luminaire		
	- provides adequate space		---
	- means for attachment		---
	- means for attachment of metal corrosion-resistant		---
3.6.7 (-)	Compliance with ISO standard or other ..... :		---
3.6.8 (-)	Doors of column-integrated luminaires:		
	- corrosion-resistant		---
	- opening only possible for an authorized person		---

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Clause	Requirement + Test	Result - Remark	Verdict
	- impact test 5 Nm		---
	- sample show no damage		---
3.6.9 (-)	Column-integrated luminaire:		
	- dimension of the cable entry slot (mm) ..... :		---
	- cable path from the slot to the connection compartment (mm) ..... :		---
	- cable path free from obstruction that might cause abrasion of the cable		---
3.7 (11)	**CREEPAGE DISTANCES AND CLEARANCES**		
3.7 (11.2)	Creepage distances and clearances ..... :	See Table 3.7 (11.2)	
	Working voltage (V) ..... :	230	—
	Rated pulse voltage (kV) ..... :		—
	Voltage form ..... :	Sinusoidal ☒ Non-sinusoidal ☐	—
	PTI ..... :	< 600 ☒ ≥ 600 ☐	—
	Impulse withstand category (Normal category II) (Category III Annex U)	Category II ☒ Category III ☐	—
3.8 (7)	**PROVISION FOR EARTHING**		
3.8 (7.2.1 + 7.2.3)	Accessible metal parts		P
	Metal parts in contact with supporting surface		P
	Resistance < 0,5 Ω ..... :	0,011	P
	Self-tapping screws used		---
	Thread-forming screws		---
	Thread-forming screw used in a grove		---
	Earth makes contact first		P
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		---
	Protective earthing of the luminaire not via built-in control gear		---
3.8 (7.2.2 + 7.2.3)	Earth continuity in joints, etc.		---
3.8 (7.2.4)	Locking of clamping means		P
	Compliance with 4.7.3		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		---
3.8 (7.2.5)	Earth terminal integral part of connector socket		---
3.8 (7.2.6)	Earth terminal adjacent to mains terminals		P
3.8 (7.2.7)	Electrolytic corrosion of the earth terminal		---
3.8 (7.2.8)	Material of earth terminal		P
	Contact surface bare metal		P
3.8 (7.2.10)	Class II luminaire for looping-in		---
	Double or reinforced insulation to functional earth		---
3.8 (7.2.11)	Earthing core coloured green-yellow		---
	Length of earth conductor		---
3.8.1 (-)	Attachment prevented from rotation		P

3.9 (14)	**SCREW TERMINALS**		
	Separately approved; component list ..... :	(see Annex 1)	---
	Part of the luminaire ..... :	(see Annex 3)	---

3.9 (15)	**SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS**		
	Separately approved; component list ..... :	(see Annex 1)	P
	Part of the luminaire ..... :	(see Annex 4)	---

3.10 (5)	**EXTERNAL AND INTERNAL WIRING**		
3.10 (5.2)	**Supply connection and external wiring**		
3.10 (5.2.1)	Means of connection ..... :	Terminal block	P
	Outdoor luminaire has not PVC insulated external wiring if not class III or SELV ≤ 25 V a.c./60 V d.c. or protected from outdoor environment		---
3.10 (5.2.2)	Type of cable ..... :		---
	Nominal cross-sectional area (mm²) ..... :		---
	Cables equal to IEC 60227 or IEC 60245		---
3.10 (5.2.3)	Type of attachment, X, Y or Z		---
3.10 (5.2.5)	Type Z not connected to screws		---
3.10 (5.2.6)	Cable entries:		
	- suitable for introduction		P
	- adequate degree of protection		P

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Clause	Requirement + Test	Result - Remark	Verdict
3.10 (5.2.7)	Cable entries through rigid material have rounded edges		---
3.10 (5.2.8)	Insulating bushings:		
	- suitably fixed		---
	- material in bushings		---
	- material not likely to deteriorate		---
	- tubes or guards made of insulating material		P
3.10 (5.2.9)	Locking of screwed bushings		---
3.10 (5.2.10)	Cord anchorage:		
	- covering protected from abrasion		---
	- clear how to be effective		---
	- no mechanical or thermal stress		---
	- no tying of cables into knots etc.		---
	- insulating material or lining		---
3.10 (5.2.10.1)	Cord anchorage for type X attachment:		
	a) at least one part fixed		---
	b) types of cable		---
	c) no damaging of the cable		---
	d) whole cable can be mounted		---
	e) no touching of clamping screws		---
	f) metal screw not directly on cable		---
	g) replacement without special tool		---
	Glands not used as anchorage		---
	Labyrinth type anchorages		---
3.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		---
3.10 (5.2.10.3)	Tests:		
	- impossible to push cable; unsafe		---
	- pull test: 25 times; pull (N)....:		---
	- torque test: torque (Nm)....:		---
	- displacement ≤ 2 mm		---
	- no movement of conductors		---
	- no damage of cable or cord		---

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Clause	Requirement + Test	Result - Remark	Verdict
	- function independent of electrical connection		---
3.10 (5.2.11)	External wiring passing into luminaire		P
3.10 (5.2.12)	Looping-in terminals		---
3.10 (5.2.13)	Wire ends not tinned		---
	Wire ends tinned: no cold flow		---
3.10 (5.2.14)	Mains plug same protection		---
	Class III luminaire plug		---
	No unsafe compatibility		---
3.10 (5.2.16)	Appliance inlets (IEC 60320)		---
	Installation couplers (IEC 61535)		---
	Other appliance inlet or connector according relevant IEC standard		---
3.10 (5.2.17)	No standardized interconnecting cables properly assembled		---
3.10 (5.2.18)	Used plug in accordance with		
	- IEC 60083		---
	- other standard		---
3.10 (5.3)	**Internal wiring**		
3.10 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		
	- not delivered/ mounting instruction		---
	- factory assembled		P
	- socket outlet loaded (A)..... :		---
	- temperatures ..... :	(see Annex 2)	---
	Green-yellow for earth only		---
3.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		
	Cross-sectional area (mm^2)..... :	0,5	P
	Insulation thickness		P
	Extra insulation added where necessary		---
3.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		

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Clause	Requirement + Test	Result - Remark	Verdict
	Adequate cross-sectional area and insulation thickness		---
3.10 (5.3.1.3)	Double or reinforced insulation for class II		P
3.10 (5.3.1.4)	Conductors without insulation		---
3.10 (5.3.1.5)	SELV current-carrying parts		---
3.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		P
3.10 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		---
	Joints, raising/lowering devices		---
	Telescopic tubes etc.		---
	No twisting over 360°		---
3.10 (5.3.3)	Insulating bushings:		
	- suitable fixed		---
	- material in bushings		---
	- material not likely to deteriorate		---
	- cables with protective sheath		---
3.10 (5.3.4)	Joints and junctions effectively insulated		---
3.10 (5.3.5)	Strain on internal wiring		---
3.10 (5.3.6)	Wire carriers		---
3.10 (5.3.7)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		---
3.10.1 (-)	Cord anchorage if applicable		---
	- pull test: 25 times; pull (N)..... :		---
	- torque test: torque (Nm) ..... :		---

3.11 (8)	**PROTECTION AGAINST ELECTRIC SHOCK**		
3.11 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires		---
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		---
	Basic insulation only accessible under lamp or starter replacement		---
	Protection in any position		P
	Double-ended tungsten filament lamp		---
	Insulation lacquer not reliable		P
	Double-ended high pressure discharge lamp		---
	Relevant warning according to 3.2.18 fitted to the luminaire		---
3.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		---
3.11 (8.2.3.a)	Class II luminaire:		
	- basic insulated metal parts not accessible during starter or lamp replacement		---
	- basic insulation not accessible other than during starter or lamp replacement		---
	- glass protective shields not used as supplementary insulation		---
3.11 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed		---
3.11 (8.2.3.c)	SELV circuits with exposed current carrying parts:		
	Ordinary luminaire:		
	- touch current .....:		---
	- no-load voltage.....:		---
	Other than ordinary luminaire:		
	- nominal voltage .....:		---
3.11 (8.2.4)	Portable luminaire have protection independent of supporting surface		---
3.11 (8.2.5)	Compliance with the standard test finger or relevant probe		---
3.11 (8.2.6)	Covers reliably secured		P
3.11 (8.2.7)	Discharging of capacitors ≥ 0,5 µF		---
	Portable plug connected luminaire with capacitor		---

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Clause	Requirement + Test	Result - Remark	Verdict
	Other plug connected luminaire with capacitor		---
	Discharge device on or within capacitor		---
	Discharge device mounted separately		---
3.12 (12)	**ENDURANCE TEST AND THERMAL TEST**		
3.12.2 (-)	If IP > IP 20 relevant test of (12.4), (12.5) and (12.6) after (9.2) before (9.3) specified in 3.13		—
3.12 (12.3)	Endurance test:		
	- mounting-position ..... :	On pipe	—
	- test temperature (°C) ..... :	35	—
	- total duration (h) ..... :	168	—
	- supply voltage: Un factor; calculated voltage (V) ... :	230	—
	- lamp used ..... :	LED module ML1500302	—
3.12 (12.3.2)	After endurance test:		
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		---
	- marking legible		P
	- no cracks, deformation etc.		P
3.12 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
3.12 (12.5)	Thermal test (abnormal operation)	(see Annex 2)	---
3.12 (12.6)	Thermal test (failed lamp control gear condition):		
3.12 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A) ..... :		—
	- case of abnormal conditions ..... :		—
	- electronic lamp control gear		---
	- measured winding temperature (°C): at 1,1 Un .... :		—
	- measured mounting surface temperature (°C) at 1,1 Un ..... :		---
	- calculated mounting surface temperature (°C) ..... :		---
	- track-mounted luminaires		---
3.12 (12.6.2)	Temperature sensing control		
	- case of abnormal conditions ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
	- thermal link		---
	- manual reset cut-out		---
	- auto reset cut-out		---
	- measured mounting surface temperature (°C)..... :		---
	- track-mounted luminaires		---
3.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		
3.12 (12.7.1)	Luminaire without temperature sensing control		---
3.12 (12.7.1.1)	Luminaire with fluorescent lamp ≤ 70W		---
	Test method 12.7.1.1 or Annex W ..... :		—
	Test according to 12.7.1.1:		
	- case of abnormal conditions..... :		—
	- Ballast failure at supply voltage (V) ..... :		—
	- Components retained in place after the test		---
	- Test with standard test finger after the test		---
	Test according to Annex W:		
	- 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..... :	See Table 3.15 (13.2.1)	---
3.12 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA		
	- 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..... :	See Table 3.15 (13.2.1)	---
3.12 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		---
	- case of abnormal conditions..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
	- Components retained in place after the test		---
	- Test with standard test finger after the test		---
3.12 (12.7.2)	Luminaire with temperature sensing control		
	- thermal link ..... :	Yes ☐ No ☐	—
	- manual reset cut-out ..... :	Yes ☐ No ☐	—
	- auto reset cut-out ..... :	Yes ☐ No ☐	—
	- case of abnormal conditions ..... :		—
	- highest measured temperature of fixing point/ exposed part (°C): ..... :		—
	Ball-pressure test: ..... :	See Table 3.15 (13.2.1)	---
3.12.1 (-)	Temperature reduction if for outdoor use only		---
3.12.2 (-)	(See above)		—
3.12.3 (-)	Glass covers used within the thermal limits declared by the glass manufacturer		---

3.13 (9)	**RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE**		
3.13.1 (-)	If IP > IP 20 the order of tests as specified in clause 3.12		
3.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		—
	- classification according to IP ..... :	IP66	—
	- mounting position during test ..... :	On pipe	—
	- fixing screws tightened; torque (Nm) ..... :	M8: 20 Nm	—
	- tests according to clauses ..... :	9.2.2, 9.2.7	—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		---
	b) no talcum in dust-tight luminaire	IP6X	P
	c) no trace of water on current-carrying parts or on insulation where it could become a hazard		---
	d) i) For luminaires without drain holes – no water entry		---
	d) ii) For luminaires with drain holes – no hazardous water entry		---
	e) no water in watertight luminaire	IPX6	P
	f) no contact with live parts (IP 2X)		---
	f) no entry into enclosure (IP 3X and IP 4X)		---
	f) no contact with live parts (IP3X and IP4X)		---

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Clause	Requirement + Test	Result - Remark	Verdict
	g) no trace of water on part of lamp requiring protection from splashing water		---
	h) no damage of protective shield or glass envelope		P
3.13 (9.3)	Humidity test 48 h		P
3.14 (10)	**INSULATION RESISTANCE AND ELECTRIC STRENGTH**		
3.14 (10.2.1)	Insulation resistance test		---
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø .....:		---
	Insulation resistance (MΩ).....:		---
	SELV		
	- between current-carrying parts of different polarity:		---
	- between current-carrying parts and mounting surface.....:	>110	P
	- between current-carrying parts and metal parts of the luminaire.....:	>110	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....:		---
	- Insulation bushings as described in Section 5 .....:		---
	Other than SELV		
	- between live parts of different polarity.....:		---
	- between live parts and mounting surface.....:	>550	P
	- between live parts and metal parts .....:	>550	P
	- between live parts of different polarity through action of a switch.....:		---
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....:		---
	- Insulation bushings as described in Section 5 .....:		
3.14 (10.2.2)	Electric strength test		P
	Dummy lamp		---
	Luminaires with ignitors after 24 h test		---
	Luminaires with manual ignitors		---
	Test voltage (V) .....:		---
	SELV		

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Clause	Requirement + Test	Result - Remark	Verdict
	- between current-carrying parts of different polarity:		---
	- between current-carrying parts and mounting surface.....:	500	P
	- between current-carrying parts and metal parts of the luminaire.....:	500	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....:		---
	- Insulation bushings as described in Section 5 .....:		---
	Other than SELV		
	- between live parts of different polarity.....:		---
	- between live parts and mounting surface.....:	1460	P
	- between live parts and metal parts .....:	1460	P
	- between live parts of different polarity through action of a switch.....:		---
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....:		---
	- Insulation bushings as described in Section 5 .....:		---
3.14 (10.3)	Touch current (mA).....:	< 0,004 mA	P
	Protective conductor current (mA).....:	0,005 mA	P

3.15 (13)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		
3.15 (13.2.1)	Ball-pressure test.....:	See Test Table 3.15 (13.2.1)	---
3.15 (13.3.1)	Needle-flame test (10 s).....:	See Test Table 3.15 (13.3.1)	---
3.15 (13.3.2)	Glow-wire test (650°C).....:	See Test Table 3.15 (13.3.2)	---
3.15 (13.4)	Proof tracking test (IEC 60112).....:	See Test Table 3.15 (13.4)	---

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Clause	Requirement + Test	Result - Remark	Verdict

3.7 (11.2)	**TABLES: Creepage distances and clearances**						
Table 11.1	**Minimum distances (mm) for a.c. (50/60 Hz) sinusoidal voltages**						
RMS working voltage (V) not exceeding		50	150	250	500	750	1000
Creepage distances							
Required basic insulation, PTI ≥ 600		0,6	0,8	1,5	3	4	5,5
Measured		---	---	---	---	---	---
Required basic insulation, PTI < 600		1,2	1,6	2,5	5	8	10
Measured		---	>1,6	>2,5	---	---	---
Required supplementary insulation PTI ≥ 600		---	0,8	1,5	3	4	5,5
Measured			---	---	---	---	---
Required supplementary insulation PTI < 600		---	1,6	2,5	5	8	10
Measured			---	---	---	---	---
Required reinforced insulation		---	3,2	5	6	8	11
Measured			---	---	---	---	---
Clearances							
Required basic insulation		0,2	0,8	1,5	3	4	5,5
Measured		---	>0,8	>1,5	---	---	---
Required supplementary insulation		---	0,8	1,5	3	4	5,5
Measured			---	---	---	---	---
Required reinforced insulation		---	1,6	3	6	8	11
Measured			---	---	---	---	---

Table 11.2	**Minimum distances (mm) for non-sinusoidal pulse voltages**						
Rated pulse voltage (peak kV)	2,0	2,5	3,0	4,0	5,0	6,0	8,0
Required clearances	1,0	1,5	2	3	4	5,5	8
Measured	---	---	---	---	---	---	---
Rated pulse voltage (peak kV)	10	12	15	20	25	30	40
Required clearances	11	14	18	25	33	40	60
Measured	---	---	---	---	---	---	---
Rated pulse voltage (peak kV)	50	60	80	100	---	---	—
Required clearances	75	90	130	170	---	---	---
Measured	---	---	---	---			

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.15 (13.2.1)	**TABLE: Ball Pressure Test of Thermoplastics**		
	not applicable		---
3.15 (13.3.1)	**TABLE: Needle-flame test (IEC 60695-11-5)**		
	not applicable		---
3.15 (13.3.2)	**TABLE: Glow-wire test (IEC 60695-2-11)**		
	not applicable		---
3.15 (13.4)	**TABLE: Proof tracking test (IEC 60112)**		
	not applicable		---

List of used test equipment:

Device	Type	Inv. No.
Greisinger - thermometer	GHT 1200 A	20211
High voltage transformer	HT5053	00005866
Earth continuity test equpment	MPO-01A	550724
Voltmeter	EL20	14672
Power supply KIKUSUI	PCR500M	00110185
Multimeter FLUKE	1587	551734
Load gauge 10N	BRNO	21369
Caliper	MITUTOYO	551392
Test finger	BRNO	21364
Impact test aparature	F 22.50	4994
Touch and leakage current measurement		N 700054

ANNEX 1	TABLE: Critical components information					
Object / part No.	**Code**	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity[1)]**
Description:	URBINO					
Driver	A	OSRAM OPTOTRONIC	OT 110/120-277/800 2DIML T2 P	220-240 V, 50/60 Hz T120°, tc85°		ENEC 15
LED module	A	LUG	ML1500302	700 mA tc 85°	Testing in luminaire	
Terminal block	B	BJB	46.413	16 A, 450 V		VDE
Terminal block	B	BJB	46.415	16 A, 450 V		VDE
Wires	B	MTF	H05V2-U	0,5 mm^2	IEC227	

Supplementary information:

[1)] Provided evidence ensures the agreed level of compliance. See OD-CB2039.

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 2	TABLE: Temperature measurements, thermal tests of Section 12		
	Type reference ..... :	**URBINO LED** 130222.5L111.031	—
	Lamp used ..... :	LED module LUG ML1500302	—
	Lamp control gear used ..... :	OSRAM OPTOTRONIC OT 110/120-277/800 2DIMLT2 P 220-240 V, 50/60 Hz, T120, tc85	—
	Mounting position of luminaire ..... :	On pipe	—
	Supply wattage (W) ..... :	110	—
	Supply current (A) ..... :	---	—
	Calculated power factor ..... :	---	—
	Table: measured temperatures corrected for ta = 25 °C		
	- abnormal operating mode ..... :	Not used; see supplementary information	—
	- test 1: rated voltage ..... :	230 V	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage ..... :	243,8 V	—
	- 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 measurements, (°C)

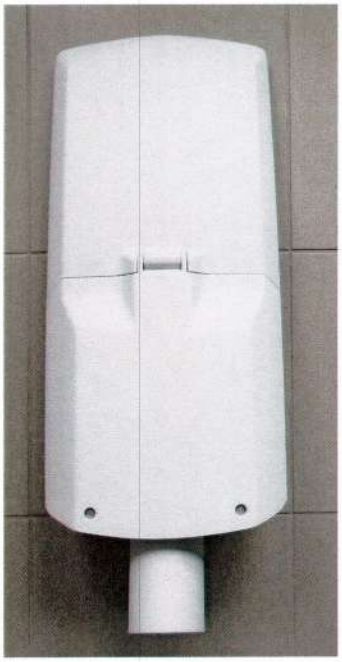
Part	Ambient	Clause 12.4 – normal				Clause 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Driver tc	25,5	70	---	---	85	---	
LED module tc	25,5	67	---	---	85	---	
LED wires	25,5	---	51	---	90	---	
Terminal block	25,5	---	48	---	85	---	
External wires	25,5	---	48	---	90	---	

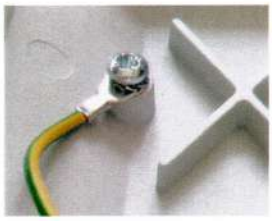
Supplementary information: Temperature marked control gear T120.

ANNEX 3	Screw terminals (part of the luminaire)		
	not applicable		---

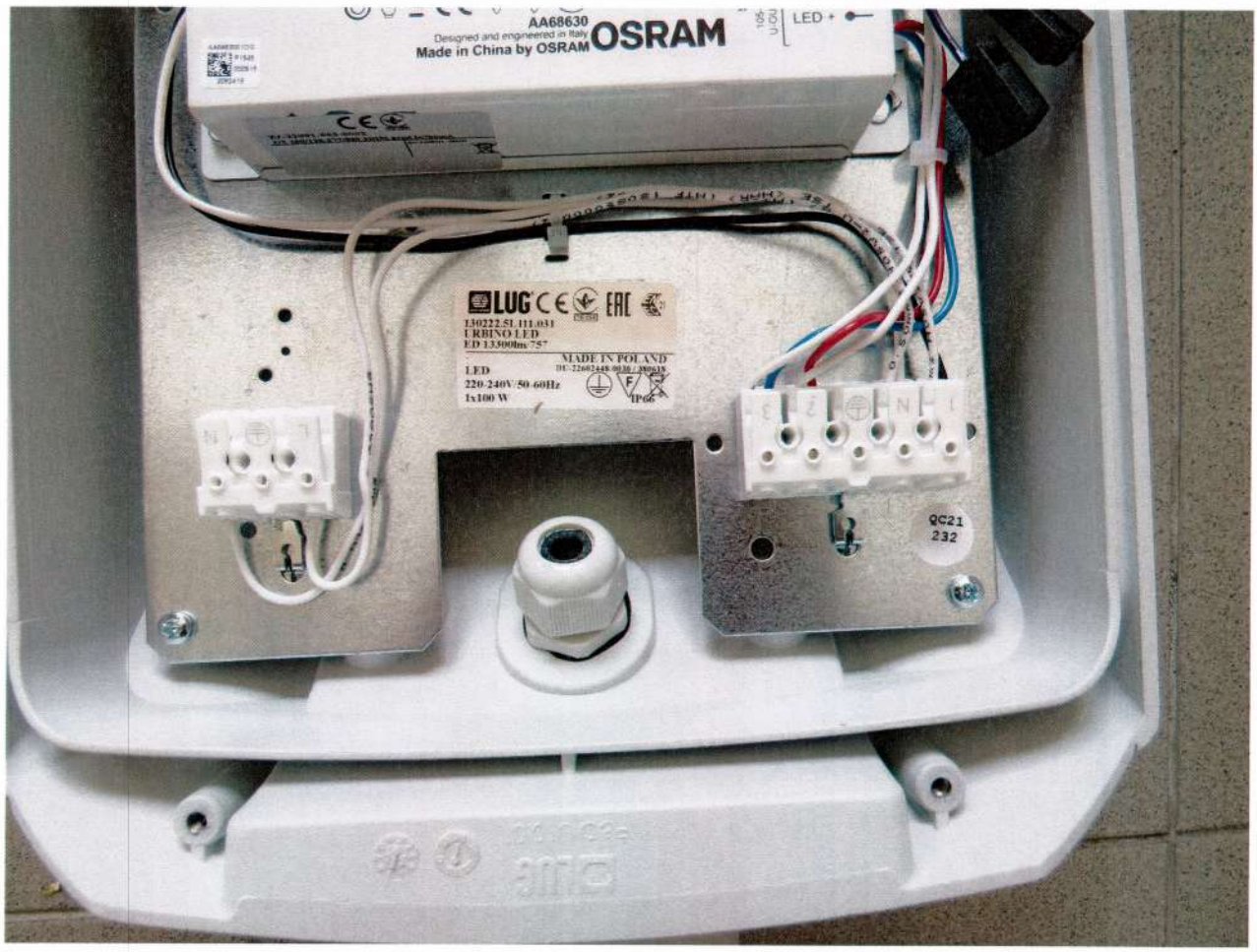
ANNEX 4	Screwless terminals (part of the luminaire)		
	not applicable		---

ANNEX 3	Photo	

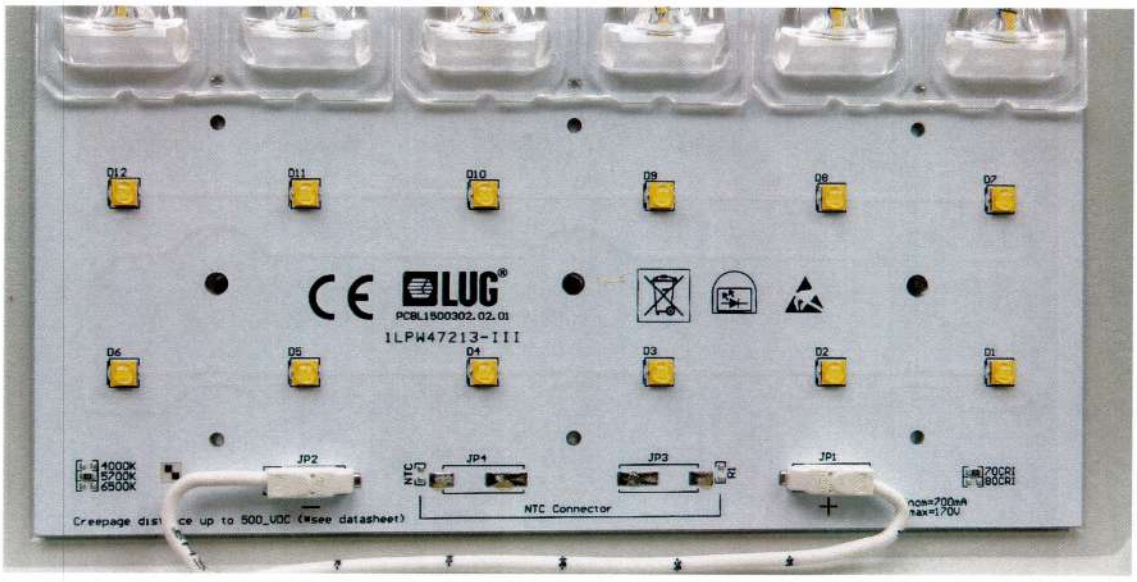




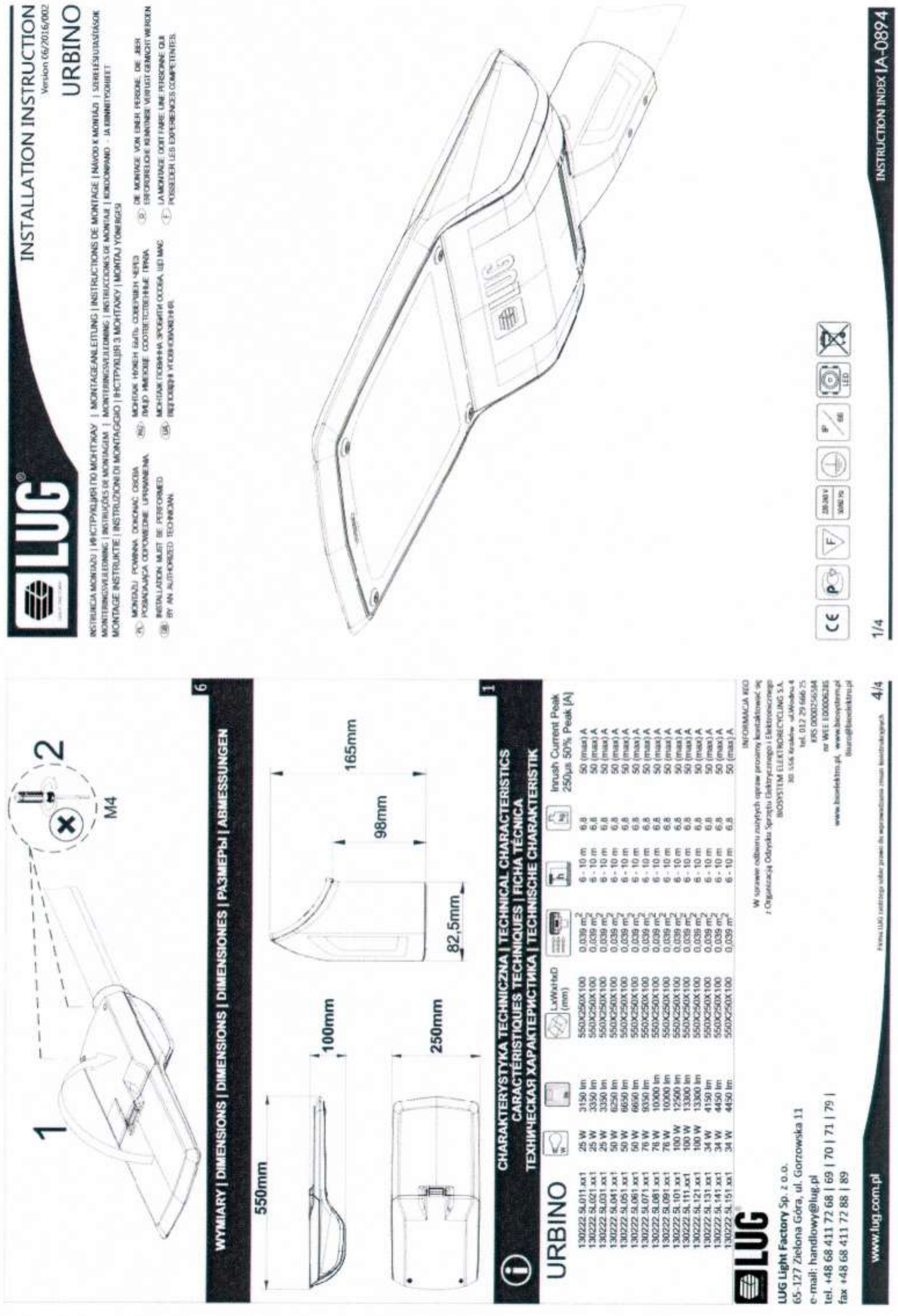
ANNEX 3	Photo	



ANNEX 3	Photo	



ANNEX 4	Instructions



LUG

INSTALLATION INSTRUCTION
Version 06/2016/002
URBINO

INSTRUKCJA MONTAŻU | ИНСТРУКЦИЯ ПО МОНТАЖУ | MONTAGEANLEITUNG | INSTRUCTIONS DE MONTAGE | NÁVOD K MONTÁŽI | SZERELÉSI UTASÍTÁSOK
MONTERINGSVEJLEDNING | INSTRUÇÕES DE MONTAGEM | MONTERINGSVEJLEDNING | INSTRUCCIONES DE MONTAJE | KOKOONPANO - JA KÄYTTÖOHJEET
MONTAGE INSTRUKTIE | INSTRUZIONI DI MONTAGGIO | ІНСТРУКЦІЯ З МОНТАЖУ | MONTAJ YÖNERGESİ

(PL) MONTAŻU POWINNA DOKONAĆ OSOBA POSIADAJĄCA ODPOWIEDNIE UPRAWNIENIA
(GB) INSTALLATION MUST BE PERFORMED BY AN AUTHORIZED TECHNICIAN
(RU) МОНТАЖ НУЖЕН БЫТЬ СОВЕРШЕН ЧЕРЕЗ ЛИЦО ИМЕЮЩЕ СООТВЕТСТВЕННЫЕ ПРАВА
(UA) МОНТАЖ ПОВИННА ЗРОБИТИ ОСОБА, ЩО МАЄ ВІДПОВІДНІ УПОВНОВАЖЕННЯ
(D) DIE MONTAGE VON EINER PERSONE, DIE ÜBER ERFORDERLICHE KENNTNISE VERFÜGT GEMACHT WERDEN
(F) LA MONTAGE DOIT FAIRE UNE PERSONNE QUI POSSEDER LES EXPERIENCES COMPETENTES

1/4 INSTRUCTION INDEX IA-0894

6
WYMIARY | DIMENSIONS | DIMENSIONS | DIMENSIONES | РАЗМЕРЫ | ABMESSUNGEN

1
CHARAKTERYSTYKA TECHNICZNA | TECHNICAL CHARACTERISTICS
CARACTÉRISTIQUES TECHNIQUES | FICHA TÉCNICA
ТЕХНИЧЕСКАЯ ХАРАКТЕРИСТИКА | TECHNISCHE CHARAKTERISTIK

URBINO	W	lm	LxWxHxD (mm)		h	kg	Inrush Current Peak 250µs 50% Peak [A]
130222.5L011.xx1	25 W	3150 lm	550X250X100	0,039 m²	6 - 10 m	6,8	50 (max) A
130222.5L021.xx1	25 W	3350 lm	550X250X100	0,039 m²	6 - 10 m	6,8	50 (max) A
130222.5L031.xx1	25 W	3350 lm	550X250X100	0,039 m²	6 - 10 m	6,8	50 (max) A
130222.5L041.xx1	50 W	6250 lm	550X250X100	0,039 m²	6 - 10 m	6,8	50 (max) A
130222.5L051.xx1	50 W	6650 lm	550X250X100	0,039 m²	6 - 10 m	6,8	50 (max) A
130222.5L061.xx1	50 W	6650 lm	550X250X100	0,039 m²	6 - 10 m	6,8	50 (max) A
130222.5L071.xx1	76 W	9350 lm	550X250X100	0,039 m²	6 - 10 m	6,8	50 (max) A
130222.5L081.xx1	76 W	10000 lm	550X250X100	0,039 m²	6 - 10 m	6,8	50 (max) A
130222.5L091.xx1	76 W	10000 lm	550X250X100	0,039 m²	6 - 10 m	6,8	50 (max) A
130222.5L101.xx1	100 W	12500 lm	550X250X100	0,039 m²	6 - 10 m	6,8	50 (max) A
130222.5L111.xx1	100 W	13300 lm	550X250X100	0,039 m²	6 - 10 m	6,8	50 (max) A
130222.5L121.xx1	100 W	13300 lm	550X250X100	0,039 m²	6 - 10 m	6,8	50 (max) A
130222.5L131.xx1	34 W	4150 lm	550X250X100	0,039 m²	6 - 10 m	6,8	50 (max) A
130222.5L141.xx1	34 W	4450 lm	550X250X100	0,039 m²	6 - 10 m	6,8	50 (max) A
130222.5L151.xx1	34 W	4450 lm	550X250X100	0,039 m²	6 - 10 m	6,8	50 (max) A

LUG
LUG Light Factory Sp. z o.o.
65-127 Zielona Góra, ul. Gorzowska 11
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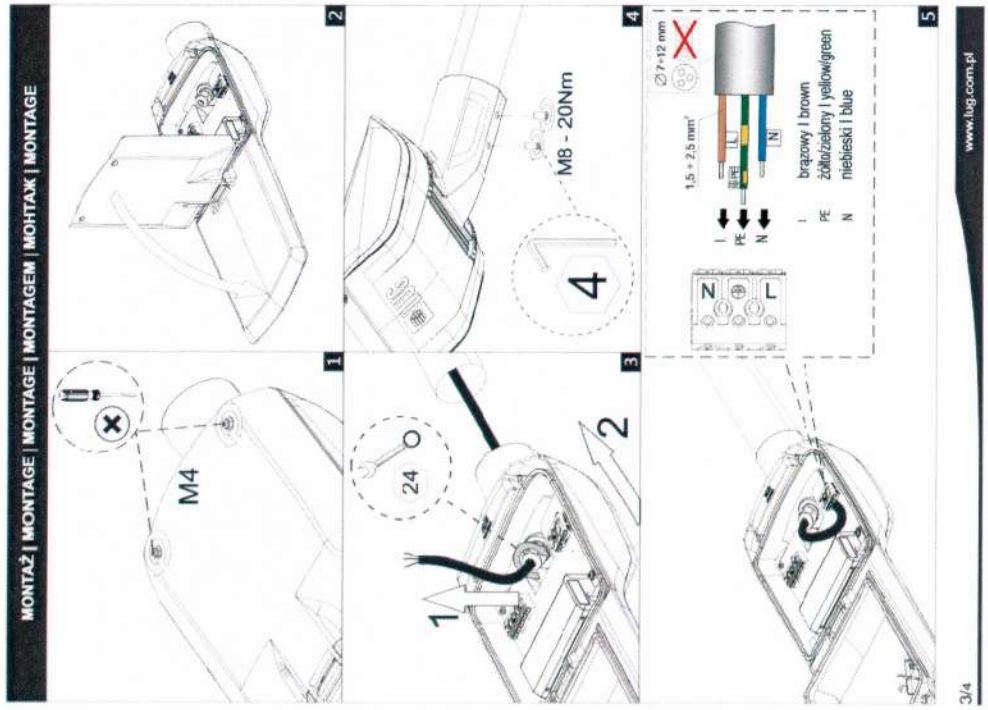
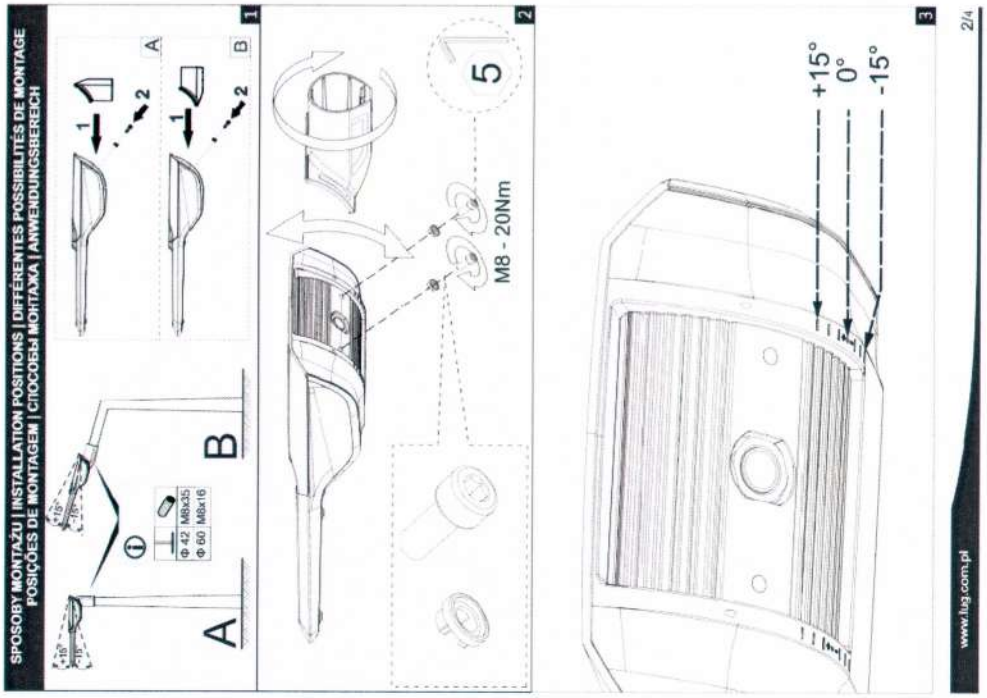
tel. +48 68 411 72 68 | 69 | 70 | 71 | 79 |
fax +48 68 411 72 88 | 89

INFORMACJA KEO
W sprawie odbioru zużytych opraw prosimy kontaktować się
z Organizacją Odzysku Sprzętu Elektrycznego i Elektronicznego
BIOSYSTEM ELEKTRORECYCLING S.A.
30-556 Kraków ul.Wodna 4
tel. 012 29 666 25
KRS 0000256584
nr WEE E0006285
www.bioelektro.pl, www.biosystem.pl
biuro@bioelektro.pl

www.lug.com.pl 4/4

ANNEX 4	Instructions	





IEC60598_2_3J - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 60598-2-3
EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES
Luminaires
Part 2: Particular requirements
Section 3: Luminaires for road and street lighting

Differences according to ..... :	EN 60598-2-3:2003 + A1:2011 used in conjunction with EN 60598-1:2015
Annex Form No. ..... :	EU_GD_IEC60598_2_3J
Annex Form Originator ..... :	OVE
Master Annex Form ..... :	2015-04

	CENELEC COMMON MODIFICATIONS (EN)		
3.5 (3)	**MARKING**		
3.5 (3.3.101)	For luminaires not supplied with terminal block: Adequate warning on the package		---
3.6 (4)	**CONSTRUCTION**		
3.6 (4.11.6)	Electro-mechanical contact systems		---
3.10 (5)	**EXTERNAL AND INTERNAL WIRING**		
3.10 (5.2.1)	Connecting leads		---
	- without a means for connection to the supply		---
	- terminal block specified		---
	- relevant information provided		---
	- compliance with 4.6, 4.7.1, 4.7.2, 4.10.1, 11.2, 12 and 13.2 of Part 1		---
3.10 (5.2.2)	Cables equal to EN 50525		---
	Replace table 5.1 – Supply cord		---
3.12 (12)	**ENDURANCE TESTS AND THERMAL TESTS**		
3.12 (12.4.2c)	Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring		---

IEC60598_2_3J - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		
(3.3)	DK: power supply cords of class I luminaires with label		---
(4.5.1)	DK: socket-outlets		---
(5.2.1)	CY, DK, FI, GB: type of plug		---

ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		
(4 & 5)	FR: Shuttered socket-outlets 10/16A		---
	FR: Safety requirements for high buildings (Arrêté du 30 décembre 2011 portant règlement de sécurité pour la construction des immeubles de grande hauteur et leur protection contre les risques d'incendie et de panique; Section VIII; Article GH 48, Eclairage) Glow-wire test for outer parts of luminaires:		---
	- 850°C for luminaires in stairways and horizontal travel paths		---
	- 650°C for indoor luminaires		---
	GB: Requirements according to United Kingdom Building Regulation		---

ДЕКЛАРАЦИЯ СООТВЕТСТВИЯ ТРЕБОВАНИЯМ CE

LG/2016/03/288

Мы

LUG Light Factory Spółka z o.o.
ul. Gorzowska 11
65-127 Zielona Góra

заявляет под свою исключительную ответственность, что изделие

имя	**URBINO LED**
группа	**Инфраструктурное освещение**
Заводская	**ПРИКРЕПЛЕНИЕ**

в соответствии с положениями следующих актов:

Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility

Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits

Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment

Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products

и следующие стандарты:

PN-EN 60598-1:2015-04
PN-EN 55015:2013-10
PN-EN 61547:2009
PN-EN 61000-3-2:2014-10
PN-EN 61000-3-3:2013-10
PN-EN 50581:2013
PN-EN 62471:2010
PN-EN 60598-2-3:2006/A1:2012
IEC 62717:2014
IEC 62722-2-1:2011
IEC 62722-1:2011
PN-EN 62262:2003

LUG Light Factory Sp. z o. o.
Kierownik Laboratorium/Laboratory Manager
mar inż. Marcin Białas

Опубликовано

DYREKTOR
DS. TECHNICZNYCH
mgr inż. Mariusz Ejsmont

Уполномоченное лицо подписи

ДЕКЛАРАЦИЯ СООТВЕТСТВИЯ ТРЕБОВАНИЯМ ЕС

LG/2016/03/288

ПРИКРЕПЛЕНИЕ

Заводская

130222.5L421.011	130222.5L022.061	130222.5L141.051	130222.5L052.021
130222.5L422.011	130222.5L021.081	130222.5L142.051	130222.5L051.031
130222.5L421.021	130222.5L022.081	130222.5L141.091	130222.5L052.031
130222.5L422.021	130222.5L021.101	130222.5L142.091	130222.5L051.041
130222.5L421.031	130222.5L022.101	130222.5L141.061	130222.5L052.041
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130222.5L421.051	130222.5L432.021	130222.5L141.101	130222.5L052.091
130222.5L422.051	130222.5L431.031	130222.5L142.101	130222.5L051.061
130222.5L421.091	130222.5L432.031	130222.5L441.011	130222.5L052.061
130222.5L422.091	130222.5L431.041	130222.5L442.011	130222.5L051.081
130222.5L421.061	130222.5L432.041	130222.5L441.021	130222.5L052.081
130222.5L422.061	130222.5L431.051	130222.5L442.021	130222.5L051.101
130222.5L421.081	130222.5L432.051	130222.5L441.031	130222.5L052.101
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130222.5L422.101	130222.5L431.061	130222.5L442.041	130222.5L451.021
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130222.5L011.081	130222.5L132.051	130222.5L041.031	130222.5L452.101
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130222.5L021.011	130222.5L132.061	130222.5L041.051	130222.5L072.021
130222.5L022.011	130222.5L131.081	130222.5L042.051	130222.5L071.031
130222.5L021.021	130222.5L132.081	130222.5L041.091	130222.5L072.031
130222.5L022.021	130222.5L131.101	130222.5L042.091	130222.5L071.041
130222.5L021.031	130222.5L132.101	130222.5L041.061	130222.5L072.041
130222.5L022.031	130222.5L141.011	130222.5L042.061	130222.5L071.051
130222.5L021.041	130222.5L142.011	130222.5L041.081	130222.5L072.051
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130222.5L021.051	130222.5L142.021	130222.5L041.101	130222.5L072.091
130222.5L022.051	130222.5L141.031	130222.5L042.101	130222.5L071.061
130222.5L021.091	130222.5L142.031	130222.5L051.011	130222.5L072.061
130222.5L022.091	130222.5L141.041	130222.5L052.011	130222.5L071.081
130222.5L021.061	130222.5L142.041	130222.5L051.021	130222.5L072.081

ДЕКЛАРАЦИЯ СООТВЕТСТВИЯ ТРЕБОВАНИЯМ ЕС

LG/2016/03/288

130222.5L071.101	130222.5L082.101	130222.5L101.011	130222.5L112.011
130222.5L072.101	130222.5L461.011	130222.5L102.011	130222.5L111.021
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130222.5L082.011	130222.5L461.021	130222.5L102.021	130222.5L111.031
130222.5L081.021	130222.5L462.021	130222.5L101.031	130222.5L112.031
130222.5L082.021	130222.5L461.031	130222.5L102.031	130222.5L111.041
130222.5L081.031	130222.5L462.031	130222.5L101.041	130222.5L112.041
130222.5L082.031	130222.5L461.041	130222.5L102.041	130222.5L111.051
130222.5L081.041	130222.5L462.041	130222.5L101.051	130222.5L112.051
130222.5L082.041	130222.5L461.051	130222.5L102.051	130222.5L111.091
130222.5L081.051	130222.5L462.051	130222.5L101.091	130222.5L112.091
130222.5L082.051	130222.5L461.091	130222.5L102.091	130222.5L111.061
130222.5L081.091	130222.5L462.091	130222.5L101.061	130222.5L112.061
130222.5L082.091	130222.5L461.061	130222.5L102.061	130222.5L111.081
130222.5L081.061	130222.5L462.061	130222.5L101.081	130222.5L112.081
130222.5L082.061	130222.5L461.081	130222.5L102.081	130222.5L111.101
130222.5L081.081	130222.5L462.081	130222.5L101.101	130222.5L112.101
130222.5L082.081	130222.5L461.101	130222.5L102.101	
130222.5L081.101	130222.5L462.101	130222.5L111.011	

Номера Производитель аксессуаров

150170.00817	150170.00818	150173.00906

Данная декларация действительна для всех серийных номеров, произведенных по данному символу завода.

LUG Light Factory Sp. z o.o.
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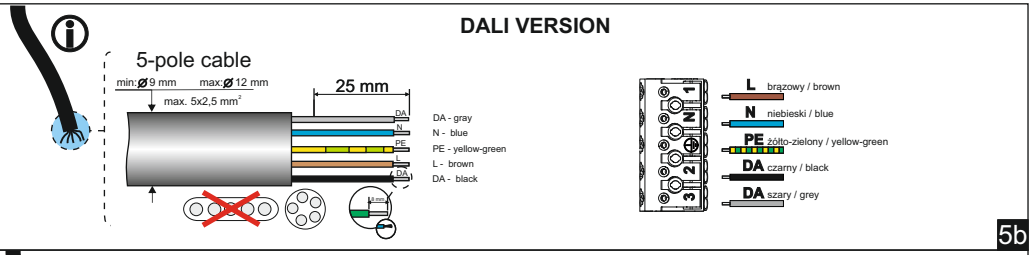
tel. +48 68 411 72 68

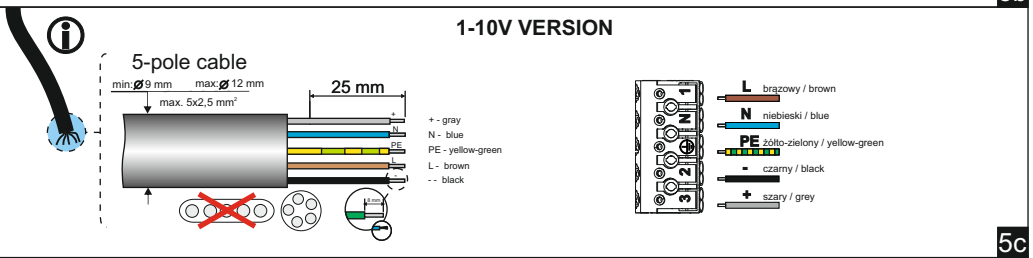
NIP: PL 929-17-85-452, REGON 080212116
WEE E0001382WZ, KRS 0000290498
Окружной суд в Зелена-Гура

DALI VERSION



5b

1-10V VERSION



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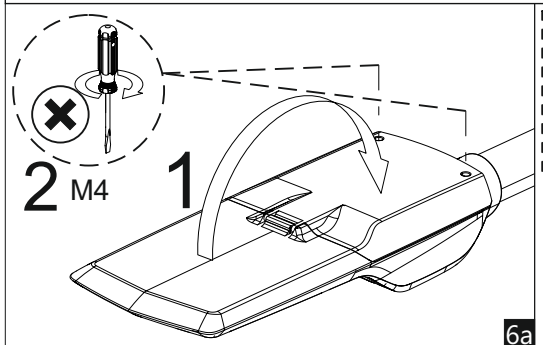

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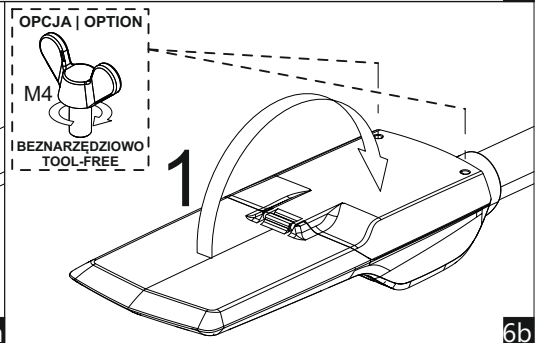
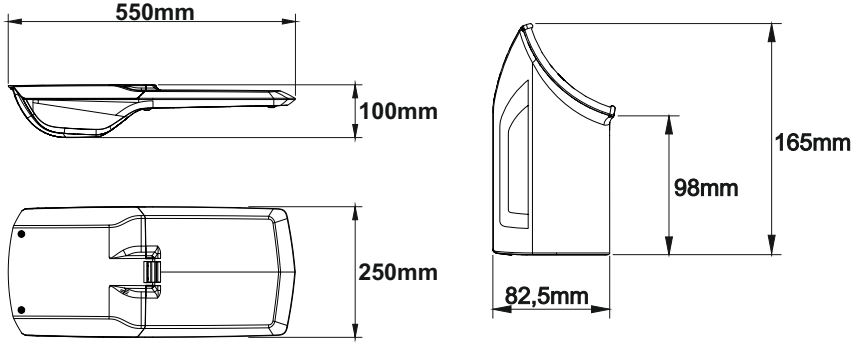


6b

WYMIARY | DIMENSIONS | DIMENSIONS | DIMENSIONES | РАЗМЕРЫ | ABMESSUNGEN



1

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e-mail: handlowy@lug.pl
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fax +48 68 411 72 88 | 89

INFORMACJA KGO
W sprawie odbioru zużytych opraw prosimy kontaktować się
z Organizacją Odzysku Sprzętu Elektrycznego i Elektronicznego
BIOSYSTEM ELEKTRORECYCLING S.A.
30-556 Kraków ul.Wodna 4
tel. 012 29 666 25
KRS 0000256584
nr WEE E0000628S
www.bioelektro.pl, www.biosystem.pl
Biuro@bioelektro.pl

INSTALLATION INSTRUCTION

Version 08/2017/006

URBINO LED

INSTRUKCJA MONTAŻU | ИНСТРУКЦИЯ ПО МОНТЖАУ | MONTAGEANLEITUNG | INSTRUCTIONS DE MONTAGE | NÁVOD K MONTÁZI | SZERELÉSI UTASÍTÁSOK
MONTERINGSVEJLEDNING | INSTRUÇÕES DE MONTAGEM | MONTERINGSVEJLEDNING | INSTRUCCIONES DE MONTAJE | KOKOONPANO - JA KIINNITYSOHJEET
MONTAGE INSTRUKTIE | INSTRUZIONI DI MONTAGGIO | ІНСТРУКЦІЯ З МОНТАЖУ | MONTAJ YÖNERGESI

(PL) MONTAŻU POWINNA DOKONAĆ OSOBA POSIADAJĄCA ODPOWIEDNIE UPRAWNIENIA.

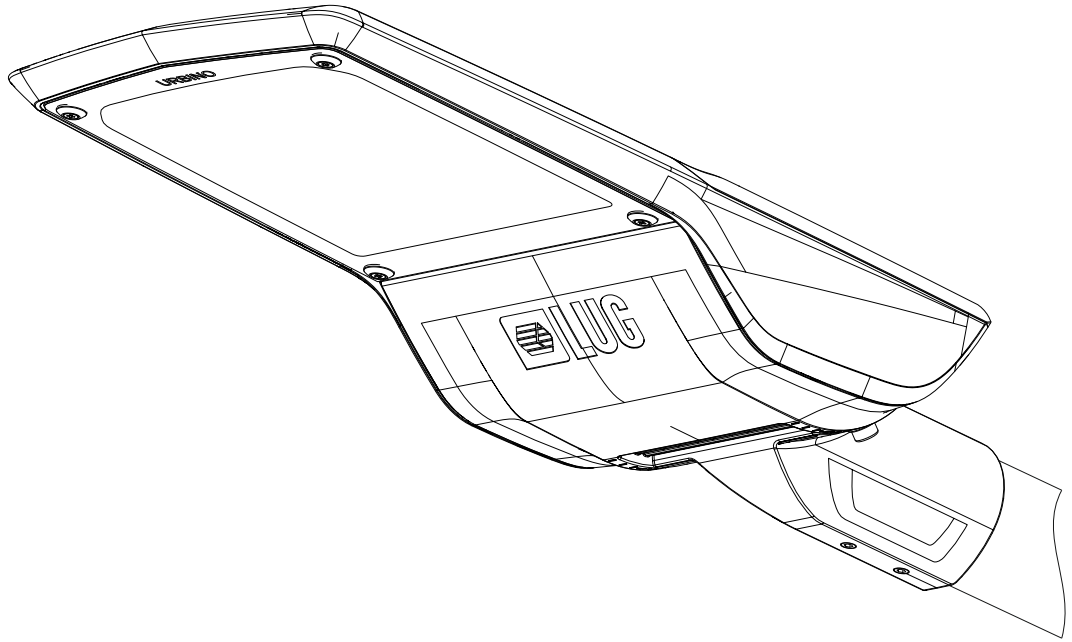
(GB) INSTALLATION MUST BE PERFORMED BY AN AUTHORIZED TECHNICIAN.

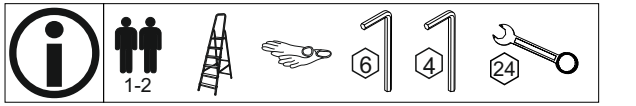
(RU) МОНТАЖ НУЖЕН БЫТЬ СОВЕРШЕН ЧЕРЕЗ ЛИЦО ИМЕЮЩЕ СООТВЕТСТВЕННЫЕ ПРАВА.

(UA) МОНТАЖ ПОВИННА ЗРОБИТИ ОСОБА, ЩО МАЄ ВІДПОВІДНІ УПОВНОВАЖЕННЯ.

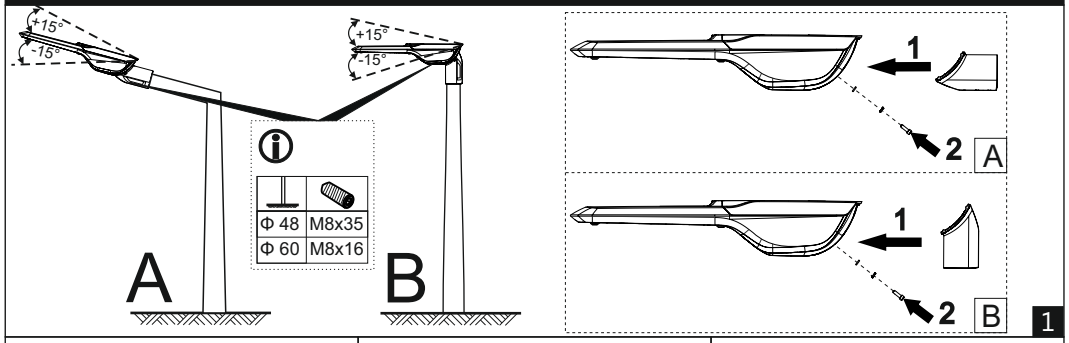
(D) DIE MONTAGE VON EINER PERSONE, DIE UBER ERFORDRELICHE KENNTNISE VERFUGT GEMACHT WERDEN.

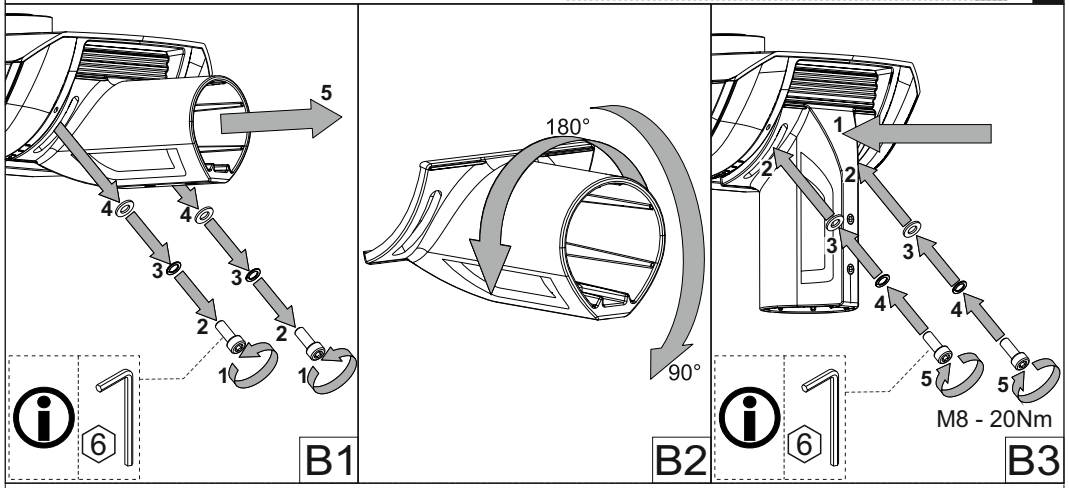
(F) LA MONTAGE DOIT FAIRE UNE PERSONNE QUI POSSEDER LES EXPERIENCES COMPETENTES.

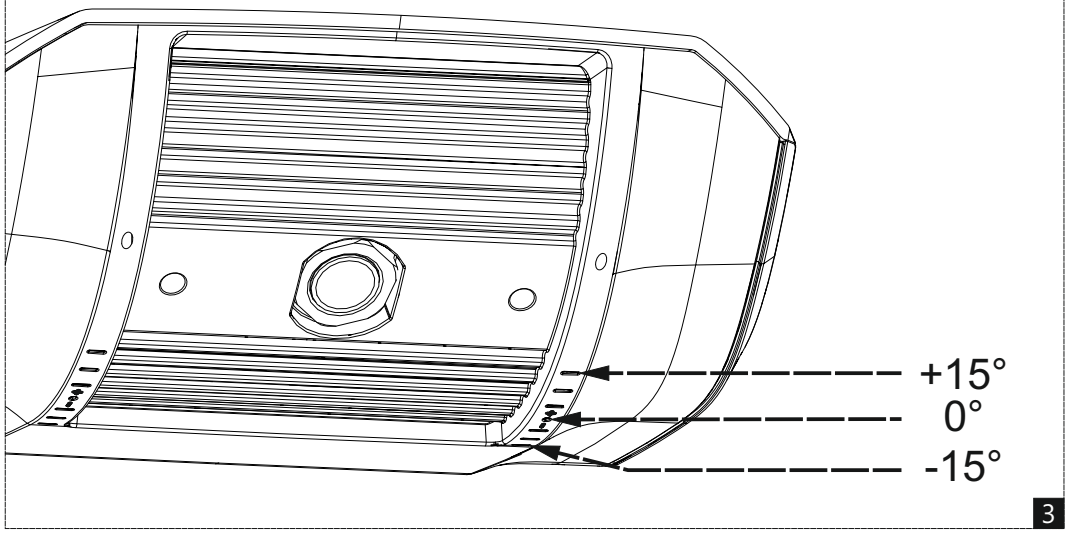




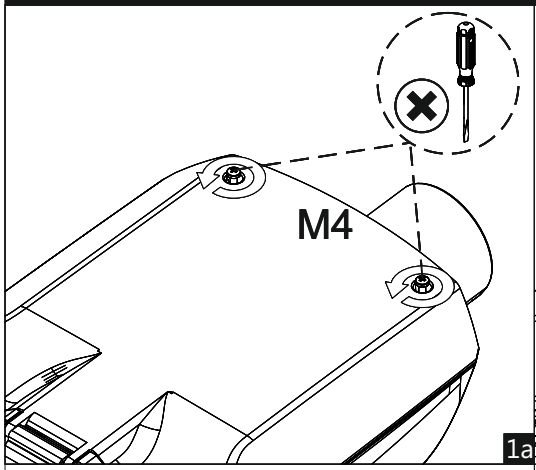
SPOSOBY MONTAŻU | INSTALLATION POSITIONS | DIFFÉRENTES POSSIBILITÉS DE MONTAGE POSIÇÕES DE MONTAGEM | СПОСОБЫ МОНТАЖА | ANWENDUNGSBEREICH

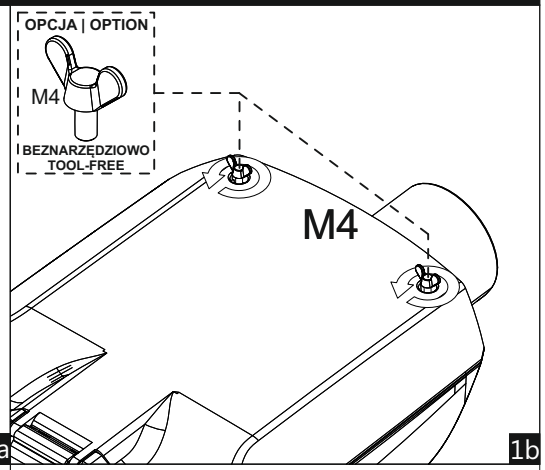


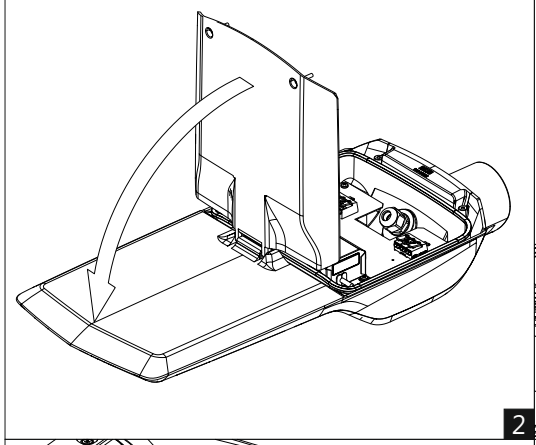


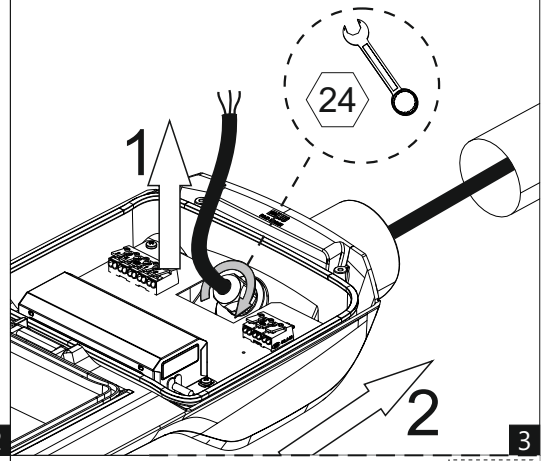


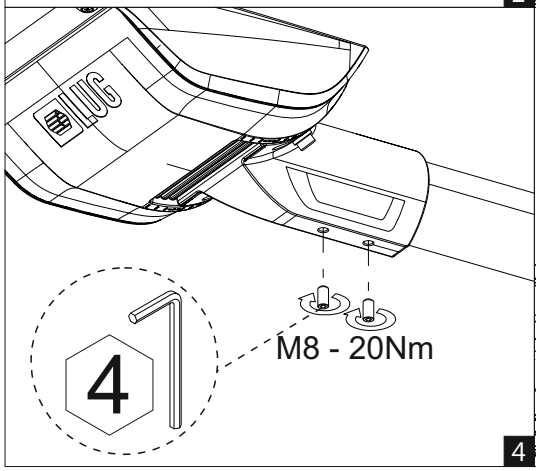
MONTAŻ | MONTAGE | MONTAGE | MONTAGEM | МОНТАЖ | MONTAGE

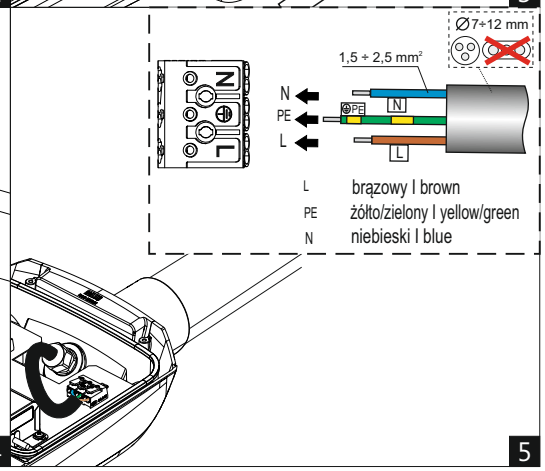












LUG Light Factory Ltd.
Producer of Professional Lighting Fittings

PHOTOMETRIC TEST REPORT

Test Report according to LM-79 / EN13032

1. Device Under Test specification:

TEST REPORT NO. :	022/2016
TEST PROTOCOL NO. :	4434,1519
PLACE/DATE:	ZIELONA GÓRA,04.07.2016
TESTED AND COMPILED BY:	MARCIN BIAŁAS
APPROVED BY:	MARIUSZ EJSMONT
DEVICE UNDER TEST:	LIGHT FITTING
LUMINAIRE NAME:	URBINO LED DALI 13300 740 O4 MOD1 1
ARTICLE NO:	130222.3L121.031.001
MANUFACTURER:	LUG LIGHT FACTORY
VERSION INFO:	MOD 1
LED MODULE:	XGP3 (ML1500302.W740.01A)
LAMP IDENTIFICATION :	LED 4000K
LED DRIVER:	OT 100W 700mA DIM 1-10V
INPUT VOLTAGE/FREQUENCY:	230V/50Hz
LUMINAIRE DIMENSIONS :	L : 0.550 m / W : 0.255 m / H : 0.100 m
LIGHT OUTPUT DIMENSIONS :	L : 0.200 m / W : 0.200 m

2. Goniophotometry Test Results:

LUMINOUS FLUX :	12550lm
ACTIVE POWER :	105,5W
EFFICIENCY :	119lm/W
RMS SUPPLY CURRENT	0,469A
POWER FACTOR:	0,978
RMS SUPPLY VOLTAGE :	230,0V
FREQUENCY :	50,0Hz
CURRENT THD (IEC) :	12,7 %
NORMALIZED PERFORMANCE :	UTE C 71-121 : 1.00 E
LIGHT DISTRIBUTION ANGLE:	N/A°
ACCURACY :	± 5 %
AMBIENT TEMPERATURE :	25 °C ± 1 °C

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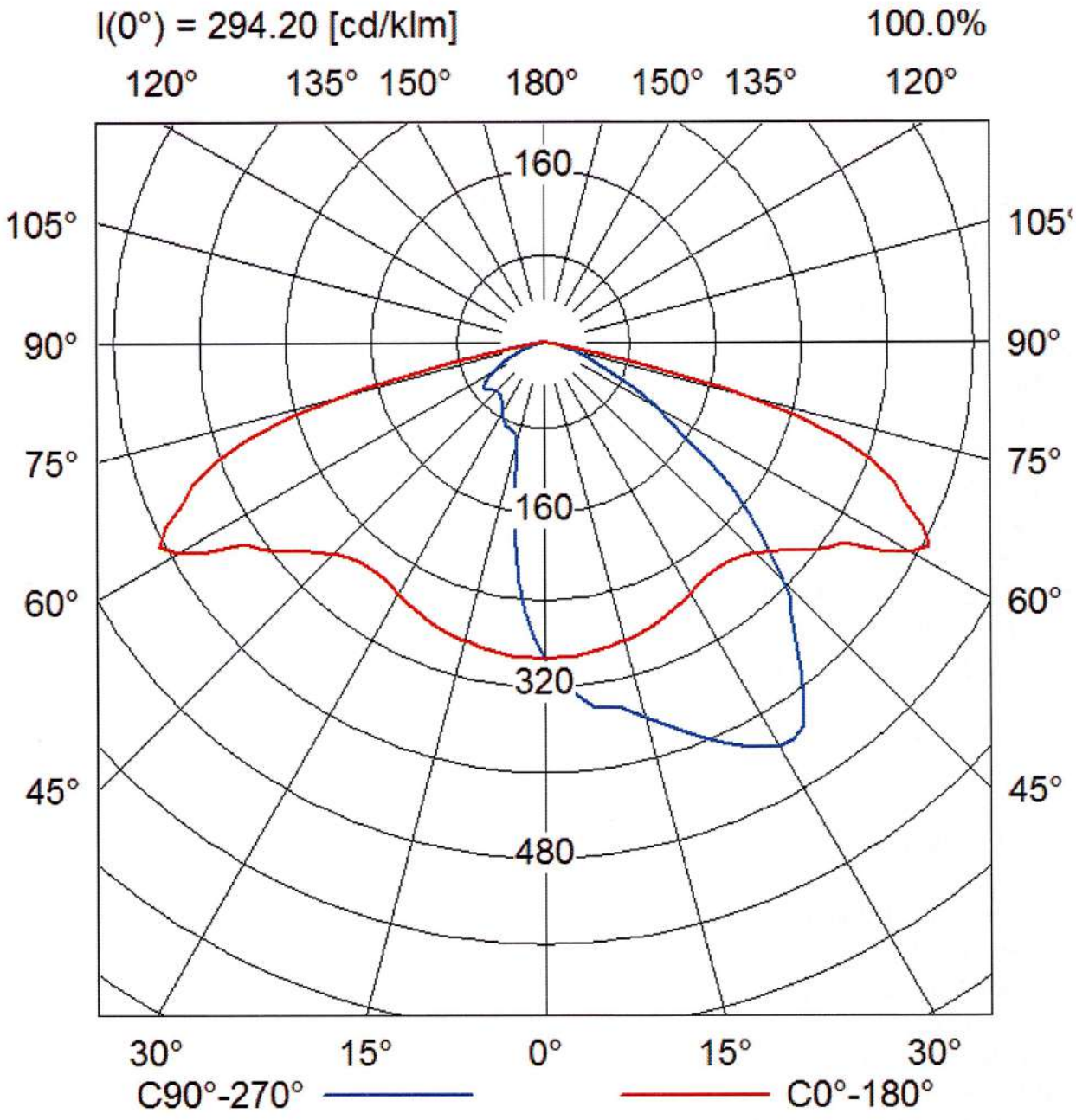
fax +48 68 45 33 201

VAT No: PL9291785452, REGON: 080212116, Commercial Register (KRS) 0000290498, WEE E0001382WZ, Registered at: District Court of city Zielona Góra, VIII Commercial Department of the National Court Register, Share capital 29 000 000 PLN Bank account: Bank Zachodni WBK S.A. O/Zielona Góra 09 1090 1535 0000 0001 0784 5922

LIGHT DISTRIBUTION (POLAR) CURVE :



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3. LUMINOUS INTENSITY DISTRIBUTION in cd/1000lm : C/γ°

C/γ	90	105	120	135	150	165	180	195	210	225	240	255	270
0	294,2	294,2	294,2	294,2	294,2	294,2	294,2	294,2	294,2	294,2	294,2	294,2	294,2
2	275,8	276,6	278,3	281,7	285,4	289,5	293,9	298,5	302	305,4	307,8	308,7	309,8
4	252,8	255	259,4	267	275,5	284,7	293,6	301,9	308,7	314,4	318,8	321,1	322,6
6	225,3	229	236,6	249,7	264,4	279,4	293	304,8	314,7	322,4	328,6	331,9	333,8
8	192,5	197,6	210,2	229,9	251,6	273,4	291,9	307,5	320,1	329,9	337,2	341,4	343,6
10	156,5	162,9	180,1	207,6	238,1	267,2	290,7	309,9	324,8	336,5	344,8	344,5	345,9
12	123,6	130,1	148,9	183,1	223,2	260,5	289,4	311,6	328,9	342	345,6	345,7	348,2
14	101,2	105,2	121,1	157,6	207,3	253,5	288	313,2	332,6	346,6	346,2	352,8	355,6
16	91,6	92,8	101,4	134,1	190,9	246,7	286,5	314,9	335,6	343,7	352,5	361,7	365,9
18	88,3	88,2	91	114	173,6	239,4	285,1	316,2	338	344,1	359,7	370,8	376,2
20	87,1	86,4	86,8	99,8	156,2	232,1	283,2	316,9	339,5	347,6	366,8	379,7	386
22	86,6	85,6	85,2	91,4	140	224,6	281,2	316,7	340,5	352,1	373,4	389,7	397,4
24	85,8	84,9	84,5	87	125,7	217	278,6	316,1	341,2	355,6	380,6	399,7	408,3
26	83	82,9	83,9	84,9	113,4	209,1	276	315,5	341,7	359,3	388,6	410	418,6
28	79,4	79,3	82,3	84	103,6	201,4	273,2	314,8	342,4	363,3	394,6	418,3	427,8
30	74,9	75,4	78,9	83,3	96,2	193,3	270,4	313,5	343,3	367	399,7	422,3	435,2
32	71	71	75,3	81,9	91,3	185,4	268,2	312,5	344,6	370,7	402,3	423,2	436,4
34	67,9	67,8	71,5	79,3	87,3	177,7	266,7	312	344,9	374,7	405,5	420,3	431,2
36	65,4	65,4	68,1	75,7	84,2	170,4	265,9	312,5	344	379	406,6	411,8	411,2
38	63,4	63,5	65,8	72	81,4	163,5	265,9	314,4	348,1	383,9	404,6	393,2	386
40	62,3	62,1	63,8	68,3	78,5	157,2	267,2	318,4	351,5	389,6	398	371,7	364,2
42	61,8	61,3	62,1	65,1	75,3	151,7	270,4	324,9	355,2	397,3	384,9	352,2	343,6
44	62,3	61	60,8	62,5	72,5	147,5	275,7	333,2	364,9	405,1	367,4	339,6	328,9
46	63,7	61,8	59,9	60,2	69,8	144,5	283,1	341,2	376,9	411,1	354,7	317,6	298,7
48	66,2	63,6	60	57,7	67	142,3	291,8	354,7	389,5	413,9	339,4	289,2	272,2
50	68,7	65,8	60,9	55,8	64,1	141,2	302,4	365,1	404,6	412,5	330,2	264,2	248,2
52	69,2	66,6	61,6	54,2	61,2	141,6	316	384,5	426,3	406,2	317,5	240,8	220,5
54	67,2	65,5	61,3	52,8	58,4	143,4	327,8	414,2	461,2	399,1	306,3	213,1	189,2
56	63,9	62,6	59,6	51,3	55,3	144,9	336,2	452,2	493,7	384,8	298,1	184,6	159,1
58	59,9	58,9	56,5	49,5	52,2	149,3	368,3	483,6	495,2	354,8	287,4	157,6	138,9
60	55,6	55,1	53,1	47,3	49,7	160,3	393,6	495,5	463,2	325,4	270,9	137,6	121,9
62	47,7	49,6	48,5	44,5	46,8	168,2	405	493	436,9	280,7	247,5	118,9	103,4
64	41,4	42	43,7	41,2	43,7	159	391,6	482,1	417,5	239,8	219	103,9	87,2
66	34,3	35,5	37,1	37,6	40,6	145,4	367,3	466,7	400,9	203	190,9	87,8	71,9
68	28,5	29	31,5	33,4	37,2	138,8	351,8	454,1	380,1	168	160,5	74,1	59,8
70	22,1	22,5	26	28,2	33,1	132,8	324,6	419,3	356,4	135,6	133,1	61,9	49,6

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72	14,7	16,1	20,8	22,6	28,7	126,7	288,9	358,2	291,3	106,3	109,9	50,4	40,8
74	7,1	9,8	15,6	17,7	24,4	114,9	241	295,5	217,5	81,8	88,4	39,8	34,7
76	1	3,9	10,8	13,3	20,1	93,3	174,2	212,4	158	62,2	69	31	30,1
78	0	1,5	6,3	9,5	15,7	60,4	87,7	123,6	110,9	45,5	52	22,2	23,8
80	0	0,4	3,8	5,8	10,9	30,8	32,1	48,5	72,1	30,3	36,2	14,5	11,6
82	0	0	1,6	2,8	6,8	10,9	12,1	19,6	38,5	17,7	21,4	9,8	8,2
84	0	0	0,4	1,2	3,1	4,3	5	9	17,8	10,1	12,1	6	5,3
86	0	0	0,1	0,5	1	1,7	1,8	3,2	6,1	4,9	5,4	3,2	2,9
88	0	0	0	0,2	0,4	0,6	0,6	0,8	1,1	1,5	1,6	1,2	1,1
90	0	0	0	0	0,2	0,2	0,1	0,1	0,2	0,2	0,3	0,3	0,3
92	0	0	0	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0	0	0	0
96	0	0	0	0	0	0	0	0	0	0	0	0	0
98	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0

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4. SPHERE SPECTROMETRY (CIE Colorimetric Parameters)

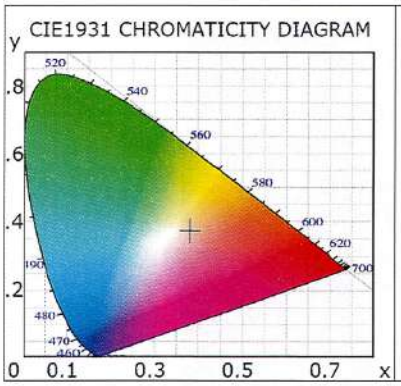
MEASURED CCT :	3999K
MEASURED CRI:	73,4
CHROMATICITY COORDINATES :	x=0.3794 y=0.3728

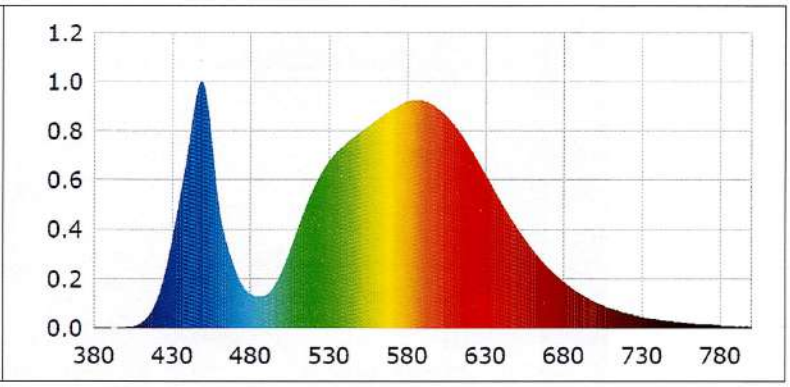
LIGHT SPECTRAL DISTRIBUTION :

CIE Colorimetric Parameters

Chromaticity coordinates: x=0.3794 y=0.3728 u(u')=0.2260 v=0.3331 v'=0.4997
CCT: Tc=3999K (duv=-0.00157) Color Ratio: R=0.172 G=0.804 B=0.024
Peak Wavelength: 449nm Half Bandwidth: 25.3nm
Dominant Wavelength: 580.0nm Color Purity: 0.258
CRI: Ri: Ra= 73.4

R1 =72	R2 =79	R3 =84	R4 =73	R5 =71	R6 =70	R7 =81	R8 =56
R9 =0	R10=50	R11=69	R12=45	R13=72	R14=91	R15=67	





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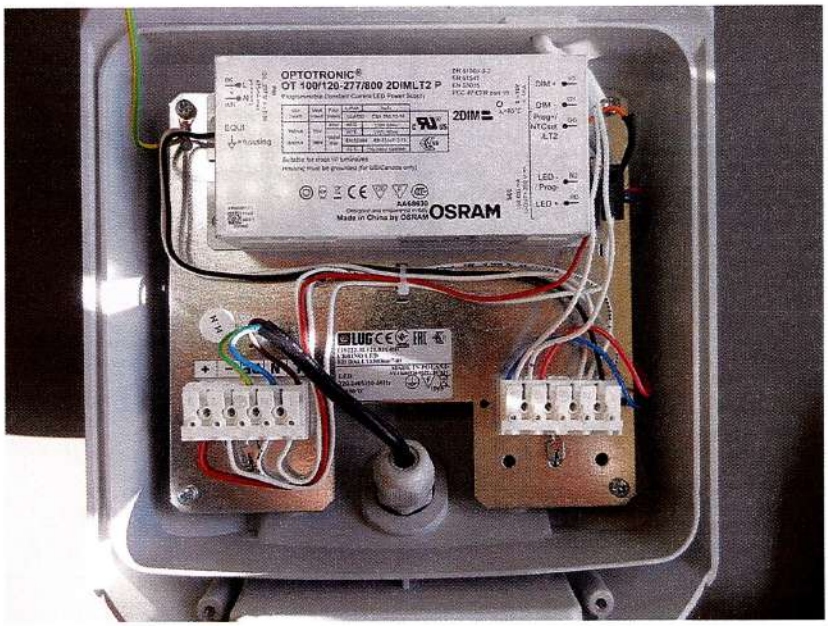
5. TEST INFORMATION

Test performed after 1h of aging
Photometric Method: sphere-spectroradiometer Lisun LMS-9000A(Plus)
Scan Range: 380nm~800nm:1nm
Sphere diameter: 1.50m, 4PI
Stabilization Time: 60 min
Integration Time: Auto
Goniophotometer type C-Gama Spectro Color ®
Preciosion of angle settings 0,2°
Preciosion of position read 0,005°
Photometer – luxmeter Digi02 Spectro Color ®,accuracy: class a
Powermeter with harmonic analiser: PF9811 Everfine, accuracy: class 0,5
AC testing power source DPS1005 Everfine

6. PHOTOS



LUG Light Factory Ltd.
Producer of Professional Lighting Fittings
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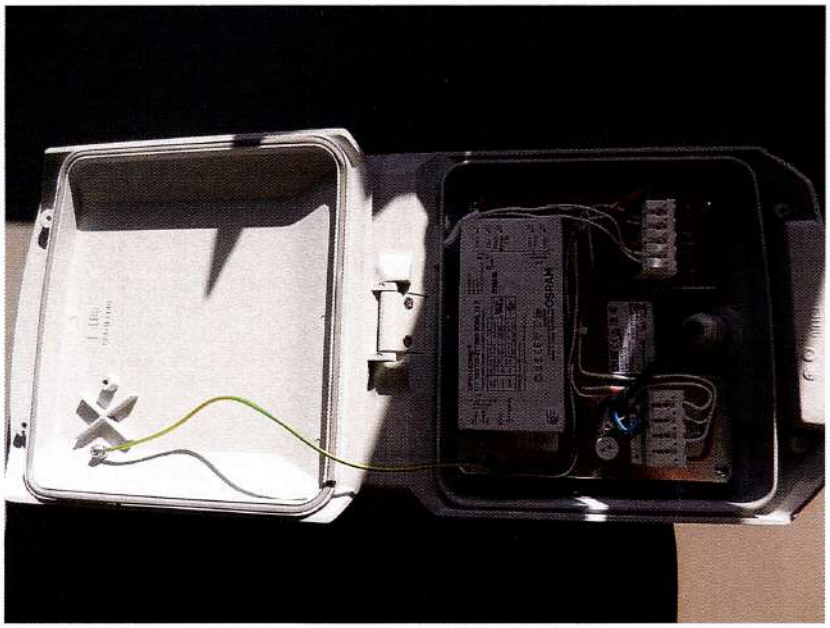

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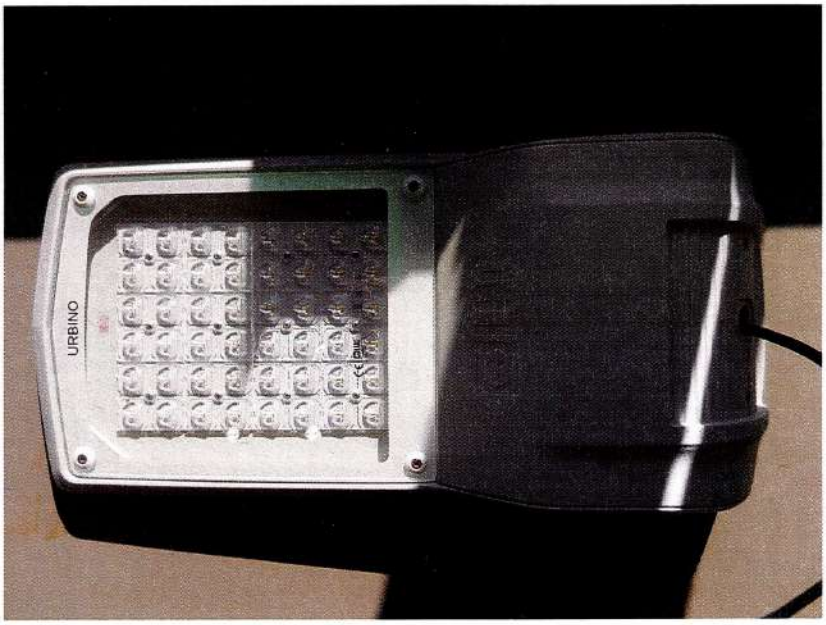

7. AUTHORIZED SIGNATURES

Tested by:

LUG Light Factory Sp. z o.o.
Inżynier Laboratorium
Laboratory Engineer
mgr inż. Marcin Białas

Approved by:

LUG Light Factory Ltd.
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