

**LUG**[®]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.:	113/2018
TEST PROTOCOL NO.:	4769
PLACE/DATE:	ZIELONA GÓRA, 26.04.2018
TESTED AND COMPILED BY:	KRZYSZTOF OLEK
APPROVED BY:	MARCIN BIAŁAS
DEVICE UNDER TEST:	LIGHT FITTING
LUMINAIRE NAME:	URBINI LED ED 3150lm 740 O10 szary
ARTICLE NO:	130232.5L071.111
MANUFACTURER:	LUG LIGHT FACTORY
VERSION INFO:	STANDARD
LED MODULE:	ML1600400.W740.01A
LAMP IDENTIFICATION:	LED 4000K
LED DRIVER:	ELT LCM 42/350...1050-E
INPUT VOLTAGE/FREQUENCY:	230V/50Hz
LUMINAIRE DIMENSIONS:	L : 0.407 m / W : 0.110 m / H : 0.120 m
LIGHT OUTPUT DIMENSIONS:	L : 0.145 m / W : 0.045 m

2. Goniophotometry Test Results:

LUMINOUS FLUX:	3200lm
ACTIVE POWER:	27W
EFFICIENCY:	118,5lm/W
RMS SUPPLY CURRENT:	0,13A
POWER FACTOR:	0,946
RMS SUPPLY VOLTAGE:	230,0V
FREQUENCY:	50,0Hz
LIGHT DISTRIBUTION ANGLE:	N/A
ACCURACY:	± 5 %
AMBIENT TEMPERATURE:	25 °C ± 1 °C

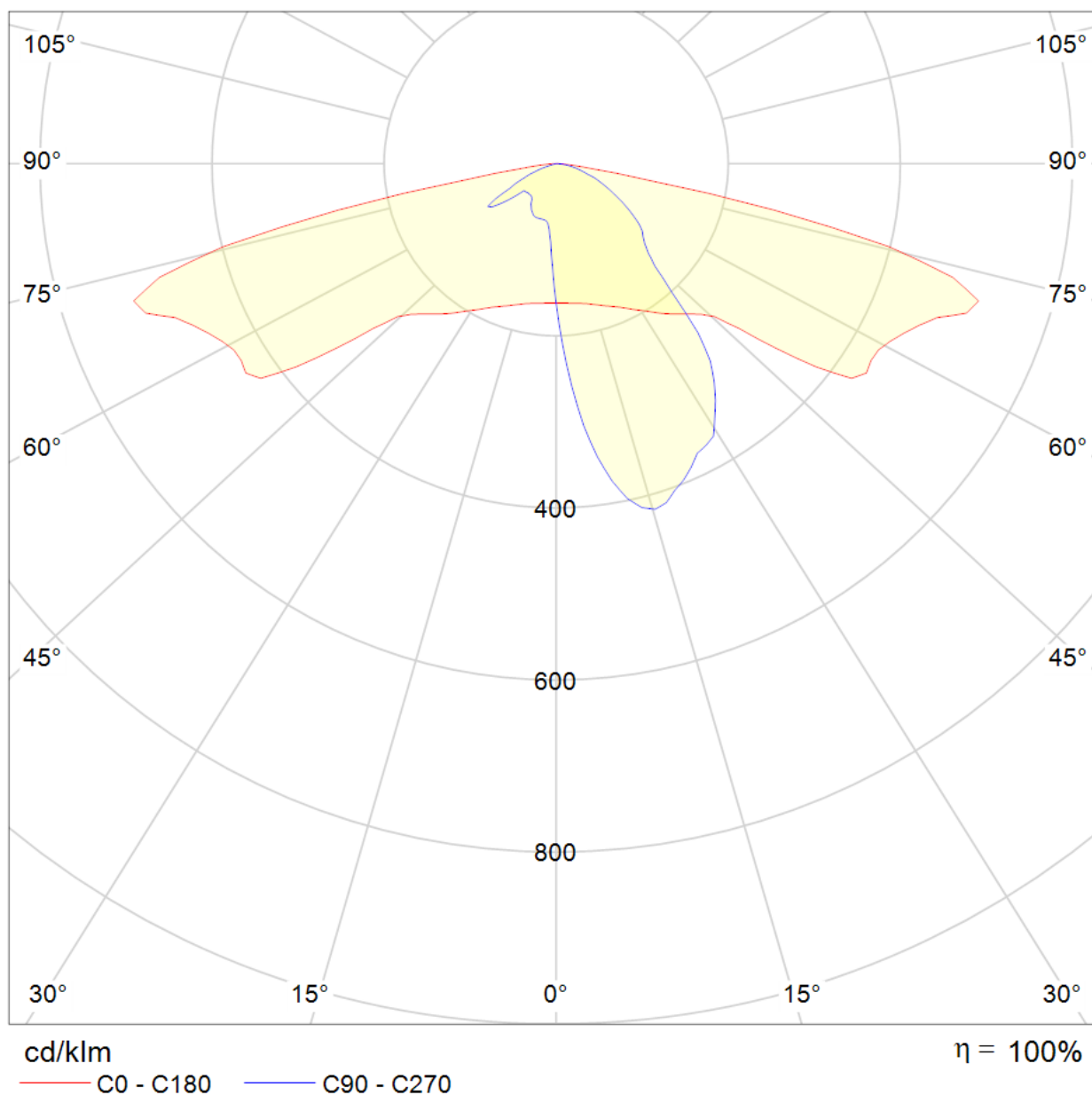


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3. LIGHT DISTRIBUTION (POLAR) CURVE:





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4. LUMINOUS INTENSITY DISTRIBUTION in cd/1000lm:

C/γ	90	105	120	135	150	165	180	195	210	225	240	255	270
0	161,8	161,8	161,8	161,8	161,8	161,8	161,8	161,8	161,8	161,8	161,8	161,8	161,8
2	120,4	121,9	125,1	132,2	140,2	150,4	162,1	173,8	185,3	194,7	202,3	206,9	209,3
4	91,4	93,0	97,7	107,2	120,8	140,0	162,4	186,1	209,3	229,0	244,7	254,7	258,9
6	76,8	78,2	81,4	89,4	104,8	130,3	163,1	199,2	234,5	265,0	288,3	300,7	306,1
8	69,6	70,6	73,4	79,3	92,2	121,0	163,9	212,5	260,9	299,2	324,9	338,5	343,9
10	67,4	67,7	69,1	73,4	84,2	113,0	164,9	226,7	286,9	329,1	355,5	369,3	374,4
12	66,6	66,6	67,5	70,2	78,6	105,8	166,2	241,7	310,8	354,4	380,5	393,6	397,8
14	66,6	66,5	66,6	68,8	74,8	99,5	168,3	256,9	332,7	376,4	400,2	409,4	411,9
16	66,6	66,1	66,5	67,9	71,9	94,5	170,6	272,4	352,6	394,2	412,2	416,7	417,8
18	66,6	66,3	66,4	67,2	70,1	90,3	173,4	288,5	371,6	408,0	417,7	417,9	414,3
20	66,8	66,6	66,4	66,9	68,7	86,8	176,0	304,9	388,9	417,1	419,7	408,2	403,8
22	66,3	66,5	66,6	66,9	67,9	83,7	179,2	322,3	405,1	422,7	412,2	399,8	396,2
24	65,2	65,5	65,9	65,9	66,8	81,2	182,6	340,0	419,6	426,5	404,7	391,3	386,0
26	63,0	63,8	65,3	65,1	65,5	78,8	186,9	357,8	433,4	425,3	396,9	380,8	374,4
28	61,0	61,9	63,5	63,7	64,1	76,8	191,9	376,3	446,8	420,9	389,1	375,2	370,9
30	57,7	59,3	61,5	61,9	62,9	75,3	196,9	395,1	459,0	416,8	390,7	375,2	365,7
32	55,0	56,7	58,6	60,0	61,5	73,8	202,5	414,3	471,8	418,1	393,4	358,1	347,9
34	50,3	53,5	56,0	57,5	60,0	72,5	209,0	434,1	484,4	432,5	372,6	340,6	331,2
36	48,3	49,5	53,8	54,8	58,5	71,3	215,4	454,0	497,9	444,8	352,0	320,0	312,3
38	47,2	47,8	50,1	51,9	56,6	69,8	221,8	474,8	517,2	430,7	329,3	299,2	291,0
40	46,9	47,3	46,5	49,1	54,5	68,1	228,1	498,2	543,9	411,5	303,5	270,6	256,5
42	47,5	47,3	44,3	46,8	52,3	67,0	235,0	525,1	571,5	381,2	270,3	218,4	200,4
44	46,9	47,4	42,9	44,4	50,4	66,2	243,5	554,7	581,9	344,2	218,3	169,0	164,8
46	48,0	48,2	41,9	41,0	48,3	66,2	255,7	586,1	595,0	295,5	163,6	147,9	148,6
48	48,0	49,9	41,7	37,8	46,1	67,7	286,1	639,1	595,7	233,1	140,4	135,9	138,4
50	48,9	49,9	41,5	36,4	43,6	73,6	333,9	715,0	588,3	172,0	129,9	127,1	131,9
52	64,1	54,6	41,7	35,5	41,0	77,9	383,6	796,4	566,3	141,6	121,6	121,6	127,0
54	77,6	74,8	40,7	33,5	38,6	78,3	424,4	862,6	534,0	129,7	115,1	115,5	118,9
56	90,0	80,8	42,9	31,7	36,3	76,4	435,0	892,8	482,1	120,5	110,4	106,4	108,4
58	93,6	95,1	48,7	30,3	33,8	73,1	431,6	890,3	405,4	111,5	104,4	96,5	98,2
60	80,9	87,3	53,3	29,0	31,2	67,0	432,7	895,0	328,5	104,0	95,8	86,5	87,9
62	61,0	72,4	55,9	27,0	28,7	60,7	439,7	902,7	267,9	96,0	86,8	76,7	77,7
64	52,5	55,3	58,5	26,6	25,9	54,1	449,5	921,6	222,7	87,7	76,7	68,3	69,1
66	40,9	45,5	59,2	26,6	23,7	48,4	461,8	947,9	185,6	78,6	68,8	60,7	61,0
68	33,7	37,3	53,7	26,9	21,9	42,8	477,5	1 014,1	153,0	69,8	61,9	54,0	53,4
70	23,8	31,2	44,4	27,2	20,4	37,6	507,7	1 134,8	121,2	61,3	55,4	47,4	46,4
72	16,8	31,1	37,4	27,5	19,0	33,2	516,3	1 121,6	90,2	54,4	49,3	38,6	37,2

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74	8,0	32,6	32,0	27,7	18,1	29,3	479,8	989,7	64,1	48,0	43,5	33,1	31,8
76	0,0	34,8	28,3	27,2	17,5	23,8	398,9	774,4	47,7	44,1	36,3	27,9	26,7
78	0,0	34,0	27,1	25,3	17,4	19,1	258,5	489,8	36,9	42,8	31,2	23,2	21,6
80	0,0	29,3	28,3	22,1	16,8	13,5	101,7	205,9	27,5	42,4	26,5	18,8	17,3
82	0,0	22,5	28,2	18,2	15,6	8,0	42,7	84,8	20,4	37,7	21,8	14,4	13,0
84	0,0	14,6	26,5	14,6	13,4	4,5	23,1	46,3	14,8	29,8	17,2	10,5	9,4
86	0,0	9,1	21,1	10,5	9,4	3,0	11,1	21,5	9,3	21,2	12,1	6,8	5,9
88	0,0	5,7	14,1	3,0	5,0	1,9	5,2	8,9	5,3	12,8	7,9	4,1	3,0
90	0,0	3,2	5,4	1,9	5,1	0,6	2,7	4,0	3,0	5,8	4,2	1,4	0,5

5. LIGHT SPECTRAL DISTRIBUTION :

CIE Colorimetric Parameters

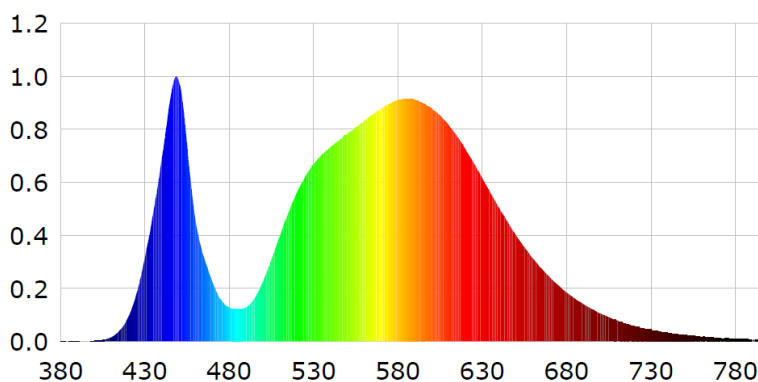
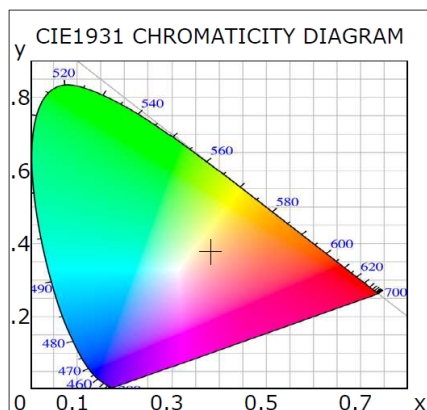
Chromaticity coordinates: $x=0.3815$ $y=0.3762$ $u(u')=0.2260$ $v=0.3343$ $v'=0.5015$ CCT: $T_c=3968K$ ($duv=-0.00055$)Color Ratio: $R=0.172$ $G=0.805$ $B=0.023$

Peak Wavelength: 449nm

Half Bandwidth: 23.7nm

Dominant Wavelength: 579.5nm

Color Purity: 0.274

CRI: R_i : $R_a=73.1$ $R_1=71$ $R_2=79$ $R_3=84$ $R_4=73$ $R_5=70$ $R_6=70$ $R_7=81$ $R_8=56$ $R_9=0$ $R_{10}=49$ $R_{11}=68$ $R_{12}=43$ $R_{13}=72$ $R_{14}=91$ $R_{15}=66$ 

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6. TEST INFORMATION

INTEGRATION TIME: AUTO
INTEGRATOR STABILIZATION TIME: 60 MIN
PHOTOMETRIC DISTANCE: 10,478M
TEST PERFORMED AFTER 2H OF AGING

7. LIST OF EQUIPMENT

SPECIFICATION OF MEASURING APPARATUS USED IN TESTS			
NO.	EQUIPMENT/PRODUCER/TYPE	MARK	USED
1.	SPHERE-SPECTRORADIOMETER LISUN LMS-9000A(PLUS),SCAN RANGE: 380NM~800NM:1NM, SPHERE DIAMETER: 1.50M, 4PI, INTEGRATION TIME: AUTO	SPE/51/LAB	☒
2.	SPECTROMETER: UPRTEK ADVANCED MK350S, SCAN RANGE: 380NM~780NM:1NM	45/LAB/LM	☐
3.	GONIOPHOTOMETER TYPE C-GAMA GONIOMETR GLG-20-1500, G1500-019 4/2017	LAB/UP/26	☒
4.	POWERMETER WITH HARMONIC ANALISER: PF9811 EVERFINE, ACCURACY: CLASS 0,5	53/LAB/DPM	☒
5.	AC TESTING POWER SOURCE DPS1005 EVERFINE	54/LAB/TPS	☒
6.	DIGITAL MULTIMETER, TEKTRONIX	42/LAB/DM	☒
7.	SPEKTROMETER GL SPECTIS 1.0 FLICKER VIS XT010065/16J00129	LAB/PP/34	☒
8.	SPEKTROMETER GL SPECTIS 1.0 VIS GLX10 X0010261/B14W0060	LAB/PP/35	☐
9.	SPEKTROMETER GL SPECTIS 5.0 UV-VIS-NIR XT050149/1104N069	LAB/PP/36	☐
10.	DIGITAL LUXMETER L-100 379/2009	LAB/PP/01	☐
11.	DIGITAL TEMPERATURE&HUMIDITY LOGGER TR-72WF 4214 085A	LAB/PP/15	☐

8. CLAUSE

This protocol shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products.



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No. of pages: 26
No. of annexes/No. of an. pages: 0/0

No. of the Test Report: 701590-01/02

Issued: 4. 8. 2017



TEST REPORT

Name of product: Fixed general purpose luminaires, recessed luminaires
Type of product: URBINI LED class II
Ratings: 220-240 V, 50/60Hz, 14 W, 20 W, 28 W, 42 W, IK 09, IP 66 Class II
Serial number: --
Manufacturer: LUG Light Factory Sp. z o.o., ul. Gorzowska 11, 65-127 Zielona Góra, Polsko
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, Polsko
Number of tested samples: 1, type representative: 130232.5L232.1X1
Samples submitted on: 3. 7. 2017
Location of testing: EZÚ
Tested from 27. 7. 2017 **through** 31. 7. 2017
Other data: -
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: David Nádherný



Approved by: Miroslav Vondra
Testing laboratory technical manager

Test results stated in the test report apply only to the tested subject and unless specified otherwise in the test report, the tests were performed using the method and under the conditions determined in the test regulations, technical norm, instructions for use and information provided by the manufacturer on the tested subject and using accessories required by the manufacturer.
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1. Emission

- (ČSN) EN 55015:2013 *Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment*
- (ČSN) EN 61000-3-2:2014 *Electromagnetic compatibility (EMC) - Limits - Limits for harmonic current emission*
- (ČSN) 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 $\leq 16A$ per phase and not subject to conditional connection*

Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class II

Type representative: 130232.5L232.1X1

Requirements at tests:

Standard	Frequency band	Allowed values	Note
(ČSN) EN 55015 Art. 4.3.3	f [MHz] 0.15 - 0.5 0.05 - 30	QP / AV [dB(μV)] 84 - 74 / 74 - 64 74 / 64	Not applicable *1)
(ČSN) EN 55015 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	Pass
(ČSN) EN 55015 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	Pass
(ČSN) EN 55015 Art. 4.4.2	f [MHz] 30 - 230 230 - 300	QP [dB(μV/m)] 30 d=10m 37	Pass
(ČSN) EN 6100-3-2 Art. 7.3	0 - 2 kHz	Class C	Pass
(ČSN) EN 6100-3-3	50 Hz	---	Not applicable *2)

Notes:

The results of the tests specified in the protocol relating to device with electronic ballast:
130232.5L232.1X1: PHILIPS Xi LP 40W 0.3-1.0A SI 230V C123 sXt

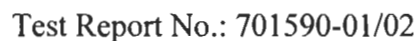
*1) The luminaire does not contains relevant terminals.

*2) According to EN 61000-3-3, Art. A2 (LED luminaires with power input $\leq 200W$)

Test result: Pass

Compiled by: Nádherný

Measured at: EZÚ



Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class II

Operating conditions:

230V, 50Hz, minimally 15 minutes in operation

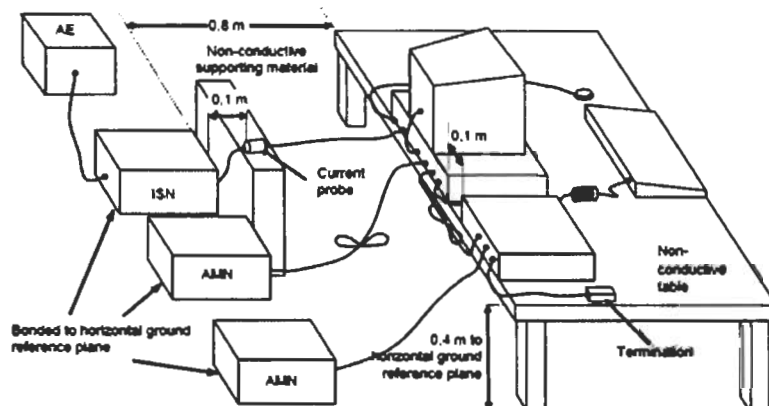
Temperature: 23°C

Rel. humidity: 30 – 45 %

Applied limits:

Band	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

Measuring arrangement:



Notes:

For measured values see next page.

Test result: Pass

Measured by: Nádherný

Date: 27.7.2017

Measured at: EZÚ

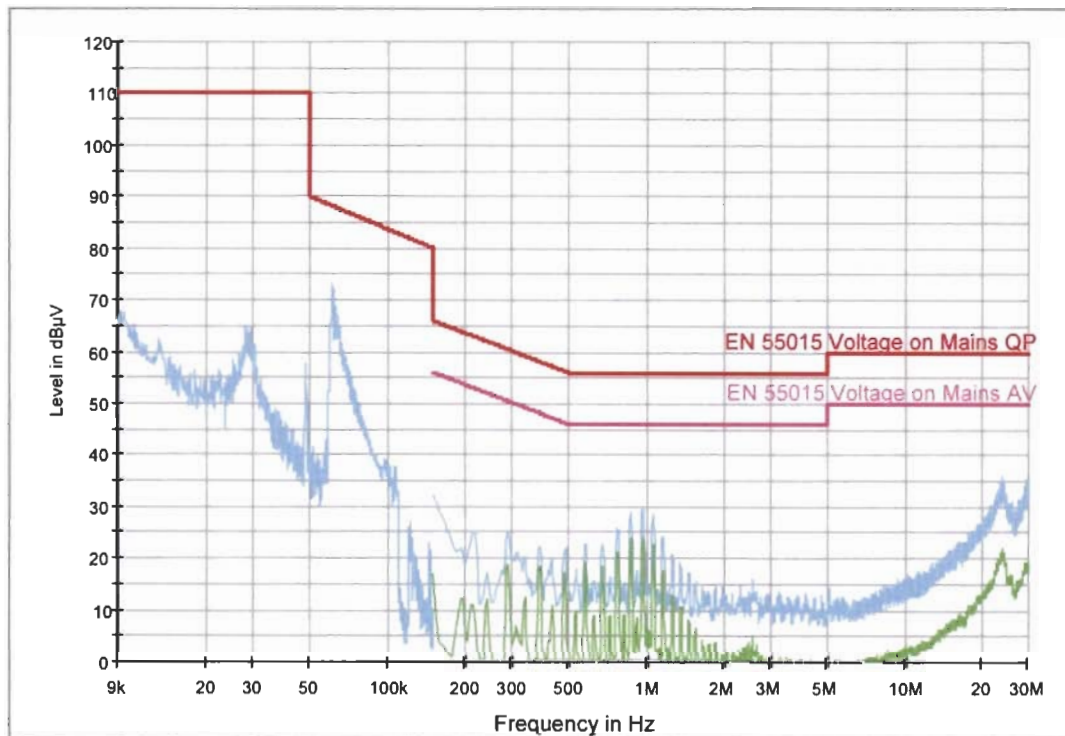


EMI Measurement

Common Information

EUT Name:	Fixed general purpose luminaires, recessed luminaires
Type:	URBINI LED, class II (130232.5L232.1X1)
Test Description:	EN 55015
Operation Conditions:	230 V, 50 Hz
Operator Name:	Nadherny
Comment 1:	L, N - Mains

Voltage EN 55015tab2a





Measurement of interfering radiation in the 9 kHz - 30 MHz band
According to: (ČSN) EN 55015 - art 4.4.1

Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class II

Operating conditions:

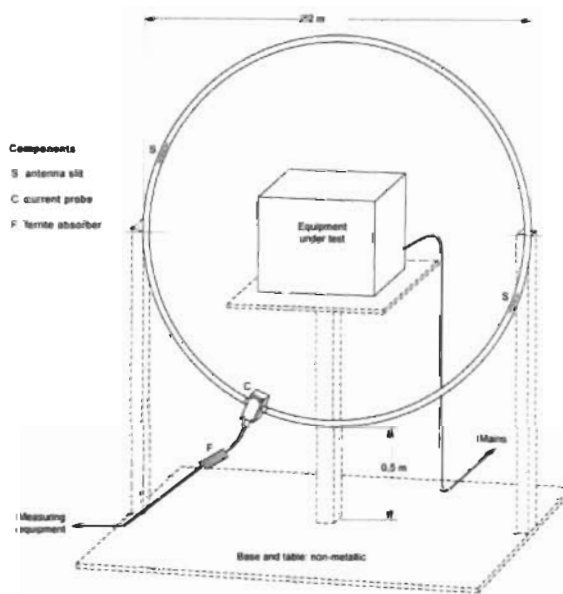
230V, 50Hz, minimally 15 minutes in operation

Temperature: 23°C Rel. humidity: 30 – 45 %

Applied limits:

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

Measuring arrangement:



Notes:

For measured values see next pages

Test result: Pass

Measured by: Nádherný

Date: 31.7. 2017

Measured at: EZÚ

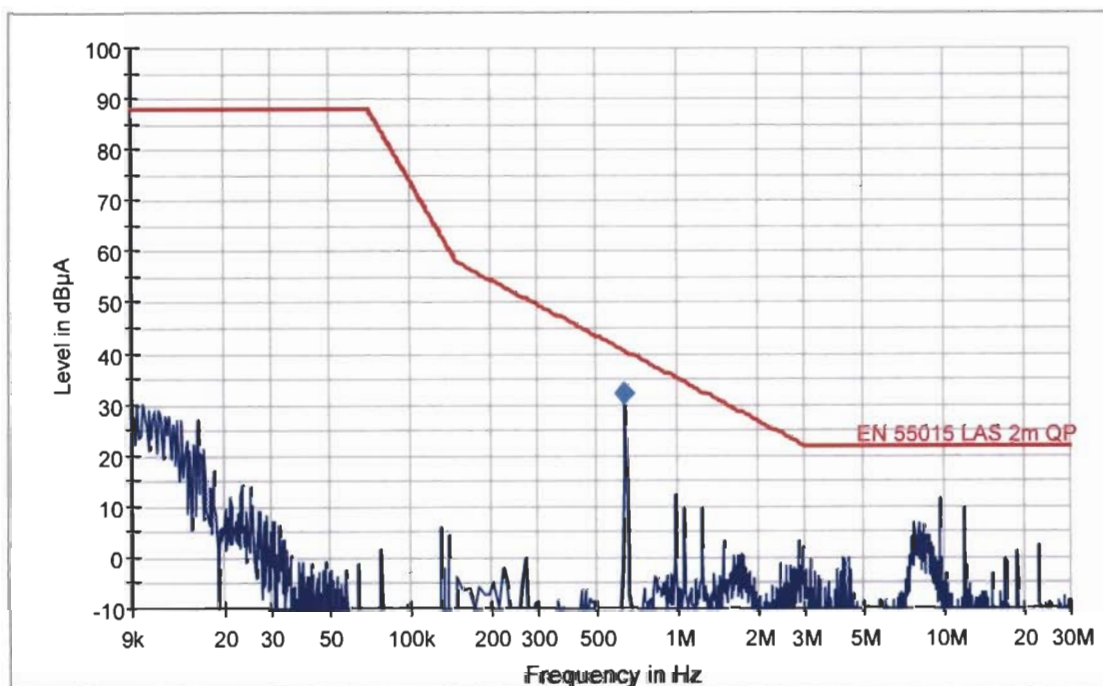


EMI Measurement

Common Information

EUT Name: Fixed general purpose luminaires, recessed luminaires
Type: URBINI LED, class II (130232.5L232.1X1)
Test Description: EN 55015
Operating Conditions: 230V, 50Hz
Operator Name: Nadherny
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	32.2	1000.00	9.000	1.0	8.4	40.6

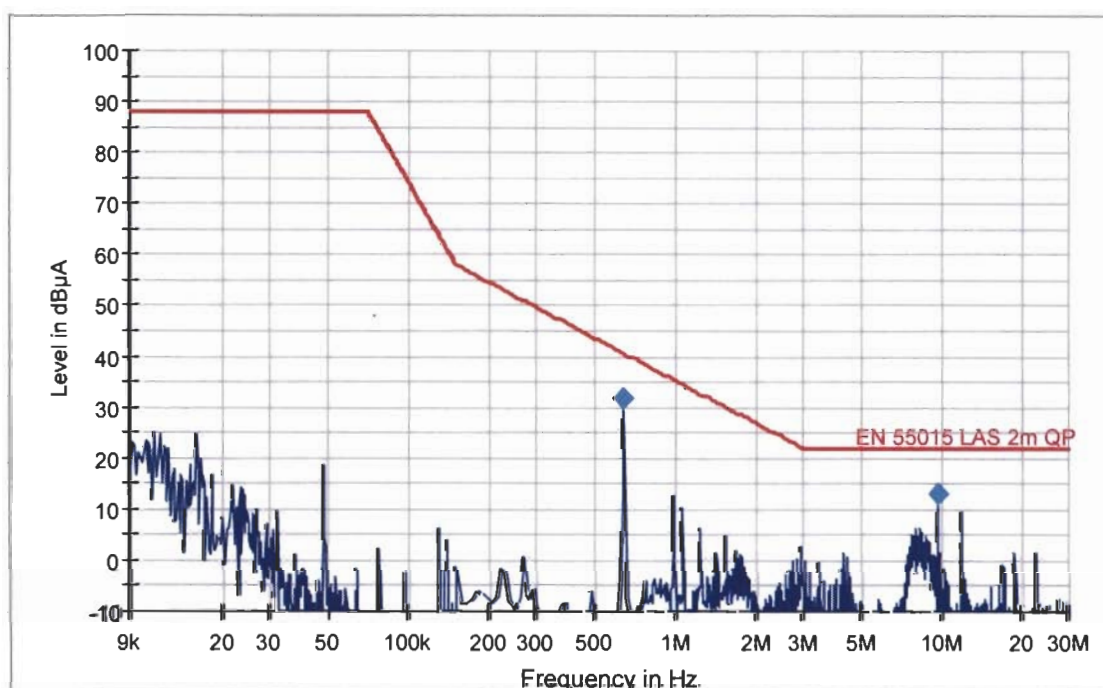


EMI Measurement

Common Information

EUT Name: Fixed general purpose luminaires, recessed luminaires
Type: URBINI LED, class II (130232.5L232.1X1)
Test Description: EN 55015
Operating Conditions: 230V, 50Hz
Operator Name: Nadherny
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	31.9	1000.00	9.000	1.0	8.7	40.6
9.598000	13.1	1000.00	9.000	0.8	8.9	22.0

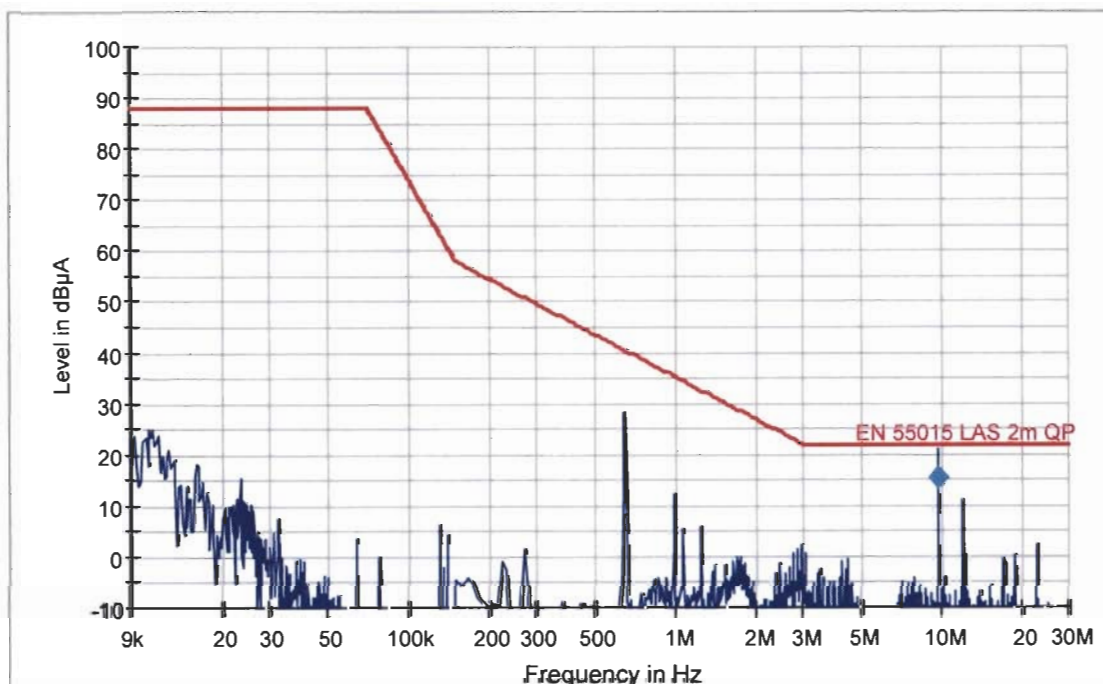


EMI Measurement

Common Information

EUT Name: Fixed general purpose luminaires, recessed luminaires
Type: URBINI LED, class II (130232.5L232.1X1)
Test Description: EN 55015
Operating Conditions: 230V, 50Hz
Operator Name: Nadherny
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)
9.598000	15.4	1000.00	9.000	0.8	6.6	22.0



**Measurement of interfering radiation in the 30 - 300 MHz band
According to: (ČSN) EN 55015 Art. 4.4.2**

Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class II

Operating conditions:

230V, 50Hz, minimally 15 minutes in operation

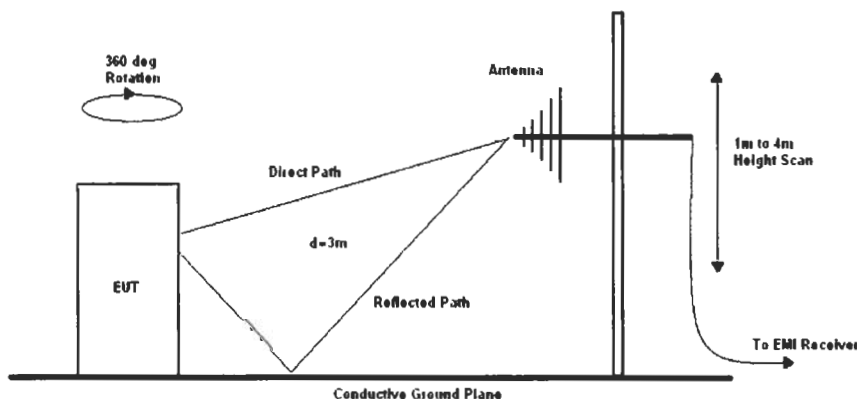
Temperature: 22°C

Rel. humidity: 30 – 45 %

Applied limits:

Band (MHz)	Limits dB(μ V/m), quasi-peak		
30 - 300	*)	30	(d=10m)
230 - 300	*)	37	(d=10m)

Measuring arrangement:



Notes:

For measured values see next pages

*) Limits and values converted to 3 m measuring distance

Test result: Pass

Measured by: Nádherný

Date: 28.7. 2017

Measured at: EZÚ

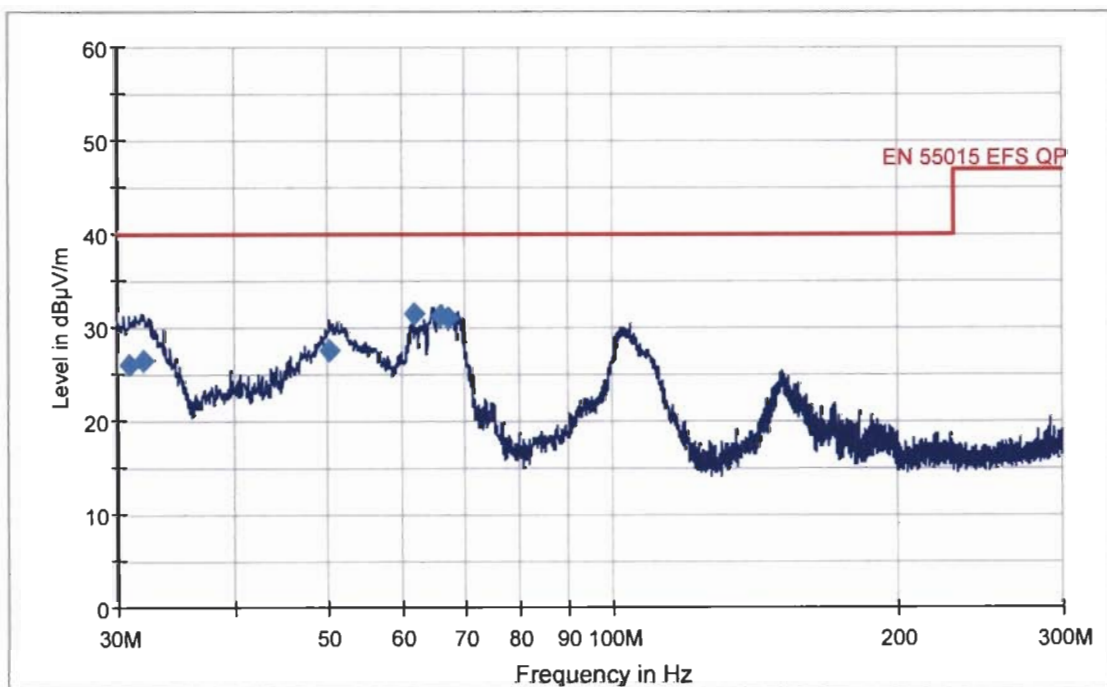


EMI Measurement

Common Information

EUT Name: Fixed general purpose luminaires, recessed luminaires
Type: URBINI LED, class II (130232.5L232.1X1)
Test Description: EN 55015
Operating Conditions: 230V, 50Hz
Operator Name: Nadherny
Comment: V, H 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)
30.900000	26.0	174.0	H	204.0	30.2	14.0	40.0
32.040000	26.5	390.0	H	149.0	30.6	13.5	40.0
50.400000	27.7	115.0	V	277.0	19.7	12.3	40.0
61.740000	31.6	215.0	V	33.0	13.7	8.4	40.0
66.000000	31.3	215.0	V	25.0	12.0	8.7	40.0
67.200000	31.0	110.0	V	33.0	11.6	9.0	40.0



**Electromagnetic compatibility (EMC) - Limits -
Limits for harmonic current emission
According to: (ČSN) EN 61000-3-2 - art. 7.3**

Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class II

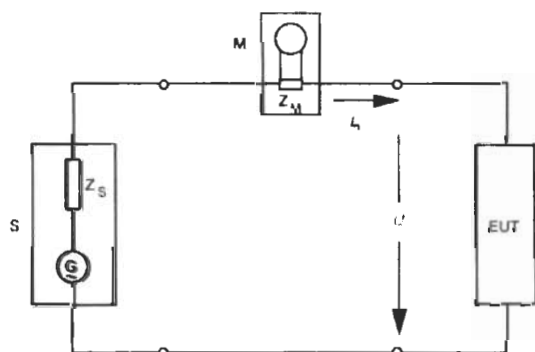
Operating conditions:

230V, 50Hz, minimally 15 minutes in operation

Teplota - Temperature: 24°C

Rel. vlhkost - Rel. humidity: 30 – 45 %

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

Applied limits:

Order of harmonics	Limit (%I1) P > 25W
2	2
3	30λ
5	10
7	7
9	5
n 11 - 39 (only odd)	3

λ = účinník - power factor

Notes:

Equipment class C, In version with rated power P=42W was measured P=28W.

For measured values see next pages

Test result: Pass

Measured by: Nádherný

Date: 28.7. 2017

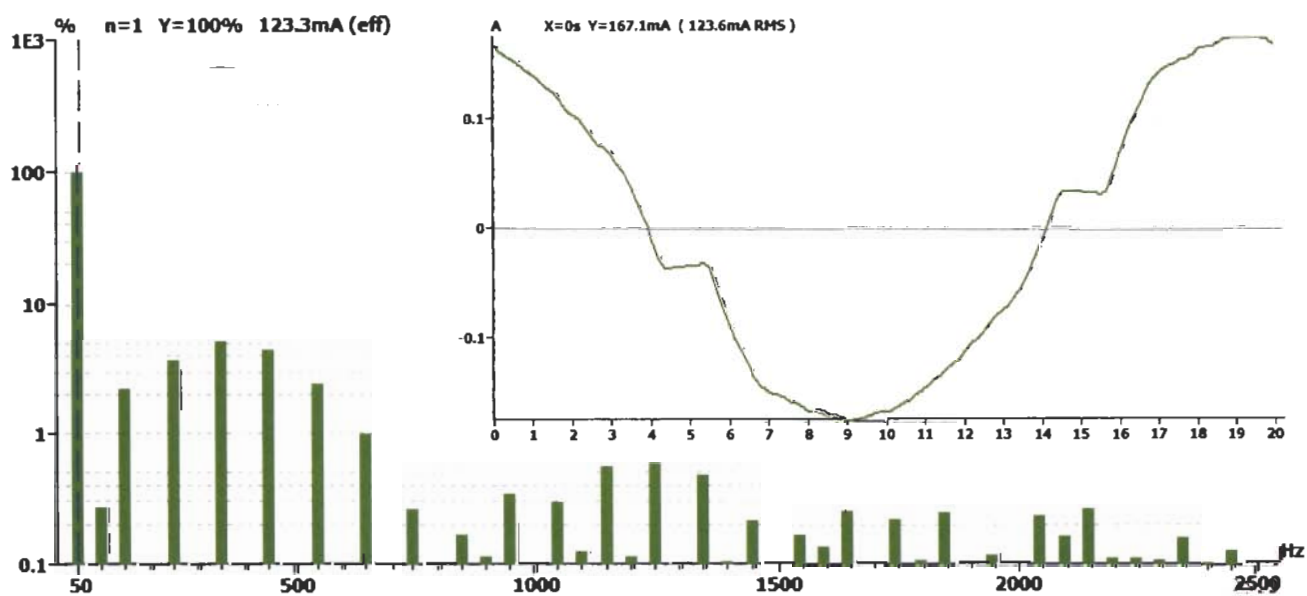
Measured at: EZÚ



Report title:	701590-01/02
Company Name:	EZU
Date of test:	11:04 28.Jul 2017
Measurement file name:	Harmonics_3_2_Ed4.rsd
Tester:	Nadherny
Standard used:	EN/IEC 61000-3-2 Ed.4 Quasi-stationary Equipment class C
Observation time:	30s
Windows width:	10 periods - (EN/IEC 61000-4-7 Edition 2002 + A1:2008)
Customer:	LUG
E. U. T.:	URBINI LED, class II (130232.5L232.1X1)
Temperature :	24
Humidity :	40
Comment:	230 V, 50 Hz, 28W
Measurement smoothed data:	Fund. Current: 0.123A Power Factor: 0.967

Test Result

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





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	I _{eff} [A]	I _{eff} [%]	Limit [%]	Result
1	123.280E-3	99.907		
2	324.091E-6	0.263		PASS
3	2.813E-3	2.280		PASS
4	351.411E-6	0.285		PASS
5	4.428E-3	3.588		PASS
6	330.102E-6	0.268		PASS
7	6.121E-3	4.960	7.00	PASS
8	296.798E-6	0.241		PASS
9	5.347E-3	4.333	5.00	PASS
10	270.946E-6	0.220		PASS
11	2.903E-3	2.352		PASS
12	313.741E-6	0.254		PASS
13	1.257E-3	1.019		PASS
14	286.977E-6	0.233		PASS
15	400.349E-6	0.324		PASS
16	300.614E-6	0.244		PASS
17	301.497E-6	0.244		PASS
18	301.786E-6	0.245		PASS
19	456.361E-6	0.370		PASS
20	287.852E-6	0.233		PASS
21	469.269E-6	0.380		PASS
22	293.163E-6	0.238		PASS
23	717.341E-6	0.581		PASS
24	351.525E-6	0.285		PASS
25	729.527E-6	0.591		PASS
26	317.073E-6	0.257		PASS
27	635.536E-6	0.515		PASS
28	301.578E-6	0.244		PASS
29	404.126E-6	0.328		PASS
30	282.523E-6	0.229		PASS
31	295.819E-6	0.240		PASS
32	373.165E-6	0.302		PASS
33	415.038E-6	0.336		PASS
34	312.305E-6	0.253		PASS
35	391.554E-6	0.317		PASS
36	332.212E-6	0.269		PASS
37	390.578E-6	0.317		PASS
38	310.746E-6	0.252		PASS
39	326.989E-6	0.265		PASS
40	264.810E-6	0.215		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.

**Maximum harmonic current results**

Hn	I _{eff} [A]	I _{eff} [%]	Limit [%]	Result
1	123.395E-3	100.000		
2	354.338E-6	0.287		PASS
3	2.850E-3	2.310		PASS
4	393.317E-6	0.319		PASS
5	4.474E-3	3.625		PASS
6	360.713E-6	0.292		PASS
7	6.177E-3	5.006	10.50	PASS
8	329.867E-6	0.267		PASS
9	5.398E-3	4.375	7.50	PASS
10	307.491E-6	0.249		PASS
11	2.963E-3	2.401		PASS
12	349.753E-6	0.283		PASS
13	1.310E-3	1.062		PASS
14	322.444E-6	0.261		PASS
15	424.791E-6	0.344		PASS
16	327.203E-6	0.265		PASS
17	323.249E-6	0.262		PASS
18	324.346E-6	0.263		PASS
19	486.265E-6	0.394		PASS
20	313.761E-6	0.254		PASS
21	502.098E-6	0.407		PASS
22	315.339E-6	0.256		PASS
23	754.783E-6	0.612		PASS
24	388.131E-6	0.315		PASS
25	753.366E-6	0.611		PASS
26	335.611E-6	0.272		PASS
27	672.644E-6	0.545		PASS
28	316.449E-6	0.256		PASS
29	429.470E-6	0.348		PASS
30	298.605E-6	0.242		PASS
31	327.914E-6	0.266		PASS
32	402.187E-6	0.326		PASS
33	448.208E-6	0.363		PASS
34	332.428E-6	0.269		PASS
35	418.871E-6	0.339		PASS
36	363.314E-6	0.294		PASS
37	426.836E-6	0.346		PASS
38	343.540E-6	0.278		PASS
39	350.165E-6	0.284		PASS
40	286.667E-6	0.232		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.

**Maximum harmonic voltage results**

Hn	Ueff [V]	Ueff [%]	Limit [%]	Result
1	229.87	99.945		
2	92.78E-3	0.040	0.2	PASS
3	534.39E-3	0.232	0.9	PASS
4	61.35E-3	0.027	0.2	PASS
5	56.17E-3	0.024	0.4	PASS
6	42.54E-3	0.018	0.2	PASS
7	51.58E-3	0.022	0.3	PASS
8	34.45E-3	0.015	0.2	PASS
9	24.85E-3	0.011	0.2	PASS
10	25.33E-3	0.011	0.2	PASS
11	18.24E-3	0.008	0.1	PASS
12	16.92E-3	0.007	0.1	PASS
13	22.04E-3	0.010	0.1	PASS
14	20.04E-3	0.009	0.1	PASS
15	12.02E-3	0.005	0.1	PASS
16	14.85E-3	0.006	0.1	PASS
17	13.63E-3	0.006	0.1	PASS
18	14.49E-3	0.006	0.1	PASS
19	9.76E-3	0.004	0.1	PASS
20	16.78E-3	0.007	0.1	PASS
21	10.99E-3	0.005	0.1	PASS
22	11.70E-3	0.005	0.1	PASS
23	9.43E-3	0.004	0.1	PASS
24	9.37E-3	0.004	0.1	PASS
25	9.53E-3	0.004	0.1	PASS
26	10.33E-3	0.004	0.1	PASS
27	8.86E-3	0.004	0.1	PASS
28	8.98E-3	0.004	0.1	PASS
29	9.78E-3	0.004	0.1	PASS
30	8.52E-3	0.004	0.1	PASS
31	7.32E-3	0.003	0.1	PASS
32	10.83E-3	0.005	0.1	PASS
33	7.74E-3	0.003	0.1	PASS
34	6.01E-3	0.003	0.1	PASS
35	6.88E-3	0.003	0.1	PASS
36	6.98E-3	0.003	0.1	PASS
37	6.83E-3	0.003	0.1	PASS
38	6.66E-3	0.003	0.1	PASS
39	7.24E-3	0.003	0.1	PASS
40	13.87E-3	0.006	0.1	PASS



2. Immunity

(ČSN) EN 61547 *Equipment for general lighting purposes - EMC - immunity requirements*

Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class II

Type representative: 130232.5L232.1X1

Requirements at tests:

Generic standard	Level	Allowed error *1)	Note
EN61000-4-2	±4kV / ±8 kV	B	Pass
EN61000-4-3	3V/m 80 - 1000 MHz	A	Pass
EN61000-4-4	±1kV AC power, ±0,5kV signal lines	B	Pass
EN61000-4-5	±1kV / ±2kV	C	Pass
EN61000-4-6	3 V 0,15 - 80 MHz	A	Pass
EN61000-4-8	3 A/m	A	*2) Pass
EN61000-4-11	200 ms / 70% U _T 10 ms / 0% U _T	C B	Pass

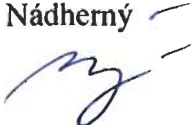
Notes:

The results of the tests specified in the protocol relating to device with electronic ballast:
130232.5L232.1X1: PHILIPS Xi LP 40W 0.3-1.0A SI 230V C123 sXt

*1) Performance criteria according (ČSN) EN 61547, art. 4.2

*2) Devices do not contain parts sensitive to the magnetic field

Test result: Pass

Compiled by: Nádherný 

Measured at: EZÚ

Test of electric discharge resistance
According to: (ČSN) EN 61000-4-2

Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class II

Operating conditions:

230V, 50Hz, minimally 15 minutes in operation

Temperature: 23°C Rel. humidity: 30 – 45 %

Allowed criterion: B

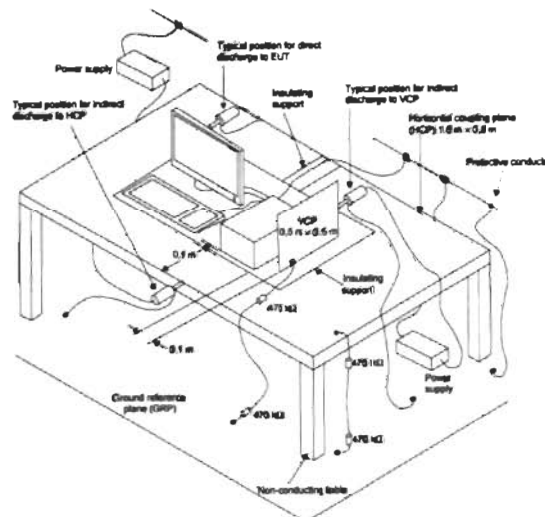
Number of testing discharges: 10/10 contact/air discharge to every test-places in each polarity, besides indirect contact discharges into a vertical and horizontal coupling plane

Tested points: Contact discharge into the metal parts and to the horizontal and vertical coupling plane. Air discharge into plastic parts. See photodocumentation.

Testing voltage [kV]: ± 4 – contact discharge / ± 8 - air discharge

Achieved criterion: A

Measuring arrangement:



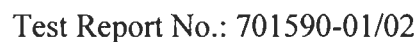
Notes:--

Test result: Pass

Measured by: **Nádherný**

Date: 31.7. 2017

Measured at: EZÚ



Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class II

Operating conditions:

230V, 50Hz, minimally 15 minutes in operation

Temperature: 23°C Rel. humidity: 30 – 45 %

Applied limits:

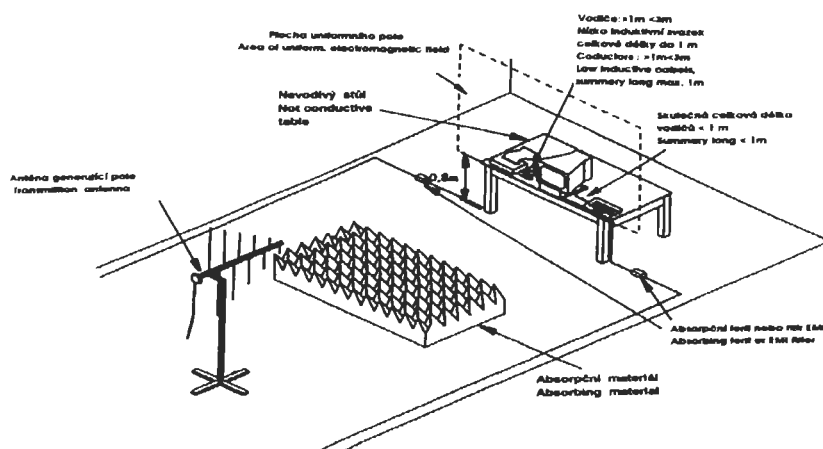
Scan spectrum: 80 - 1000 MHz

Intensity of field: 3 V/m (80% AM, 1kHz)

Allowed criterion: A

Achieved criterion: A

Measuring arrangement:



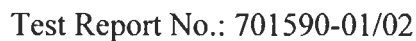
Notes: --

Test result: Pass

Measured by: Nádherný

Date: 31.7.2017

Measured at: EZÚ



Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class II

Operating conditions:

230V, 50Hz, minimally 15 minutes in operation

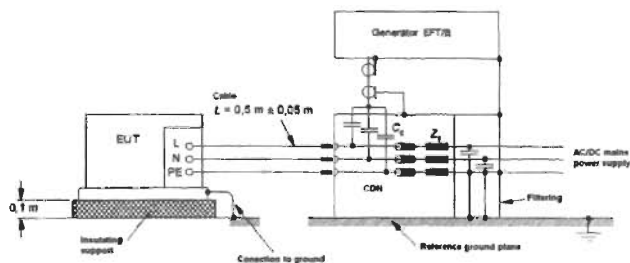
Temperature: 23°C Rel. humidity: 30 – 45 %

Allowed criterion: B

Testing voltage applied:

Applied to	Testing level	Performance criterion	Remark
L,N,L+N	±1kV	A	Coupling networks to power supply
L+PE	±1kV	--	
N+PE	±1kV	--	
L+N+PE	±1kV	--	

Measuring arrangement:



Notes: --

Test result: Pass

Measured by: Nádherný

Date: 31.7. 2017

Measured at: EZÚ

by



Surge immunity test
According to: (ČSN) EN 61000-4-5

Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class II

Operating conditions:

230V, 50Hz, minimally 15 minutes in operation

Temperature: 23°C

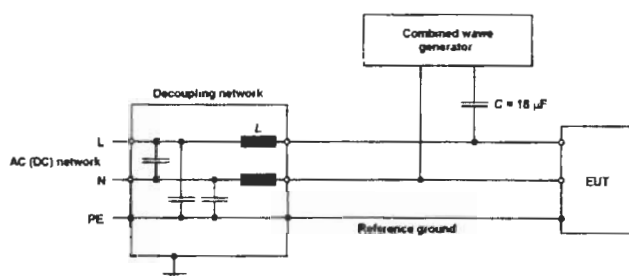
Rel. humidity: 30 – 45 %

Allowed criterion: C

Testing voltage applied:

Applied voltage	Testing level	Performance criterion	Remark
L-N	±1kV	A	90°, 270°
L-PE, N-PE, L+N-PE	±2kV	--	Not applied

Uspořádání při měření - Measuring arrangement:



Poznámky - Notes:--

Test result: Pass

Measured by: Nádherný

Date: 31.7. 2017

Measured at: EZÚ



Immunity test - conducted disturbances induced by radio-frequency fields
According to: (ČSN) EN 61000-4-6

Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class II

Operating conditions:

230V, 50Hz, minimally 15 minutes in operation

Temperature: 24 °C Rel. humidity: 30 – 45 %

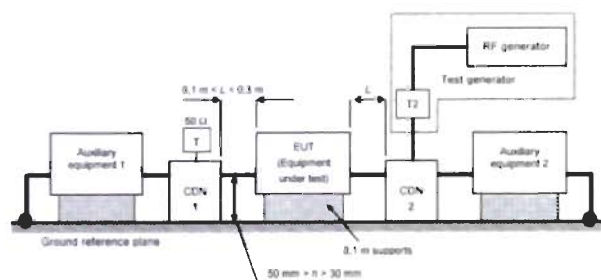
Allowed criterion: A

Testing voltage applied:

Frequency band	Testing voltage level	Note
150kHz - 80MHz	3V (mod. 80% AM / 1 kHz)	Applied by coupling network to mains

Achieved criterion: A

Measuring arrangement:



Notes:--

Test result: Pass

Measured by: Nádherný

Date: 31.7. 2017

Measured at: EZÚ



Test Report No.: 701590-01/02

Voltage dips, short interruptions and voltage variations
According to: (ČSN) EN 61000-4-11

Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class II

Operating conditions:

230V, 50/60Hz, minimally 15 minutes in operation

Temperature: 22°C Rel. humidity: 30 – 45 %

Allowed criterion: C, B

Tests requirements:

Test level [%] Ut	Duration 50 / 60Hz [ms]	Allowed criterion	Achieved criterion
0	10 / 8,3	B	A
70	200 / 167	C	A

Notes:--

Test result: Pass

Measured by: Nádherný

Date: 31.7. 2017

Measured at: EZÚ

**Measuring equipment used:**

☒ Test receiver RaS	ESC1	110213	11.2017
☒ Měřicí přijímač- Test receiver RaS	ESIB26	110097	11.2017
☒ Continuous wave simulator EM Test	CWS500N1	110232	03.2019
☒ Harmonic analyzer EM TEST	DPA503N	110272	02.2019
☒ Power fail simulator EM Test	PFS 500	98-6040	10.2017
☐ Ultra Compact Simulator EM Test	UCS 500N	110235	02.2019
☒ ESD generator	ESD30N	110196	03.2019
☐ ESD generátor	ESD30	110090	12.2018
☐ Artificial mains EMCO	3825/2	95-5852	07.2019
☐ Artificial mains Narda	PMM L3-32	110250	11.2019
☒ Artificial mains ESH	ESH4-Z5	5821/1	05.2020
☒ Antenna Frankonia	BTA-M	00-6321	10.2017
☐ Antenna Double Ridget	HF 907	110177	08.2017
☐ Antenna Double Ridget Advantest	TR17206	5878	10.2017
☒ Burst generátor Haefely	PEFT Junior	5872	12.2018
☒ Surge generator	VCS500-M	110114	03.2018
☐ Měřič pole Narda – Field meter Narda	ELT-400	110130	11.2018
☒ Current Probe R&S	EZ-17	110098	05.2019

Pomocná zařízení – Auxiliary equipment:

☒ Supply source EM TEST	HFS300	98-6042	02.2019
☐ Ref. impedance SCHAFFNER	LR4	X71773	02.2019
☒ Electric Field Probe Narda	EP603	110273	01.2019
☒ Amplifier PRÁNA	AP32 LT225	07-110145	
☐ Amplifier MILMEGA	AS0822-100	98-6038	
☐ Amplifier MILMEGA	AS0204-125	110144	
☐ Amplifier MILMEGA (1.8-6GHz)	AS1860-100	110219	
☒ Signal generator RaS	SMF100A	110167	11.2018
☐ Signal generator RaS	SMT03	96-5874	02.2018
☐ Multimetr - Multimeter	FLUKE189	550049	01.2018
☐ Probe RFT	TK12	700044	06.2020
☒ Coupling/dec. EM TEST	CDN M3N	552097	06.2018
☒ Coupling/dec. EM TEST	CDN M2N	110233/2	11.2019
☐ Coupling/SCHAFFNER ISN T4xx	ISN T4xx	110032	
☐ Capacitive coupling clamp	Haefely		
☐ Current probe	P MP-120		
☐ Current probe	AM503	79-4221	
☒ Current probe RFT	SMZ 11	700459	06.2018
☒ Elektromag. kleště- Electromag. injection clamp	EM-101	110233	11.2019
☐ Ferite clamp 1-1000 MHz	EZ-24	10003	
☒ Anechoic chamber - Euroshield Oy	RFMSD-F/A	6341	02.2020
☒ Notebook Dell	Dell D351	551492	
☒ Multimeter Fluke	289	552550	06.2018
☒ Ocelové pásmo – Metal meter	5m	N400014	12.2020
☒ Pulse Limiter RaS	ESH3-Z2	5424	01.2019

Kabely - Cables:

- ☐ K1
- ☒ K22, ESH3-Z2
- ☐ K14, K15a, K16
- ☐ KB01, KB02, KB04
- ☒ KB06
- ☐ K4, K19
- ☐ K23
- ☒ K27
- ☒ K25, K2, K4

EZU přípravky – EZU equipments:

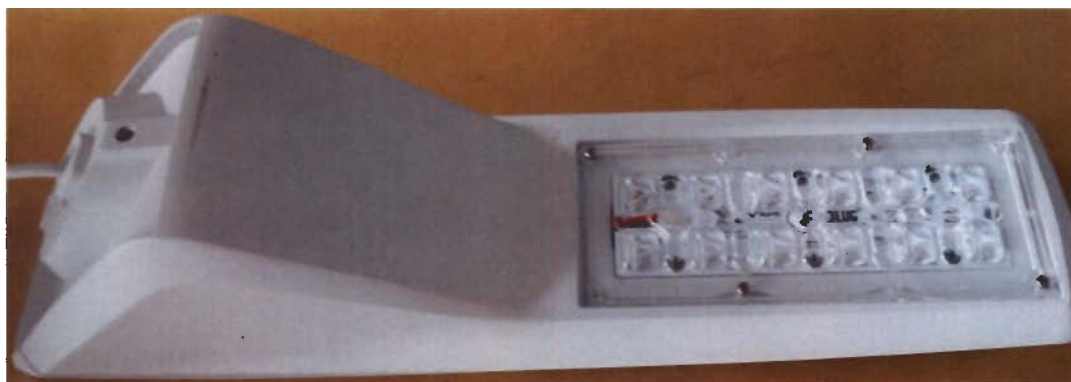
- ☒ PR 51 – EN 61000-4-2 – Vertical coupling plane
- ☐ Dummy lamp: dle - according to EN55015
- ☒ Regulating transformer - ZPA RA20
- ☐ PR-21 - Stabilized power supply BS 525
- ☐ P10 - EN55015 - Spherical cover
- ☐ P11 - EN6100-4-8 - EZÚ test setup
- ☐ P13 – Třífázový přepínač - three-phase switch
- ☒ PR45 - Loop antenna 2m



Photo-documentation

Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class II



Overview: 130232.5L232.1X1



Source and LED controller: 130232.5L232.1X1



Name plate 130232.5L232.1X1



Test Report No.: 701590-01/02

Electrostatic discharges – tested points (→ contact discharge → air discharge)





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

No. of pages: 1
No. of annexes/No. of an. pages: 2/38

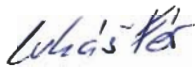
No. of the Test Report: 701590-01/01

Issued: 2. 8. 2017



TEST REPORT

Name of product: Luminaires for road and street lighting
Type of product: URBINI LED class II
Ratings: 220-240 V, 50/60 Hz, 14, 20, 28, 42 W, IK 08, IP 66, Class II
Serial number: -
Manufacturer: LUG Light Factory Sp. z o.o.,
ul. Gorzowska 11, 65-127 Zielona Góra,
Republic of Poland
Production site: LUG Light Factory Sp. z o.o.,
ul. Gorzowska 11, 65-127 Zielona Góra,
Republic of Poland
Ordering firm: LUG Light Factory Sp. z o.o.,
ul. Gorzowska 11, 65-127 Zielona Góra,
Republic of Poland
Number of tested samples: 1
Samples submitted on: 3. 7. 2017
Location of testing: EZÚ
Tested from 3. 7. 2017 **through** 2. 8. 2017
Other data: -
The product was tested according to: IEC 60598-1:2014,
IEC 60598-2-3:02,
EN 60598-1:15,
EN 60598-2-3:03+A1:11,
~~IEC 62471:2006~~ blue light hazard only


Compiled by: Lukáš Fér




Approved by: Zdeněk Dvořák
Testing laboratory technical manager

Test results stated in the test report apply only to the tested subject and unless specified otherwise in the test report, the tests were performed using the method and under the conditions determined in the test regulations, technical norm, instructions for use and information provided by the manufacturer on the tested subject and using accessories required by the manufacturer.
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Test Report issued under the responsibility of:



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

Report Number..... : 701590-01/01
Date of issue : 2. 08. 2017
Total number of pages : 37 + 1 Atachement (one page)

Name of Testing Laboratory preparing the Report : Elektrotechnický zkušební ústav (EZÚ)
Pod Lisem 129, 171 02 Praha 71 – Troja, Czech Republic

Applicant's name : LUG Light Factory Sp.z o.o.
Address : Ul. Grozowska 11, 65-127 Zilena Góra, Poland

Test specification:

Standard : IEC 60598-1:2014,
IEC 60598-2-3:2002 + A1:2011
EN 60598-1:2015,
EN 60598-2-3:2003+A1:2011

Test procedure..... : CB, ENEC Scheme

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

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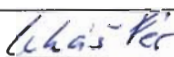
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Test item description	Luminaires for road and street lighting	
Trade Mark		
Manufacturer.....	LUG Light Factory Sp.z o.o.	
Model/Type reference	URBINI LED see page 4	
Ratings	220-240 V, 50-60 Hz, 14, 20, 28, 42 W LED, IP 66, IK08, class II	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
☒	CB Testing Laboratory:	
Testing location/ address	Elektrotechnický zkušební ústav (EZÚ) Pod Lisem 129, 171 02 Praha 71 – Troja, Czech Republic	
☐	Associated CB Testing Laboratory:	
Testing location/ address		
Tested by (name, function, signature)	Lukáš Fér	
Approved by (name, function, signature)....	Zdeněk Dvořák	
☐	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 (one page)

Annex 3: photo (two pages)

Annex 4: instruction (two pages)

Attachement 1: Photobiological hazard ČSN EN 62471 blue light hazard only (one page)

Summary of testing:**Tests performed (name of test and test clause): all required tests****Testing location: as above****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.



Test item particulars	
Classification of installation and use : Luminaires for road and street lighting	
Supply Connection : Wires	
..... :	
Possible test case verdicts:	
- test case does not apply to the test object : N/A (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 : 03. 07. 2017	
Date (s) of performance of tests : 03. 07. 2017 - 02. 08. 2017	
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 IEC60598-2:	
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:	
The tested sample was selected in accordance with Annex S of ČSN EN 60958-1.	
Tested type: LUG URBINI LED 130232.5L232.101 220-240 V, 50/60 Hz, IP 66, class II, ta 45 °C, IK 08	

IEC / EN 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 II	—
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		N/A
3.5 (3.3.2)	Nominal frequency in Hz		P
3.5 (3.3.3)	Operating temperature		N/A
3.5 (3.3.4)	Symbol or warning notice		N/A
3.5 (3.3.5)	Wiring diagram		P
3.5 (3.3.6)	Special conditions		N/A
3.5 (3.3.7)	Metal halide lamp luminaire – warning		N/A
3.5 (3.3.8)	Limitation for semi-luminaires		N/A
3.5 (3.3.9)	Power factor and supply current		N/A

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.5 (3.3.10)	Suitability for use indoors		N/A
3.5 (3.3.11)	Luminaires with remote control		N/A
3.5 (3.3.12)	Clip-mounted luminaire – warning		N/A
3.5 (3.3.13)	Specifications of protective shields		N/A
3.5 (3.3.14)	Symbol for nature of supply		N/A
3.5 (3.3.15)	Rated current of socket outlet		N/A
3.5 (3.3.16)	Rough service luminaire		N/A
3.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments		N/A
3.5 (3.3.18)	Non-ordinary luminaires with PVC cable		N/A
3.5 (3.3.19)	Protective conductor current in instruction if applicable		N/A
3.5 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
3.5 (3.3.21)	Non-replaceable and non-user replaceable light sources information provided		N/A
	Cautionary symbol		N/A
3.5 (3.3.22)	Controllable luminaires, classification of insulation provided		N/A
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		N/A
	g) Dimensions of the compartment		N/A
	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 / EN 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		N/A
3.6 (4.4.2)	Wiring connection		N/A
3.6 (4.4.3)	Lampholder for end-to-end mounting		N/A
3.6 (4.4.4)	Positioning		N/A
	- pressure test (N)		—
	After test the lampholder comply with relevant standard sheets and show no damage		N/A
	After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation		N/A
	- bending test (N)		—
	After test the lampholder have not moved from its position and show no permanent deformation		N/A
3.6 (4.4.5)	Peak pulse voltage		N/A
3.6 (4.4.6)	Centre contact		N/A
3.6 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
3.6 (4.4.8)	Lamp connectors		N/A
3.6 (4.4.9)	Caps and bases correctly used		N/A
3.6 (4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way		N/A
3.6 (4.5)	Starter holders		
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
3.6 (4.6)	Terminal blocks		
	Tails		P
	Unsecured blocks		N/A
3.6 (4.7)	Terminals and supply connections		
3.6 (4.7.1)	Contact to metal parts		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		N/A
3.6 (4.7.3.1)	Welded method and material		
	- stranded or solid conductor		N/A
	- spot welding		N/A

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

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- unable to be replaced; luminaire inoperative		N/A
	- sleeves retained in position		N/A
	- lining in lampholder		N/A
3.6 (4.11)	Electrical connections and current-carrying parts		
3.6 (4.11.1)	Contact pressure		N/A
3.6 (4.11.2)	Screws:		
	- self-tapping screws		P
	- thread-cutting screws		N/A
3.6 (4.11.3)	Screw locking:		
	- spring washer		P
	- rivets		N/A
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		N/A
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		N/A
	Torque test: torque (Nm); part.....:	1,2; Driver cover	P
	Torque test: torque (Nm); part.....:		N/A
	Torque test: torque (Nm); part.....:		N/A
3.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
3.6 (4.12.4)	Locked connections:		
	- fixed arms; torque (Nm).....:		N/A
	- lampholder; torque (Nm)		N/A
	- push-button switches; torque 0,8 Nm.....:		N/A
3.6 (4.12.5)	Screwed glands; force (Nm)	2,5	P
3.6 (4.13)	Mechanical strength		
3.6 (4.13.1)	Impact tests:		
	- fragile parts; energy (Nm).....:	Optical part; 5 (IK 08)	P
	- other parts; energy (Nm)	Body, covers; 5 (IK 08)	P
	1) live parts		P
	2) linings		N/A
	3) protection		P
	4) covers		P

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.6 (4.13.3)	Straight test finger		P
3.6 (4.13.4)	Rough service luminaires		
	- IP54 or higher		N/A
	a) fixed		N/A
	b) hand-held		N/A
	c) delivered with a stand		N/A
	d) for temporary installations and suitable for mounting on a stand		N/A
3.6 (4.13.6)	Tumbling barrel		N/A
3.6 (4.14)	Suspensions, fixings and means of adjusting		
3.6 (4.14.1)	Mechanical load:		
	A) four times the weight		N/A
	B) torque 2,5 Nm		N/A
	C) bracket arm; bending moment (Nm)		N/A
	D) load track-mounted luminaires		N/A
	E) clip-mounted luminaires, glass-shelve. Thickness (mm)		N/A
	Metal rod. diameter (mm)		N/A
	Fixed luminaire or independent control gear without fixing devices		N/A
3.6 (4.14.2)	Load to flexible cables		
	Mass (kg)		—
	Stress in conductors (N/mm ²)		N/A
	Mass (kg) of semi-luminaire		—
	Bending moment (Nm) of semi-luminaire		N/A
3.6 (4.14.3)	Adjusting devices:		
	- flexing test; number of cycles		N/A
	- strands broken.....		N/A
	- electric strength test afterwards		N/A
3.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
3.6 (4.14.5)	Guide pulleys		N/A
3.6 (4.14.6)	Strain on socket-outlets		N/A
3.6 (4.15)	Flammable materials		
	- glow-wire test 650°C		N/A

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- spacing ≥ 30 mm		N/A
	- screen withstanding test of 13.3.1		N/A
	- screen dimensions		N/A
	- no fiercely burning material		N/A
	- thermal protection		N/A
	- electronic circuits exempted		N/A
3.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		
	a) construction		N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A
3.6 (4.16)	Luminaires for mounting on normally flammable surfaces		
	No lamp control gear	(compliance with Section 12)	N/A
3.6 (4.16.1)	Lamp control gear spacing:		
	- spacing 35 mm		P
	- spacing 10 mm		N/A
3.6 (4.16.2)	Thermal protection:		
	- in lamp control gear		P
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear		P
3.6 (4.16.3)	Design to satisfy the test of 12.6	(see clause 12.6)	N/A
3.6 (4.17)	Drain holes		
	Clearance at least 5 mm		N/A
3.6 (4.18)	Resistance to corrosion		
3.6 (4.18.1)	- rust-resistance		N/A
3.6 (4.18.2)	- season cracking in copper		N/A
3.6 (4.18.3)	- corrosion of aluminium		N/A
3.6 (4.19)	Igniters compatible with ballast		N/A
3.6 (4.20)	Rough service vibration		N/A
3.6 (4.21)	Protective shield		
3.6 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		N/A
	Shield of glass if tungsten halogen lamps		N/A
3.6 (4.21.2)	Particles from a shattering lamp not impair safety		N/A

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.6 (4.21.3)	No direct path		N/A
3.6 (4.21.4)	Impact test on shield		N/A
	Glow-wire test on lamp compartment.....:		N/A
3.6 (4.22)	Attachments to lamps not cause overheating or damage		N/A
3.6 (4.23)	Semi-luminaires comply Class II		N/A
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)		N/A
3.6 (4.24.2)	Retinal blue light hazard	Risk Group 1	
	Luminaires with E_{thr} :		
	a) Fixed luminaires		N/A
	- distance x m, borderline between RG1 and RG2....:		N/A
	- marking and instruction according 3.2.23		N/A
	b) Portable and handheld luminaires		N/A
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		N/A
	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		N/A
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		N/A
3.6 (4.26.2)	Short-circuit test with test chain according 4.26.3		
	Test chain not melt through		N/A
	Test sample not exceed values of Table 12.1 and 12.2		N/A
3.6 (4.27)	Terminal blocks with integrated screwless earthing contacts		
	Test according Annex V		N/A
	Pull test of terminal fixing (20 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Pull test of mechanical connection (50 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Voltage drop test, resistance < 0,05 Ω		N/A

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.6 (4.28)	Fixing of thermal sensing control		
	Not plug-in or easily replaceable type		N/A
	Reliably kept in position		N/A
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N/A
	Not outside the luminaire enclosure		N/A
	Test of adhesive fixing:		
	Max. temperature on adhesive material (°C).....:		—
	100 cycles between t min and t max		N/A
	Temperature sensing control still in position		N/A
3.6 (4.29)	Luminaires with non-replaceable light source		
	Not possible to replace light source		N/A
	Live part not accessible after parts have been opened by hand or tools		N/A
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		N/A
3.6 (4.31)	Insulation between circuits		
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		P
	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		P
3.6 (4.31.1)	SELV circuits		
	Used SELV source		P
	Voltage ≤ ELV		P
	Insulating of SELV circuits from LV supply		P
	Insulating of SELV circuits from other non SELV circuits		N/A
	Insulating of SELV circuits from FELV		N/A
	Insulating of SELV circuits from other SELV circuits		N/A
	SELV circuits insulated from accessible parts according Table X.1		P
	Plugs not able to enter socket-outlets of other voltage systems		N/A

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Socket outlets does not admit plugs of other voltage systems		N/A
	Plugs and socket-outlets does not have protective conductor contact		N/A
3.6 (4.31.2)	FELV circuits		
	Used FELV source		N/A
	Voltage $\leq$ ELV		N/A
	Insulating of FELV circuits from LV supply		N/A
	FELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to enter socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Socket-outlets does not have protective conductor contact		N/A
3.6 (4.31.3)	Other circuits		
	Other circuits insulated from accessible parts according Table X.1		P
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		
	- conductive parts are connected together		N/A
	- test according 7.2.3 of above		N/A
	- conductive part not cause an electric shock in case of an insulation fault		N/A
	- equipotential bonding in master/slave applications		N/A
	- master luminaire provided with terminal for accessible conductive parts of slave luminaires		N/A
	- slave luminaire constructed as class I		N/A
3.6 (4.32)	Overvoltage protective devices		
	Comply with IEC 61643-11		N/A
	External to controlgear and connected to earth:		
	- only in fixed luminaires		N/A
	- only connected to protective earth		N/A
3.6.1 (-)	At least IP X3 or X5 respectively. IP :		N/A
	Column-integrated luminaires:		
	- parts below 2,5 m. IP :		N/A
	- parts above 2,5 m. IP :	IP66	P

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.6.2 (-)	Suspension on span wires		N/A
3.6.3 (-)	Means for attaching the luminaire or external parts to its support appropriate to the weight		N/A
3.6.3.1 (-)	Static load test		
	- drag coefficient	1,2	P
	- loaded area (m ²)	0,03489	P
	- used load (N)	51	P
	- measured deformation (cm/m)	0,1	P
	- no rotation		P
3.6.4 (-)	Adjustable lampholders		N/A
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		N/A
	b) glass having a high impact shock resistance (test according to 3.6.5.2), or		N/A
	c) protected by any means to retain glass fragments		N/A
	For tunnel luminaires 3.6.5.1 apply		N/A
	Method of protection declared by the manufacturer		N/A
3.6.5.1 (-)	Protection by the use of glass that fractures into small pieces		
	- number of particles is more than 40		N/A
3.6.5.2 (-)	Protection by the use of high impact resistant glass		
3.6.5.2.1 (-)	Glass covers have high mechanical strength		N/A
	Test according IEC 62262 with test apparatus according IEC 60068-2-75 with impact energy of 5J on preconditioned sample		N/A
3.6.5.2.2 (-)	Glass covers not break into large pieces		N/A
	- test according 3.6.5.1, number of particles is more than 20		N/A
3.6.6 (-)	Connection compartment of column-integrated luminaire		
	- provides adequate space		N/A
	- means for attachment		N/A
	- means for attachment of metal corrosion-resistant		N/A
3.6.7 (-)	Compliance with ISO standard or other		N/A
3.6.8 (-)	Doors of column-integrated luminaires:		
	- corrosion-resistant		N/A
	- opening only possible for an authorized person		N/A

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- impact test 5 Nm		N/A
	- sample show no damage		N/A
3.6.9 (-)	Column-integrated luminaire:		
	- dimension of the cable entry slot (mm)		N/A
	- cable path from the slot to the connection compartment (mm)		N/A
	- cable path free from obstruction that might cause abrasion of the cable		N/A

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		N/A
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a grove		N/A
	Earth makes contact first		N/A
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
	Protective earthing of the luminaire not via built-in control gear		N/A
3.8 (7.2.2 + 7.2.3)	Earth continuity in joints, etc.		N/A
3.8 (7.2.4)	Locking of clamping means		N/A
	Compliance with 4.7.3		N/A

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
3.8 (7.2.5)	Earth terminal integral part of connector socket		N/A
3.8 (7.2.6)	Earth terminal adjacent to mains terminals		N/A
3.8 (7.2.7)	Electrolytic corrosion of the earth terminal		N/A
3.8 (7.2.8)	Material of earth terminal		P
	Contact surface bare metal		N/A
3.8 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
3.8 (7.2.11)	Earthing core coloured green-yellow		N/A
	Length of earth conductor		N/A
3.8.1 (-)	Attachment prevented from rotation		P

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

3.9 (15)	SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS		
	Separately approved; component list	(see Annex 1)	N/A
	Part of the luminaire	(see Annex 4)	N/A

3.10 (5)	EXTERNAL AND INTERNAL WIRING		
3.10 (5.2)	Supply connection and external wiring		
3.10 (5.2.1)	Means of connection	Prepared wires	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		P
3.10 (5.2.2)	Type of cable	H03VV-F	P
	Nominal cross-sectional area (mm ²)	0,75	P
	Cables equal to IEC 60227 or IEC 60245		P
3.10 (5.2.3)	Type of attachment, X, Y or Z	X	P
3.10 (5.2.5)	Type Z not connected to screws		N/A
3.10 (5.2.6)	Cable entries:		
	- suitable for introduction		N/A
	- adequate degree of protection		N/A

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.10 (5.2.7)	Cable entries through rigid material have rounded edges		P
3.10 (5.2.8)	Insulating bushings:		
	- suitably fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
3.10 (5.2.9)	Locking of screwed bushings		N/A
3.10 (5.2.10)	Cord anchorage:		
	- covering protected from abrasion		N/A
	- clear how to be effective		N/A
	- no mechanical or thermal stress		N/A
	- no tying of cables into knots etc.		N/A
	- insulating material or lining		N/A
3.10 (5.2.10.1)	Cord anchorage for type X attachment:		
	a) at least one part fixed		P
	b) types of cable		P
	c) no damaging of the cable		P
	d) whole cable can be mounted		P
	e) no touching of clamping screws		P
	f) metal screw not directly on cable		P
	g) replacement without special tool		P
	Glands not used as anchorage		N/A
	Labyrinth type anchorages		N/A
3.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		N/A
3.10 (5.2.10.3)	Tests:		
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N).....: 30		P
	- torque test: torque (Nm): 0,08		P
	- displacement ≤ 2 mm		P
	- no movement of conductors		P
	- no damage of cable or cord		P

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- function independent of electrical connection		N/A
3.10 (5.2.11)	External wiring passing into luminaire		N/A
3.10 (5.2.12)	Looping-in terminals		N/A
3.10 (5.2.13)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N/A
3.10 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A
	No unsafe compatibility		N/A
3.10 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A
	Other appliance inlet or connector according relevant IEC standard		N/A
3.10 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
3.10 (5.2.18)	Used plug in accordance with		
	- IEC 60083		N/A
	- other standard		N/A
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		N/A
	- factory assembled		P
	- socket outlet loaded (A).....:		N/A
	- temperatures:	(see Annex 2)	N/A
	Green-yellow for earth only		N/A
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		N/A
3.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		N/A

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Adequate cross-sectional area and insulation thickness		N/A
3.10 (5.3.1.3)	Double or reinforced insulation for class II		N/A
3.10 (5.3.1.4)	Conductors without insulation		N/A
3.10 (5.3.1.5)	SELV current-carrying parts		N/A
3.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
3.10 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		N/A
	Joints, raising/lowering devices		N/A
	Telescopic tubes etc.		N/A
	No twisting over 360°		N/A
3.10 (5.3.3)	Insulating bushings:		
	- suitable fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- cables with protective sheath		N/A
3.10 (5.3.4)	Joints and junctions effectively insulated		N/A
3.10 (5.3.5)	Strain on internal wiring		N/A
3.10 (5.3.6)	Wire carriers		P
3.10 (5.3.7)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N/A
3.10.1 (-)	Cord anchorage if applicable		N/A
	- pull test: 25 times; pull (N)..... :		N/A
	- torque test: torque (Nm) :		N/A

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

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires		N/A
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N/A
	Basic insulation only accessible under lamp or starter replacement		N/A
	Protection in any position		P
	Double-ended tungsten filament lamp		N/A
	Insulation lacquer not reliable		P
	Double-ended high pressure discharge lamp		N/A
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
3.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N/A
3.11 (8.2.3.a)	Class II luminaire:		
	- basic insulated metal parts not accessible during starter or lamp replacement		N/A
	- basic insulation not accessible other than during starter or lamp replacement		N/A
	- glass protective shields not used as supplementary insulation		N/A
3.11 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed		N/A
3.11 (8.2.3.c)	SELV circuits with exposed current carrying parts:		
	Ordinary luminaire:		
	- touch current		N/A
	- no-load voltage		N/A
	Other than ordinary luminaire:		
	- nominal voltage		N/A
3.11 (8.2.4)	Portable luminaire have protection independent of supporting surface		N/A
3.11 (8.2.5)	Compliance with the standard test finger or relevant probe		N/A
3.11 (8.2.6)	Covers reliably secured		P
3.11 (8.2.7)	Discharging of capacitors $\geq 0,5 \mu\text{F}$		N/A
	Portable plug connected luminaire with capacitor		N/A

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Other plug connected luminaire with capacitor		N/A
	Discharge device on or within capacitor		N/A
	Discharge device mounted separately		N/A

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)	55	—
	- total duration (h)	240	—
	- supply voltage: Un factor; calculated voltage (V)	253	—
	- lamp used	LED module	—
3.12 (12.3.2)	After endurance test:		
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N/A
	- 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)	N/A
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		N/A
	- measured winding temperature (°C): at 1,1 Un		—
	- measured mounting surface temperature (°C) at 1,1 Un		N/A
	- calculated mounting surface temperature (°C)		N/A
	- track-mounted luminaires		N/A
3.12 (12.6.2)	Temperature sensing control		
	- case of abnormal conditions		—

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- thermal link		N/A
	- manual reset cut-out		N/A
	- auto reset cut-out		N/A
	- measured mounting surface temperature (°C).....:		N/A
	- track-mounted luminaires		N/A
3.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		
3.12 (12.7.1)	Luminaire without temperature sensing control		N/A
3.12 (12.7.1.1)	Luminaire with fluorescent lamp ≤ 70W		N/A
	Test method 12.7.1.1 or Annex W		—
	Test according to 12.7.1.1:		
	- case of abnormal conditions.....:		—
	- Ballast failure at supply voltage (V)		—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
	Test according to Annex W:		
	- case of abnormal conditions.....:		—
	- measured winding temperature (°C): at 1,1 Un		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un.....:		—
	- calculated temperature of fixing point/exposed part (°C)		—
	Ball-pressure test.....:		N/A
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.....:		N/A
3.12 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		N/A
	- case of abnormal conditions.....:		—

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
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:.....		N/A
3.12.1 (-)	Temperature reduction if for outdoor use only		N/A
3.12.2 (-)	(See above)		—
3.12.3 (-)	Glass covers used within the thermal limits declared by the glass manufacturer		N/A

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).....		—
	- tests according to clauses	9.2.2, 9.2.7	—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		N/A
	b) no talcum in dust-tight luminaire		P
	c) no trace of water on current-carrying parts or on insulation where it could become a hazard		N/A
	d) i) For luminaires without drain holes – no water entry		N/A
	d) ii) For luminaires with drain holes – no hazardous water entry		N/A
	e) no water in watertight luminaire		P
	f) no contact with live parts (IP 2X)		N/A
	f) no entry into enclosure (IP 3X and IP 4X)		N/A
	f) no contact with live parts (IP3X and IP4X)		N/A

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	g) no trace of water on part of lamp requiring protection from splashing water		P
	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		P
	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 :		N/A
	- between current-carrying parts and mounting surface	>110 MΩ	P
	- between current-carrying parts and metal parts of the luminaire	>110 MΩ	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts		N/A
	- Insulation bushings as described in Section 5		N/A
	Other than SELV		
	- between live parts of different polarity		N/A
	- between live parts and mounting surface	>550 MΩ	P
	- between live parts and metal parts	>550 MΩ	P
	- between live parts of different polarity through action of a switch		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts	>550 MΩ	P
	- Insulation bushings as described in Section 5		N/A
3.14 (10.2.2)	Electric strength test		P
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test		N/A
	Luminaires with manual ignitors		N/A
	Test voltage (V)		N/A
	SELV		

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface	500 V	P
	- between current-carrying parts and metal parts of the luminaire	500 V	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts		N/A
	- Insulation bushings as described in Section 5		N/A
	Other than SELV		
	- between live parts of different polarity		N/A
	- between live parts and mounting surface	2920 V	P
	- between live parts and metal parts	2920 V	P
	- between live parts of different polarity through action of a switch		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts	2920 V	P
	- Insulation bushings as described in Section 5		N/A
3.14 (10.3)	Touch current (mA)	0,025	P
	Protective conductor current (mA)		N/A

3.15 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		
3.15 (13.2.1)	Ball-pressure test		N/A
3.15 (13.3.1)	Needle-flame test (10 s)		N/A
3.15 (13.3.2)	Glow-wire test (650°C)		N/A
3.15 (13.4)	Proof tracking test (IEC 60112)		N/A

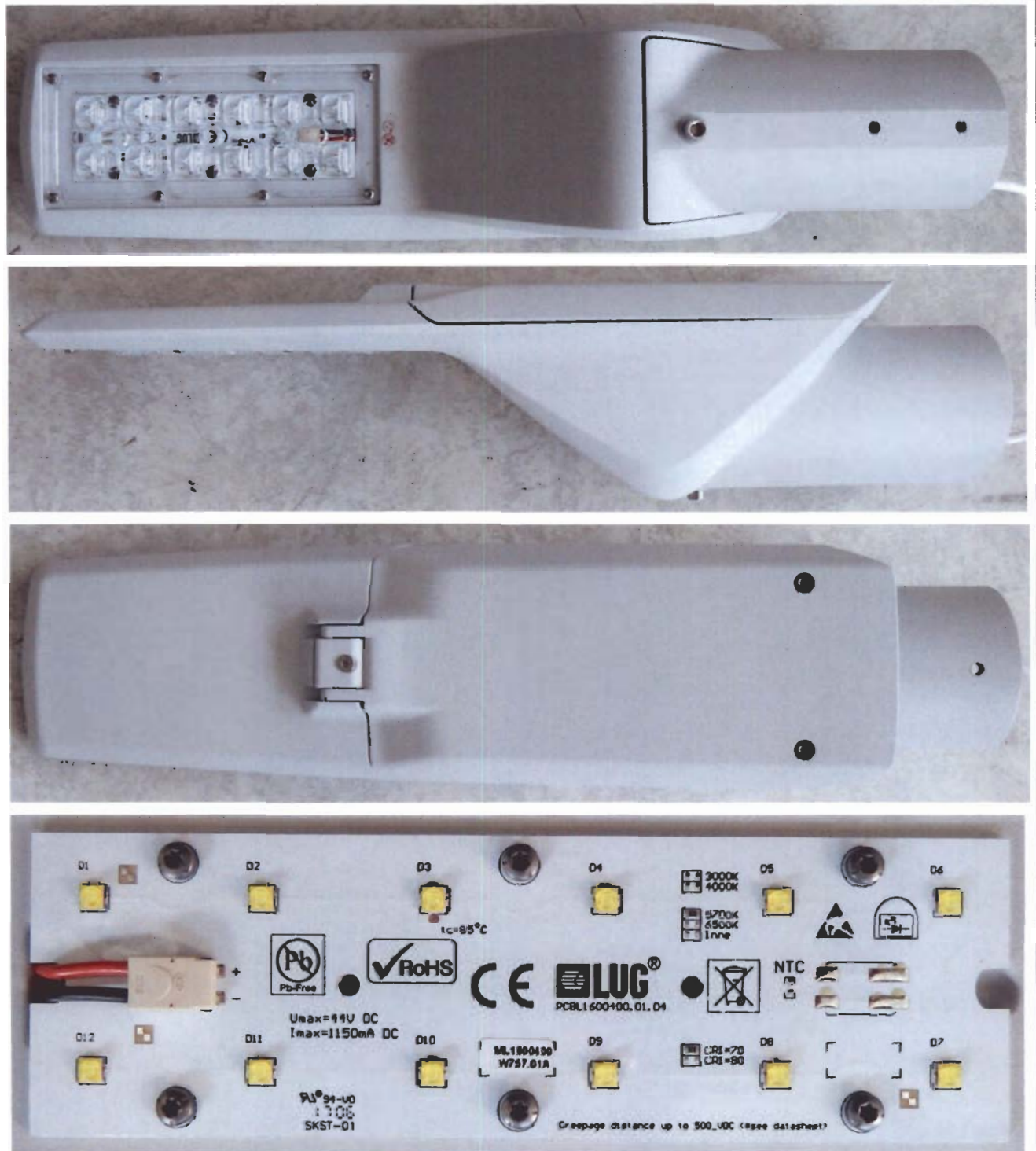
IEC / EN 60598-2-3								
Clause	Requirement + Test			Result - Remark			Verdict	
3.7 (11.2)	TABLES: Creepage distances and clearances							
Table 11.1	Minimum distances (mm) for a.c. (50/60 Hz) sinusoidal voltages							
RMS working voltage (V) not exceeding		50	150	250	500	750	1000	
Creepage distances: see critical component								
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		-	-	-	-	-	-	
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			-	≥ 5	-	-	-	
Clearances								
Required basic insulation		0,2	0,8	1,5	3	4	5,5	
Measured		-	-	-	-	-	-	
Required supplementary insulation		-	0,8	1,5	3	4	5,5	
Measured			-	-	-	-	-	
Required reinforced insulation		-	1,6	3	6	8	11	
Measured			-	≥ 3	-	-	-	
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 / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.15 (13.2.1)	TABLE: Ball Pressure Test of Thermoplastics		N/A
3.15 (13.3.1)	TABLE: Needle-flame test (IEC 60695-11-5)		N/A
3.15 (13.3.2)	TABLE: Glow-wire test (IEC 60695-2-11)		N/A
3.15 (13.4)	TABLE: Proof tracking test (IEC 60112)		N/A

ANNEX 1		TABLE: Critical components information					
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾	
Description:		LUG URBINI LED 130232.5L232.101					
LED module	B	LUG	ML180400 W757.01A	U _{max} 44 V, t _c 85 °C, I _{max} 1150 mA	62031	Tested in equipment	
Driver	B	PHILIPS	Xitanium Lite Prog 40W 0.3-1.0A sXt	220-240 V, 50/60 Hz, t _c 85 °C		ENEC 05	
Wires LED	B		LGY	300/500 V, 0,5 mm ²	IEC227		
Insulating sleeve	B	Isolcavi	GVES 1500	1,5 kV, 250 °C		UL	
Ext. wires	B	Nkt cable	H03VV-F	2 x 0,75 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.....:	LUG URBINI LED 130232.5L232.101	—				
	Lamp used.....:	LED module LUG	—				
	Lamp control gear used.....:	Philips Xitanium	—				
	Mounting position of luminaire.....:	On pipe	—				
	Supply wattage (W).....:	26,9	—				
	Supply current (A).....:	---	—				
	Calculated power factor.....:	---	—				
	Table: measured temperatures corrected for ta = 45 °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
LED module tc	45	69	---	---	85	---	---
Driver tc	45	71	---	---	85	---	---
LED wires	45	---	65	---	90	---	---
Internal wires	45	---	57	---	90	---	---
Terminal block	45	---	45	---	85	---	---
External wires	45	---	45	---	90	---	---
Supplementary information: Temperature marked control gear 120 °C.							

ANNEX 3 Photo



ANNEX 3 Photo



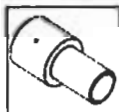
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 Unikaj bezpośredniego patrzenia na źródła światła.
Avoid direct looking at light sources.
É faut éviter un regard direct sur les sources de lumière.
Evita el mirar directo a la fuente de luz.
Не смотреть непосредственно на светящиеся источники света.
Den direkten Augenkontakt in die Licht vermeiden.

 Wymień uszkodzoną szybę.
Replace broken glass.
Remplacement du verre cassé.
Substituir o vidro quebrado.
Заменить поврежденное стекло.
Ausgetauscht zerbrochenes Glas.

 Niezostawiaj instrukcję należy zachować do przyszłego wykorzystania.
Keep this instruction leaflet for any further reference.
Conserver cette notice jusqu'à un emploi prochain.
Este manual debe ser mantenido para futuro uso.
Начеблужку експлуатации чрепачер папавары для блыжэйшага выкарыстання.
Das vorliegende Bedienungsanleitung für zukünftigen Bedarf aufbewahren.

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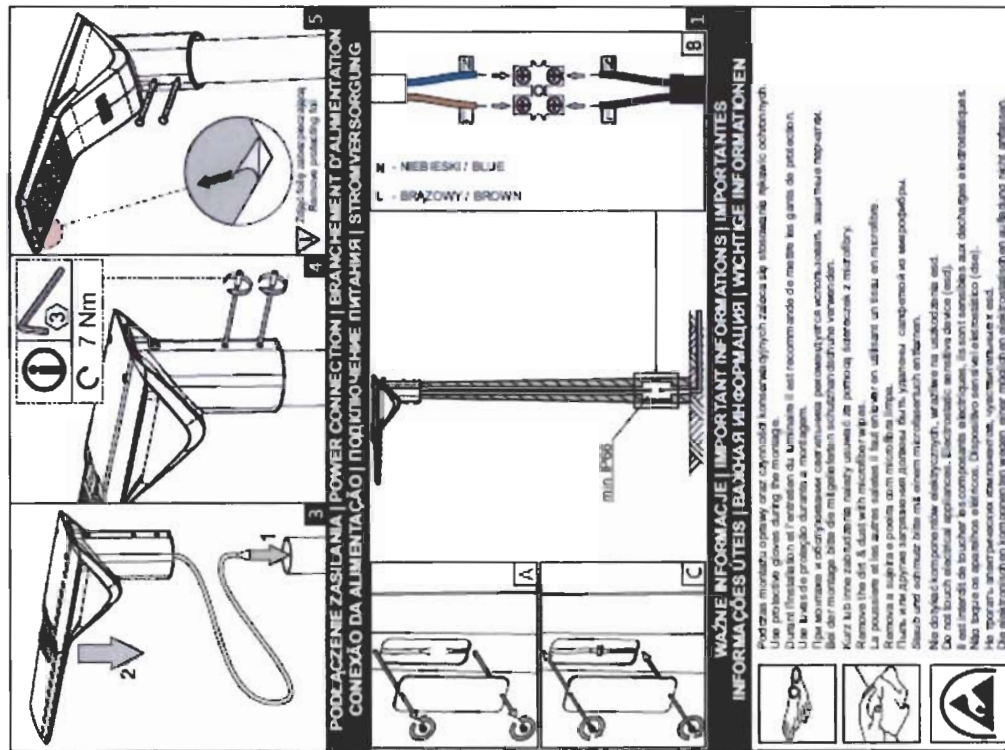
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Reductor 60/76mm
Reducer 60/76mm
Réducteur 60/76mm
Redutor 60/76mm
Редуктор 60/76мм
Mindener 60/76mm

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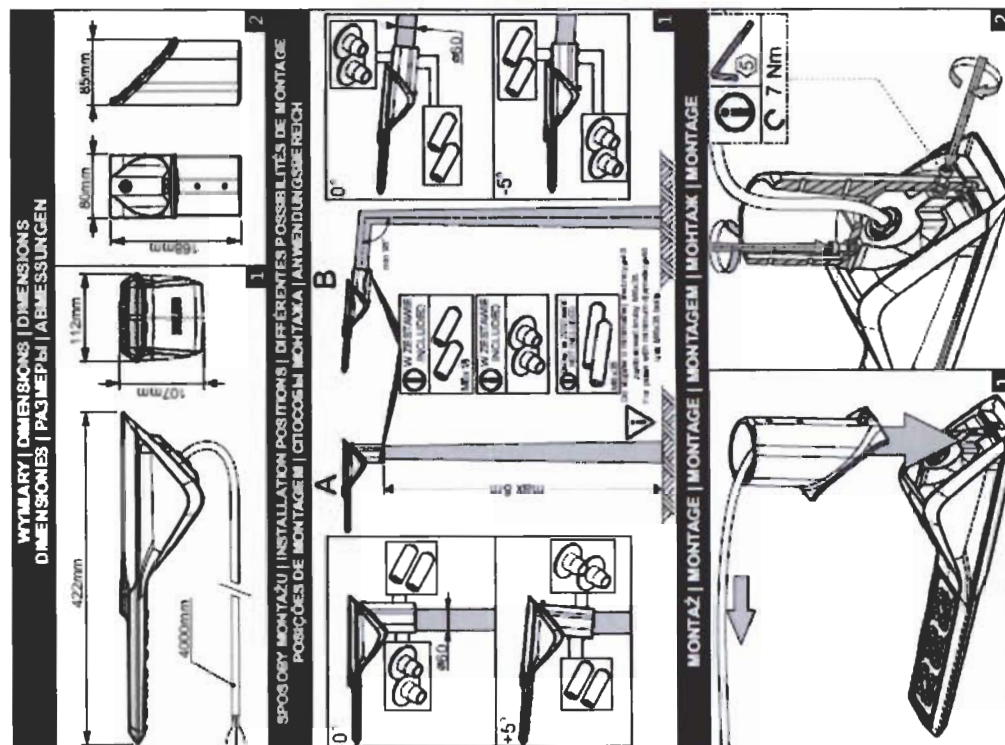
INFORMACJA
Wskazane symbole znajdują się na opakowaniu produktu.
Allgemeine Symbole befinden sich auf dem Produktverpackung.
Bilder sind elektronisch.
30-000, 30-001, 30-002, 30-003, 30-004, 30-005, 30-006, 30-007, 30-008, 30-009, 30-010, 30-011, 30-012, 30-013, 30-014, 30-015, 30-016, 30-017, 30-018, 30-019, 30-020, 30-021, 30-022, 30-023, 30-024, 30-025, 30-026, 30-027, 30-028, 30-029, 30-030, 30-031, 30-032, 30-033, 30-034, 30-035, 30-036, 30-037, 30-038, 30-039, 30-040, 30-041, 30-042, 30-043, 30-044, 30-045, 30-046, 30-047, 30-048, 30-049, 30-050, 30-051, 30-052, 30-053, 30-054, 30-055, 30-056, 30-057, 30-058, 30-059, 30-060, 30-061, 30-062, 30-063, 30-064, 30-065, 30-066, 30-067, 30-068, 30-069, 30-070, 30-071, 30-072, 30-073, 30-074, 30-075, 30-076, 30-077, 30-078, 30-079, 30-080, 30-081, 30-082, 30-083, 30-084, 30-085, 30-086, 30-087, 30-088, 30-089, 30-090, 30-091, 30-092, 30-093, 30-094, 30-095, 30-096, 30-097, 30-098, 30-099, 30-100, 30-101, 30-102, 30-103, 30-104, 30-105, 30-106, 30-107, 30-108, 30-109, 30-110, 30-111, 30-112, 30-113, 30-114, 30-115, 30-116, 30-117, 30-118, 30-119, 30-120, 30-121, 30-122, 30-123, 30-124, 30-125, 30-126, 30-127, 30-128, 30-129, 30-130, 30-131, 30-132, 30-133, 30-134, 30-135, 30-136, 30-137, 30-138, 30-139, 30-140, 30-141, 30-142, 30-143, 30-144, 30-145, 30-146, 30-147, 30-148, 30-149, 30-150, 30-151, 30-152, 30-153, 30-154, 30-155, 30-156, 30-157, 30-158, 30-159, 30-160, 30-161, 30-162, 30-163, 30-164, 30-165, 30-166, 30-167, 30-168, 30-169, 30-170, 30-171, 30-172, 30-173, 30-174, 30-175, 30-176, 30-177, 30-178, 30-179, 30-180, 30-181, 30-182, 30-183, 30-184, 30-185, 30-186, 30-187, 30-188, 30-189, 30-190, 30-191, 30-192, 30-193, 30-194, 30-195, 30-196, 30-197, 30-198, 30-199, 30-200, 30-201, 30-202, 30-203, 30-204, 30-205, 30-206, 30-207, 30-208, 30-209, 30-210, 30-211, 30-212, 30-213, 30-214, 30-215, 30-216, 30-217, 30-218, 30-219, 30-220, 30-221, 30-222, 30-223, 30-224, 30-225, 30-226, 30-227, 30-228, 30-229, 30-230, 30-231, 30-232, 30-233, 30-234, 30-235, 30-236, 30-237, 30-238, 30-239, 30-240, 30-241, 30-242, 30-243, 30-244, 30-245, 30-246, 30-247, 30-248, 30-249, 30-250, 30-251, 30-252, 30-253, 30-254, 30-255, 30-256, 30-257, 30-258, 30-259, 30-260, 30-261, 30-262, 30-263, 30-264, 30-265, 30-266, 30-267, 30-268, 30-269, 30-270, 30-271, 30-272, 30-273, 30-274, 30-275, 30-276, 30-277, 30-278, 30-279, 30-280, 30-281, 30-282, 30-283, 30-284, 30-285, 30-286, 30-287, 30-288, 30-289, 30-290, 30-291, 30-292, 30-293, 30-294, 30-295, 30-296, 30-297, 30-298, 30-299, 30-300, 30-301, 30-302, 30-303, 30-304, 30-305, 30-306, 30-307, 30-308, 30-309, 30-310, 30-311, 30-312, 30-313, 30-314, 30-315, 30-316, 30-317, 30-318, 30-319, 30-320, 30-321, 30-322, 30-323, 30-324, 30-325, 30-326, 30-327, 30-328, 30-329, 30-330, 30-331, 30-332, 30-333, 30-334, 30-335, 30-336, 30-337, 30-338, 30-339, 30-340, 30-341, 30-342, 30-343, 30-344, 30-345, 30-346, 30-347, 30-348, 30-349, 30-350, 30-351, 30-352, 30-353, 30-354, 30-355, 30-356, 30-357, 30-358, 30-359, 30-360, 30-361, 30-362, 30-363, 30-364, 30-365, 30-366, 30-367, 30-368, 30-369, 30-370, 30-371, 30-372, 30-373, 30-374, 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30-625, 30-626, 30-627, 30-628, 30-629, 30-630, 30-631, 30-632, 30-633, 30-634, 30-635, 30-636, 30-637, 30-638, 30-639, 30-640, 30-641, 30-642, 30-643, 30-644, 30-645, 30-646, 30-647, 30-648, 30-649, 30-650, 30-651, 30-652, 30-653, 30-654, 30-655, 30-656, 30-657, 30-658, 30-659, 30-660, 30-661, 30-662, 30-663, 30-664, 30-665, 30-666, 30-667, 30-668, 30-669, 30-670, 30-671, 30-672, 30-673, 30-674, 30-675, 30-676, 30-677, 30-678, 30-679, 30-680, 30-681, 30-682, 30-683, 30-684, 30-685, 30-686, 30-687, 30-688, 30-689, 30-690, 30-691, 30-692, 30-693, 30-694, 30-695, 30-696, 30-697, 30-698, 30-699, 30-700, 30-701, 30-702, 30-703, 30-704, 30-705, 30-706, 30-707, 30-708, 30-709, 30-710, 30-711, 30-712, 30-713, 30-714, 30-715, 30-716, 30-717, 30-718, 30-719, 30-720, 30-721, 30-722, 30-723, 30-724, 30-725, 30-726, 30-727, 30-728, 30-729, 30-730, 30-731, 30-732, 30-733, 30-734, 30-735, 30-736, 30-737, 30-738, 30-739, 30-740, 30-741, 30-742, 30-743, 30-744, 30-745, 30-746, 30-747, 30-748, 30-749, 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ANNEX 4 Instructions



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3/4



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

ATTACHMENT TO TEST REPORT IEC 60598-2-1
EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES
 LUMINAIRES
 PART 2: PARTICULAR REQUIREMENTS
 SECTION 1: LUMINAIRES FOR ROAD AND STREET LIGHTING

Differences according to : EN 60598-2-3:1989 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

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	CENELEC COMMON MODIFICATIONS (EN)	
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1.5 (3)	MARKING	
1.5 (3.3.101)	For luminaires not supplied with terminal block: Adequate warning on the package	---

1.6 (4)	CONSTRUCTION	
1.6 (4.11.6)	Electro-mechanical contact systems	---

1.10 (5)	EXTERNAL AND INTERNAL WIRING	
1.10 (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	---
1.10 (5.2.2)	Cables equal to EN 50525	---
	Replace table 5.1 – Supply cord	---

1.12 (12)	ENDURANCE TESTS AND THERMAL TESTS	
1.12 (12.4.2c)	Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring	---

EN 60598-2-3			
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		---

ČSN EN 62471			
Clause	Requirement + Test	Result - Remark	Verdict

Measured values

Risk	Symbol	Measured value	Group
Blue light	L_B	$104 \text{ W}\cdot\text{m}^{-2}\cdot\text{sr}^{-1}$	RG1

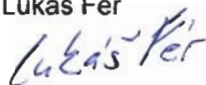
Measured with supply voltage 230 V. Ambient temperature 25 °C.
Measured at 500 lx distance.

Conclusion

Light source can be considered as light source in 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	$\text{W}\cdot\text{m}^{-2}\cdot\text{sr}^{-1}$	100	10000	4000000

Measured by: Lukáš Fér





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

No. of pages: 1
No. of annexes/No. of an. pages: 2/38

No. of the Test Report: 701588-01/01

Issued: 31. 7. 2017



TEST REPORT

Name of product: Luminaire for road and street lighting
Type of product: URBINI LED, class I
Ratings: 220-240 V, 50/60Hz, 21, 29, 38 W, IK 08, IP 66
Class I
Serial number: -
Manufacturer: LUG Light Factory Sp. z o.o.,
ul. Gorzowska 11, 65-127 Zielona Góra,
Republic of Poland
Production site: LUG Light Factory Sp. z o.o.,
ul. Gorzowska 11, 65-127 Zielona Góra,
Republic of Poland
Ordering firm: LUG Light Factory Sp. z o.o.,
ul. Gorzowska 11, 65-127 Zielona Góra,
Republic of Poland
Number of tested samples: 1
Samples submitted on: 3. 7. 2017
Location of testing: EZÚ
Tested from 3. 7. 2017 **through** 31. 7. 2017
Other data: -
The product was tested according to: IEC 60598-1:2014,
IEC 60598-2-3:02,
EN 60598-1:15,
EN 60598-2-3:03+A1:11,
~~IEC 62471:2006~~ blue light hazard only

Compiled by: Lukáš Fér



Approved by: Zdeněk Dvořák
Testing laboratory technical manager

Test results stated in the test report apply only to the tested subject and unless specified otherwise in the test report, the tests were performed using the method and under the conditions determined in the test regulations, technical norm, instructions for use and information provided by the manufacturer on the tested subject and using accessories required by the manufacturer.
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Test Report issued under the responsibility of:



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

Report Number..... : 701588-01/01
Date of issue : 31. 07. 2017
Total number of pages 37 + 1 Atachements (one page)

Name of Testing Laboratory **Elektrotechnický zkušební ústav (EZÚ)**
preparing the Report Pod Lisem 129, 171 02 Praha 71 – Troja, Czech Republic

Applicant's name LUG Light Factory Sp.z o.o.
Address Ul. Grozowska 11, 65-127 Żilena Góra, Poland

Test specification:

Standard : IEC 60598-1:2014,
IEC 60598-2-3:2002 + A1:2011
EN 60598-1:2015,
EN 60598-2-3:2003+A1:2011

Test procedure : CB, ENEC Scheme

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

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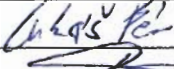
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Test item description	Luminaires for road and street lighting	
Trade Mark		
Manufacturer	LUG Light Factory Sp.z o.o.	
Model/Type reference	URBINI LED see page 4	
Ratings	220-240 V, 50-60 Hz, 21, 29, 38 W LED, IP 66, IK08, class I	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
☒ CB Testing Laboratory:		
Testing location/ address	Elektrotechnický zkušební ústav (EZÚ) Pod Lisem 129, 171 02 Praha 71 – Troja, Czech Republic	
☐ Associated CB Testing Laboratory:		
Testing location/ address		
Tested by (name, function, signature)	Lukáš Fér	
Approved by (name, function, signature) ...:	Zdeněk Dvořák	
☐ 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 (one page)
 Annex 3: photo (two pages)
 Annex 4: instruction (two pages)
 Attachment 1: Photobiological hazard ČSN EN 62471 blue light hazard only (one page)

Summary of testing:

Tests performed (name of test and test clause): all required tests

Testing location: as above

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.



Test item particulars	
Classification of installation and use : Luminaires for road and street lighting	
Supply Connection : Wires	
Possible test case verdicts:	
- test case does not apply to the test object : N/A (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 : 03. 07. 2017	
Date (s) of performance of tests : 03. 07. 2017 - 31. 07. 2017	
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 IEC 60598-1:	
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:	
The tested sample was selected in accordance with Annex S of ČSN EN 60958-1. Tested type: LUG URBINI LED 130232.5L111.101 220-240 V, 50/60 Hz, IP 66, class I, ta 35 °C, IK 08	

IEC / EN 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		N/A
3.5 (3.3.2)	Nominal frequency in Hz		P
3.5 (3.3.3)	Operating temperature		N/A
3.5 (3.3.4)	Symbol or warning notice		N/A
3.5 (3.3.5)	Wiring diagram		P
3.5 (3.3.6)	Special conditions		N/A
3.5 (3.3.7)	Metal halide lamp luminaire – warning		N/A
3.5 (3.3.8)	Limitation for semi-luminaires		N/A
3.5 (3.3.9)	Power factor and supply current		N/A

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.5 (3.3.10)	Suitability for use indoors		N/A
3.5 (3.3.11)	Luminaires with remote control		N/A
3.5 (3.3.12)	Clip-mounted luminaire – warning		N/A
3.5 (3.3.13)	Specifications of protective shields		N/A
3.5 (3.3.14)	Symbol for nature of supply		N/A
3.5 (3.3.15)	Rated current of socket outlet		N/A
3.5 (3.3.16)	Rough service luminaire		N/A
3.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments		N/A
3.5 (3.3.18)	Non-ordinary luminaires with PVC cable		N/A
3.5 (3.3.19)	Protective conductor current in instruction if applicable		N/A
3.5 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
3.5 (3.3.21)	Non-replaceable and non-user replaceable light sources information provided		N/A
	Cautionary symbol		N/A
3.5 (3.3.22)	Controllable luminaires, classification of insulation provided		N/A
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		N/A
	g) Dimensions of the compartment		N/A
	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 / EN 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		N/A
3.6 (4.4.2)	Wiring connection		N/A
3.6 (4.4.3)	Lampholder for end-to-end mounting		N/A
3.6 (4.4.4)	Positioning		N/A
	- pressure test (N)		—
	After test the lampholder comply with relevant standard sheets and show no damage		N/A
	After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation		N/A
	- bending test (N)		—
	After test the lampholder have not moved from its position and show no permanent deformation		N/A
3.6 (4.4.5)	Peak pulse voltage		N/A
3.6 (4.4.6)	Centre contact		N/A
3.6 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
3.6 (4.4.8)	Lamp connectors		N/A
3.6 (4.4.9)	Caps and bases correctly used		N/A
3.6 (4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way		N/A
3.6 (4.5)	Starter holders		
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
3.6 (4.6)	Terminal blocks		
	Tails		P
	Unsecured blocks		N/A
3.6 (4.7)	Terminals and supply connections		
3.6 (4.7.1)	Contact to metal parts		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		N/A
3.6 (4.7.3.1)	Welded method and material		
	- stranded or solid conductor		N/A
	- spot welding		N/A

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

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- unable to be replaced; luminaire inoperative		N/A
	- sleeves retained in position		N/A
	- lining in lampholder		N/A
3.6 (4.11)	Electrical connections and current-carrying parts		
3.6 (4.11.1)	Contact pressure		N/A
3.6 (4.11.2)	Screws:		
	- self-tapping screws		P
	- thread-cutting screws		N/A
3.6 (4.11.3)	Screw locking:		
	- spring washer		P
	- rivets		N/A
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		N/A
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		N/A
	Torque test: torque (Nm); part.....:	1,2; Driver cover	P
	Torque test: torque (Nm); part.....:		N/A
	Torque test: torque (Nm); part.....:		N/A
3.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
3.6 (4.12.4)	Locked connections:		
	- fixed arms; torque (Nm).....:		N/A
	- lampholder; torque (Nm)		N/A
	- push-button switches; torque 0,8 Nm.....:		N/A
3.6 (4.12.5)	Screwed glands; force (Nm)	2,5	P
3.6 (4.13)	Mechanical strength		
3.6 (4.13.1)	Impact tests:		
	- fragile parts; energy (Nm).....:	Optical part; 5 (IK 08)	P
	- other parts; energy (Nm)	Body, covers; 5 (IK 08)	P
	1) live parts		P
	2) linings		N/A
	3) protection		P
	4) covers		P

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.6 (4.13.3)	Straight test finger		P
3.6 (4.13.4)	Rough service luminaires		
	- IP54 or higher		N/A
	a) fixed		N/A
	b) hand-held		N/A
	c) delivered with a stand		N/A
	d) for temporary installations and suitable for mounting on a stand		N/A
3.6 (4.13.6)	Tumbling barrel		N/A
3.6 (4.14)	Suspensions, fixings and means of adjusting		
3.6 (4.14.1)	Mechanical load:		
	A) four times the weight		N/A
	B) torque 2,5 Nm		N/A
	C) bracket arm; bending moment (Nm).....:		N/A
	D) load track-mounted luminaires		N/A
	E) clip-mounted luminaires, glass-shelve. Thickness (mm)		N/A
	Metal rod. diameter (mm)		N/A
	Fixed luminaire or independent control gear without fixing devices		N/A
3.6 (4.14.2)	Load to flexible cables		
	Mass (kg)		—
	Stress in conductors (N/mm ²)		N/A
	Mass (kg) of semi-luminaire		—
	Bending moment (Nm) of semi-luminaire		N/A
3.6 (4.14.3)	Adjusting devices:		
	- flexing test; number of cycles		N/A
	- strands broken.....:		N/A
	- electric strength test afterwards		N/A
3.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
3.6 (4.14.5)	Guide pulleys		N/A
3.6 (4.14.6)	Strain on socket-outlets		N/A
3.6 (4.15)	Flammable materials		
	- glow-wire test 650°C		N/A

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- spacing ≥ 30 mm		N/A
	- screen withstanding test of 13.3.1		N/A
	- screen dimensions		N/A
	- no fiercely burning material		N/A
	- thermal protection		N/A
	- electronic circuits exempted		N/A
3.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		
	a) construction		N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A
3.6 (4.16)	Luminaires for mounting on normally flammable surfaces		
	No lamp control gear	(compliance with Section 12)	N/A
3.6 (4.16.1)	Lamp control gear spacing:		
	- spacing 35 mm		P
	- spacing 10 mm		N/A
3.6 (4.16.2)	Thermal protection:		
	- in lamp control gear		P
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear		P
3.6 (4.16.3)	Design to satisfy the test of 12.6	(see clause 12.6)	N/A
3.6 (4.17)	Drain holes		
	Clearance at least 5 mm		N/A
3.6 (4.18)	Resistance to corrosion		
3.6 (4.18.1)	- rust-resistance		N/A
3.6 (4.18.2)	- season cracking in copper		N/A
3.6 (4.18.3)	- corrosion of aluminium		N/A
3.6 (4.19)	Igniters compatible with ballast		N/A
3.6 (4.20)	Rough service vibration		N/A
3.6 (4.21)	Protective shield		
3.6 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		N/A
	Shield of glass if tungsten halogen lamps		N/A
3.6 (4.21.2)	Particles from a shattering lamp not impair safety		N/A

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.6 (4.21.3)	No direct path		N/A
3.6 (4.21.4)	Impact test on shield		N/A
	Glow-wire test on lamp compartment.....:		N/A
3.6 (4.22)	Attachments to lamps not cause overheating or damage		N/A
3.6 (4.23)	Semi-luminaires comply Class II		N/A
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)		N/A
3.6 (4.24.2)	Retinal blue light hazard	Risk Group 1	
	Luminaires with E_{thr} :		
	a) Fixed luminaires		N/A
	- distance x m, borderline between RG1 and RG2....:		N/A
	- marking and instruction according 3.2.23		N/A
	b) Portable and handheld luminaires		N/A
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		N/A
	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		N/A
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		N/A
3.6 (4.26.2)	Short-circuit test with test chain according 4.26.3		
	Test chain not melt through		N/A
	Test sample not exceed values of Table 12.1 and 12.2		N/A
3.6 (4.27)	Terminal blocks with integrated screwless earthing contacts		
	Test according Annex V		N/A
	Pull test of terminal fixing (20 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Pull test of mechanical connection (50 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Voltage drop test, resistance < 0,05 Ω		N/A

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.6 (4.28)	Fixing of thermal sensing control		
	Not plug-in or easily replaceable type		N/A
	Reliably kept in position		N/A
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N/A
	Not outside the luminaire enclosure		N/A
	Test of adhesive fixing:		
	Max. temperature on adhesive material (°C).....:		—
	100 cycles between t min and t max		N/A
	Temperature sensing control still in position		N/A
3.6 (4.29)	Luminaires with non-replaceable light source		
	Not possible to replace light source		N/A
	Live part not accessible after parts have been opened by hand or tools		N/A
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		N/A
3.6 (4.31)	Insulation between circuits		
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		P
	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		P
3.6 (4.31.1)	SELV circuits		
	Used SELV source		P
	Voltage ≤ ELV		P
	Insulating of SELV circuits from LV supply		P
	Insulating of SELV circuits from other non SELV circuits		N/A
	Insulating of SELV circuits from FELV		N/A
	Insulating of SELV circuits from other SELV circuits		N/A
	SELV circuits insulated from accessible parts according Table X.1		P
	Plugs not able to enter socket-outlets of other voltage systems		N/A

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Socket outlets does not admit plugs of other voltage systems		N/A
	Plugs and socket-outlets does not have protective conductor contact		N/A
3.6 (4.31.2)	FELV circuits		
	Used FELV source		N/A
	Voltage $\leq$ ELV		N/A
	Insulating of FELV circuits from LV supply		N/A
	FELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to enter socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Socket-outlets does not have protective conductor contact		N/A
3.6 (4.31.3)	Other circuits		
	Other circuits insulated from accessible parts according Table X.1		P
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		
	- conductive parts are connected together		N/A
	- test according 7.2.3 of above		N/A
	- conductive part not cause an electric shock in case of an insulation fault		N/A
	- equipotential bonding in master/slave applications		N/A
	- master luminaire provided with terminal for accessible conductive parts of slave luminaires		N/A
	- slave luminaire constructed as class I		N/A
3.6 (4.32)	Overvoltage protective devices		
	Comply with IEC 61643-11		N/A
	External to controlgear and connected to earth:		
	- only in fixed luminaires		N/A
	- only connected to protective earth		N/A
3.6.1 (-)	At least IP X3 or X5 respectively. IP :		N/A
	Column-integrated luminaires:		
	- parts below 2,5 m. IP :		N/A
	- parts above 2,5 m. IP :	IP66	P

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.6.2 (-)	Suspension on span wires		N/A
3.6.3 (-)	Means for attaching the luminaire or external parts to its support appropriate to the weight		N/A
3.6.3.1 (-)	Static load test		
	- drag coefficient	1,2	P
	- loaded area (m²)	0,03489	P
	- used load (N)	51	P
	- measured deformation (cm/m)	0,1	P
	- no rotation		P
3.6.4 (-)	Adjustable lampholders		N/A
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		N/A
	b) glass having a high impact shock resistance (test according to 3.6.5.2), or		N/A
	c) protected by any means to retain glass fragments		N/A
	For tunnel luminaires 3.6.5.1 apply		N/A
	Method of protection declared by the manufacturer		N/A
3.6.5.1 (-)	Protection by the use of glass that fractures into small pieces		
	- number of particles is more than 40		N/A
3.6.5.2 (-)	Protection by the use of high impact resistant glass		
3.6.5.2.1 (-)	Glass covers have high mechanical strength		N/A
	Test according IEC 62262 with test apparatus according IEC 60068-2-75 with impact energy of 5J on preconditioned sample		N/A
3.6.5.2.2 (-)	Glass covers not break into large pieces		N/A
	- test according 3.6.5.1, number of particles is more than 20		N/A
3.6.6 (-)	Connection compartment of column-integrated luminaire		
	- provides adequate space		N/A
	- means for attachment		N/A
	- means for attachment of metal corrosion-resistant		N/A
3.6.7 (-)	Compliance with ISO standard or other		N/A
3.6.8 (-)	Doors of column-integrated luminaires:		
	- corrosion-resistant		N/A
	- opening only possible for an authorized person		N/A

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- impact test 5 Nm		N/A
	- sample show no damage		N/A
3.6.9 (-)	Column-integrated luminaire:		
	- dimension of the cable entry slot (mm)		N/A
	- cable path from the slot to the connection compartment (mm)		N/A
	- cable path free from obstruction that might cause abrasion of the cable		N/A

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	0,07	P
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a groove		N/A
	Earth makes contact first		N/A
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
	Protective earthing of the luminaire not via built-in control gear		N/A
3.8 (7.2.2 + 7.2.3)	Earth continuity in joints, etc.		N/A
3.8 (7.2.4)	Locking of clamping means		N/A
	Compliance with 4.7.3		N/A

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
3.8 (7.2.5)	Earth terminal integral part of connector socket		N/A
3.8 (7.2.6)	Earth terminal adjacent to mains terminals		N/A
3.8 (7.2.7)	Electrolytic corrosion of the earth terminal		N/A
3.8 (7.2.8)	Material of earth terminal		P
	Contact surface bare metal		N/A
3.8 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
3.8 (7.2.11)	Earthing core coloured green-yellow		N/A
	Length of earth conductor		N/A
3.8.1 (-)	Attachment prevented from rotation		P

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

3.9 (15)	SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS		
	Separately approved; component list	(see Annex 1)	N/A
	Part of the luminaire	(see Annex 4)	N/A

3.10 (5)	EXTERNAL AND INTERNAL WIRING		
3.10 (5.2)	Supply connection and external wiring		
3.10 (5.2.1)	Means of connection	Prepared wires	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		P
3.10 (5.2.2)	Type of cable	H03VV-F	P
	Nominal cross-sectional area (mm ²)	0,75	P
	Cables equal to IEC 60227 or IEC 60245		P
3.10 (5.2.3)	Type of attachment, X, Y or Z	X	P
3.10 (5.2.5)	Type Z not connected to screws		N/A
3.10 (5.2.6)	Cable entries:		
	- suitable for introduction		N/A
	- adequate degree of protection		N/A

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.10 (5.2.7)	Cable entries through rigid material have rounded edges		P
3.10 (5.2.8)	Insulating bushings:		
	- suitably fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
3.10 (5.2.9)	Locking of screwed bushings		N/A
3.10 (5.2.10)	Cord anchorage:		
	- covering protected from abrasion		N/A
	- clear how to be effective		N/A
	- no mechanical or thermal stress		N/A
	- no tying of cables into knots etc.		N/A
	- insulating material or lining		N/A
3.10 (5.2.10.1)	Cord anchorage for type X attachment:		
	a) at least one part fixed		P
	b) types of cable		P
	c) no damaging of the cable		P
	d) whole cable can be mounted		P
	e) no touching of clamping screws		P
	f) metal screw not directly on cable		P
	g) replacement without special tool		P
	Glands not used as anchorage		N/A
	Labyrinth type anchorages		N/A
3.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		N/A
3.10 (5.2.10.3)	Tests:		
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N)	30	P
	- torque test: torque (Nm)	0,08	P
	- displacement ≤ 2 mm		P
	- no movement of conductors		P
	- no damage of cable or cord		P

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- function independent of electrical connection		N/A
3.10 (5.2.11)	External wiring passing into luminaire		N/A
3.10 (5.2.12)	Looping-in terminals		N/A
3.10 (5.2.13)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N/A
3.10 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A
	No unsafe compatibility		N/A
3.10 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A
	Other appliance inlet or connector according relevant IEC standard		N/A
3.10 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
3.10 (5.2.18)	Used plug in accordance with		
	- IEC 60083		N/A
	- other standard		N/A
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		N/A
	- factory assembled		P
	- socket outlet loaded (A).....:		N/A
	- temperatures:	(see Annex 2)	N/A
	Green-yellow for earth only		N/A
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		N/A
3.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		N/A

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Adequate cross-sectional area and insulation thickness		N/A
3.10 (5.3.1.3)	Double or reinforced insulation for class II		N/A
3.10 (5.3.1.4)	Conductors without insulation		N/A
3.10 (5.3.1.5)	SELV current-carrying parts		N/A
3.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
3.10 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		N/A
	Joints, raising/lowering devices		N/A
	Telescopic tubes etc.		N/A
	No twisting over 360°		N/A
3.10 (5.3.3)	Insulating bushings:		
	- suitable fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- cables with protective sheath		N/A
3.10 (5.3.4)	Joints and junctions effectively insulated		N/A
3.10 (5.3.5)	Strain on internal wiring		N/A
3.10 (5.3.6)	Wire carriers		P
3.10 (5.3.7)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N/A
3.10.1 (-)	Cord anchorage if applicable		N/A
	- pull test: 25 times; pull (N) :		N/A
	- torque test: torque (Nm) :		N/A

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

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires		N/A
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N/A
	Basic insulation only accessible under lamp or starter replacement		N/A
	Protection in any position		P
	Double-ended tungsten filament lamp		N/A
	Insulation lacquer not reliable		P
	Double-ended high pressure discharge lamp		N/A
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
3.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N/A
3.11 (8.2.3.a)	Class II luminaire:		
	- basic insulated metal parts not accessible during starter or lamp replacement		N/A
	- basic insulation not accessible other than during starter or lamp replacement		N/A
	- glass protective shields not used as supplementary insulation		N/A
3.11 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed		N/A
3.11 (8.2.3.c)	SELV circuits with exposed current carrying parts:		
	Ordinary luminaire:		
	- touch current		N/A
	- no-load voltage		N/A
	Other than ordinary luminaire:		
	- nominal voltage		N/A
3.11 (8.2.4)	Portable luminaire have protection independent of supporting surface		N/A
3.11 (8.2.5)	Compliance with the standard test finger or relevant probe		N/A
3.11 (8.2.6)	Covers reliably secured		P
3.11 (8.2.7)	Discharging of capacitors $\geq 0,5 \mu\text{F}$		N/A
	Portable plug connected luminaire with capacitor		N/A

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	Other plug connected luminaire with capacitor		N/A
	Discharge device on or within capacitor		N/A
	Discharge device mounted separately		N/A

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)	45	—
	- total duration (h)	240	—
	- supply voltage: Un factor; calculated voltage (V)	253	—
	- lamp used	LED module	—
3.12 (12.3.2)	After endurance test:		
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N/A
	- 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)	N/A
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		N/A
	- measured winding temperature (°C): at 1,1 Un		—
	- measured mounting surface temperature (°C) at 1,1 Un		N/A
	- calculated mounting surface temperature (°C)		N/A
	- track-mounted luminaires		N/A
3.12 (12.6.2)	Temperature sensing control		
	- case of abnormal conditions.....		—

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- thermal link		N/A
	- manual reset cut-out		N/A
	- auto reset cut-out		N/A
	- measured mounting surface temperature (°C).....:		N/A
	- track-mounted luminaires		N/A
3.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		
3.12 (12.7.1)	Luminaire without temperature sensing control		N/A
3.12 (12.7.1.1)	Luminaire with fluorescent lamp $\leq 70W$		N/A
	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		N/A
	- Test with standard test finger after the test		N/A
	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.....:		N/A
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.....:		N/A
3.12 (12.7.1.3)	Luminaire with short circuit proof transformers $\leq 10 VA$		N/A
	- case of abnormal conditions.....:		—

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
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:.....		N/A
3.12.1 (-)	Temperature reduction if for outdoor use only		N/A
3.12.2 (-)	(See above)		—
3.12.3 (-)	Glass covers used within the thermal limits declared by the glass manufacturer		N/A

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).....		—
	- tests according to clauses	9.2.2, 9.2.7	—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		N/A
	b) no talcum in dust-tight luminaire		P
	c) no trace of water on current-carrying parts or on insulation where it could become a hazard		N/A
	d) i) For luminaires without drain holes – no water entry		N/A
	d) ii) For luminaires with drain holes – no hazardous water entry		N/A
	e) no water in watertight luminaire		P
	f) no contact with live parts (IP 2X)		N/A
	f) no entry into enclosure (IP 3X and IP 4X)		N/A
	f) no contact with live parts (IP3X and IP4X)		N/A

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	g) no trace of water on part of lamp requiring protection from splashing water		P
	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		P
	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 :		N/A
	- between current-carrying parts and mounting surface	>110 MΩ	P
	- between current-carrying parts and metal parts of the luminaire	>110 MΩ	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts		N/A
	- Insulation bushings as described in Section 5		N/A
	Other than SELV		
	- between live parts of different polarity.....		N/A
	- between live parts and mounting surface.....	>550 MΩ	P
	- between live parts and metal parts	>550 MΩ	P
	- between live parts of different polarity through action of a switch		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts	>550 MΩ	P
	- Insulation bushings as described in Section 5		N/A
3.14 (10.2.2)	Electric strength test		P
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test		N/A
	Luminaires with manual ignitors		N/A
	Test voltage (V)		N/A
	SELV		

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface	500 V	P
	- between current-carrying parts and metal parts of the luminaire	500 V	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts		N/A
	- Insulation bushings as described in Section 5		N/A
	Other than SELV		
	- between live parts of different polarity		N/A
	- between live parts and mounting surface	1460 V	P
	- between live parts and metal parts	1460 V	P
	- between live parts of different polarity through action of a switch		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts	1460 V	P
	- Insulation bushings as described in Section 5		N/A
3.14 (10.3)	Touch current (mA)	0,0025	P
	Protective conductor current (mA)	0,036	P

3.15 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		
3.15 (13.2.1)	Ball-pressure test		N/A
3.15 (13.3.1)	Needle-flame test (10 s)		N/A
3.15 (13.3.2)	Glow-wire test (650°C)		N/A
3.15 (13.4)	Proof tracking test (IEC 60112)		N/A

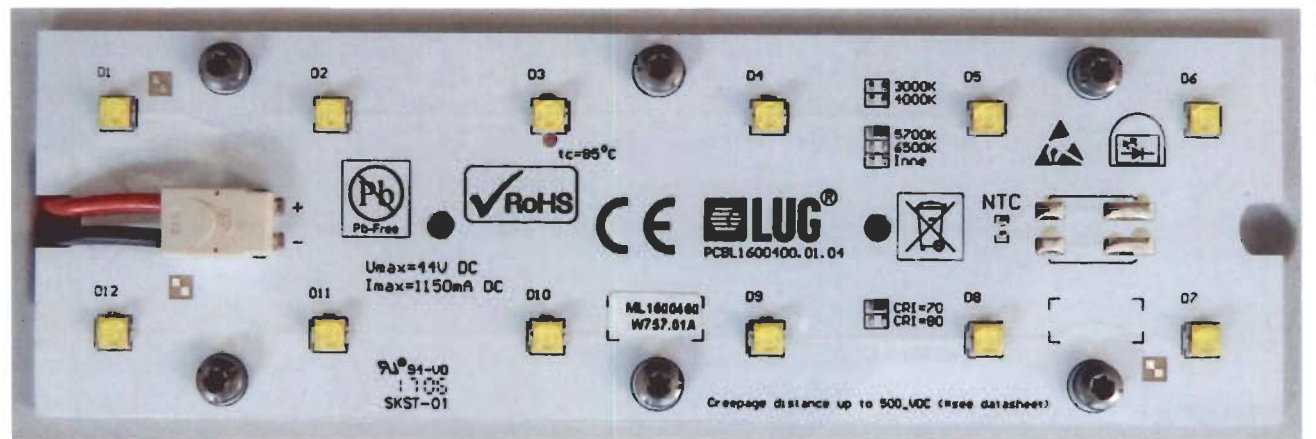
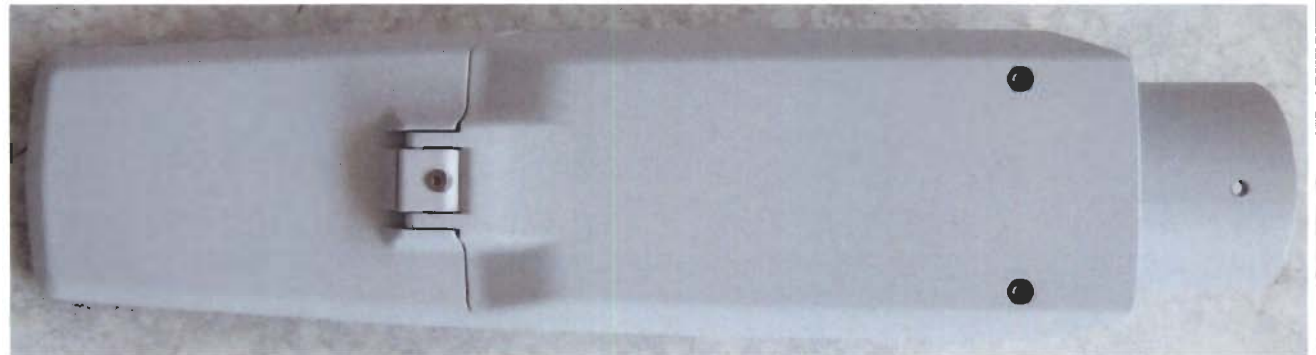
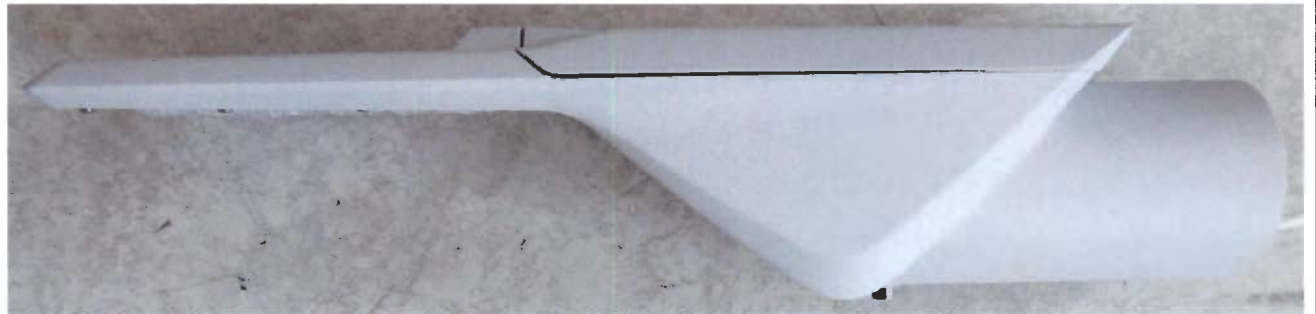
IEC / EN 60598-2-3							
Clause	Requirement + Test			Result - Remark			Verdict
3.7 (11.2)	TABLES: Creepage distances and clearances						
Table 11.1	Minimum distances (mm) for a.c. (50/60 Hz) sinusoidal voltages						
RMS working voltage (V) not exceeding		50	150	250	500	750	1000
Creepage distances: see critical component							
Required basic insulation, PTI ≥ 600		0,6	0,8	1,5	3	4	5,5
Measured		-	-	≥ 1,5	-	-	-
Required basic insulation, PTI < 600		1,2	1,6	2,5	5	8	10
Measured		-	-	-	-	-	-
Required supplementary insulation PTI ≥ 600		-	0,8	1,5	3	4	5,5
Measured			-	-	-	-	-
Required supplementary insulation PTI < 600		-	1,6	2,5	5	8	10
Measured			-	≥ 2,5	-	-	-
Required reinforced insulation		-	3,2	5	6	8	11
Measured			-	-	-	-	-
Clearances							
Required basic insulation		0,2	0,8	1,5	3	4	5,5
Measured		-	-	-	-	-	-
Required supplementary insulation		-	0,8	1,5	3	4	5,5
Measured			-	≥ 1,5	-	-	-
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	8,0
Required clearances		1,0	1,5	2	3	4	5,5
Measured		-	-	-	-	-	-
Rated pulse voltage (peak kV)		10	12	15	20	25	30
Required clearances		11	14	18	25	33	40
Measured		-	-	-	-	-	-
Rated pulse voltage (peak kV)		50	60	80	100	-	-
Required clearances		75	90	130	170	-	-
Measured		-	-	-	-		

IEC / EN 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.15 (13.2.1)	TABLE: Ball Pressure Test of Thermoplastics		N/A
3.15 (13.3.1)	TABLE: Needle-flame test (IEC 60695-11-5)		N/A
3.15 (13.3.2)	TABLE: Glow-wire test (IEC 60695-2-11)		N/A
3.15 (13.4)	TABLE: Proof tracking test (IEC 60112)		N/A

ANNEX 1		TABLE: Critical components information					
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾	
Description:		LUG URBINI LED 130232.5L111.101					
LED module	B	LUG	ML180400 W757.01A	U _{max} 44 V, t _c 85 °C, I _{max} 1150 mA	62031	Tested in equipment	
Driver	B	ELT	LCM 42 / 350...1050 - E	220-240 V, 50/60 Hz, t _c 75 °C		ENEC 01	
Wires LED	B		LGY	300/500 V, 0,5 mm ²	IEC227		
Ext. wires	B	Nkt cable	H03VV-F	3G0,75	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.....:	LUG URBINI LED 130232.5L111.101	—				
	Lamp used	LED module LUG	—				
	Lamp control gear used	ELT LCM 42 / 350...1050 - E	—				
	Mounting position of luminaire.....:	On pipe	—				
	Supply wattage (W)	36,9	—				
	Supply current (A).....:	---	—				
	Calculated power factor	---	—				
	Table: measured temperatures corrected for ta = 35 °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
LED module tc	35	65	---	---	85	---	---
Driver tc	35	75	---	---	75	---	---
LED wires	35	---	59	---	90	---	---
Internal wires	35	---	54	---	90	---	---
Terminal block	35	---	35	---	85	---	---
External wires	35	---	35	---	90	---	---
Supplementary information: Temperature marked control gear 100 °C.							

ANNEX 3 Photo



WAŻNE INFORMACJE | IMPORTANT INFORMATION | IMPORTANTES INFORMAÇÕES ÚTEIS | ВАЖНАЯ ИНФОРМАЦИЯ | WICHTIGE INFORMATIONEN

 Unikaj bezpośredniego patrzenia na źródła światła.
Avoid direct looking at light source.
Il faut éviter un regard direct sur les sources de lumière.
Evite olhar direto para a fonte de luz.
Не смотрите непосредственно на источники света.
Den direkten augenkontakt in die Licht vermeiden.

 Wymień uszkodzoną szybę.
Replace broken glass.
Remplacez la vitre cassée.
Substitua o vidro quebrado.
Заменя поврежденное стекло.
Austausch zerbrochenes Glas.

 Należy instrukcję należy zachować do przyszłego wykorzystania.
Keep this instruction leaflet for any further reference.
Conserver cette notice jusqu'à un emploi prochain.
Este manual deve ser mantido para futuro uso.
Настоящую инструкцию следует сохранять для будущего использования.
Das vorliegende Bedienungsanleitung für zukünftigen Bedarf aufbewahren.

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 **150170.00817**
Reductor 60/76mm
Reducer 60/76mm
Réducteur 60/76mm
Redutor 60/76mm
Редуктор 60/76mm
Minderer 60/76mm



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

www.lug.com.pl

INFORMACJA RGD
W tym celu należy wykonać następujące czynności:
1. Odczytać i zapisać numer seryjny i datę produkcji.
2. Odczytać i zapisać numer seryjny i datę produkcji.
3. Odczytać i zapisać numer seryjny i datę produkcji.
4. Odczytać i zapisać numer seryjny i datę produkcji.
5. Odczytać i zapisać numer seryjny i datę produkcji.
6. Odczytać i zapisać numer seryjny i datę produkcji.
7. Odczytać i zapisać numer seryjny i datę produkcji.
8. Odczytać i zapisać numer seryjny i datę produkcji.
9. Odczytać i zapisać numer seryjny i datę produkcji.
10. Odczytać i zapisać numer seryjny i datę produkcji.

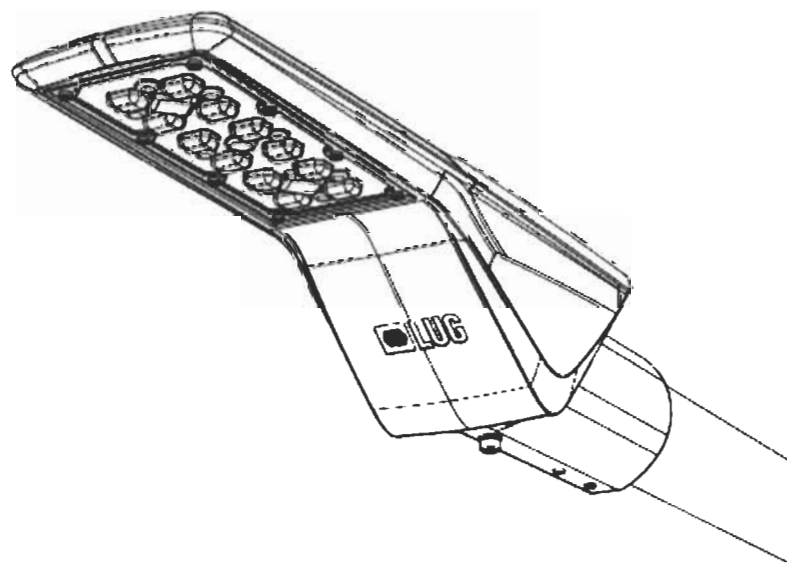
Tę instrukcję należy zachować do przyszłego wykorzystania.

4/4

LUG
INSTALLATION INSTRUCTION
Version 07/2017/008
URBINI LED

INSTRUCIA MONTAŻU | ИНСТРУКЦИЯ ПО МОНТАЖУ | MONTAGEANLEITUNG | INSTRUCTIONS DE MONTAGE | NÁVOD K MONTÁŽI | ΣΕΛΕΦΟΝ ΕΓΧΕΙΡΙΔΙΟ ΜΟΝΤΕΡΗΣΗΣ | INSTRUCȚIILE DE MONTAJ | MONTAGUEANLEITUNG | INSTRUCȚIILE DE MONTAJ | MONTAGUEANLEITUNG | INSTRUCȚIILE DE MONTAJ

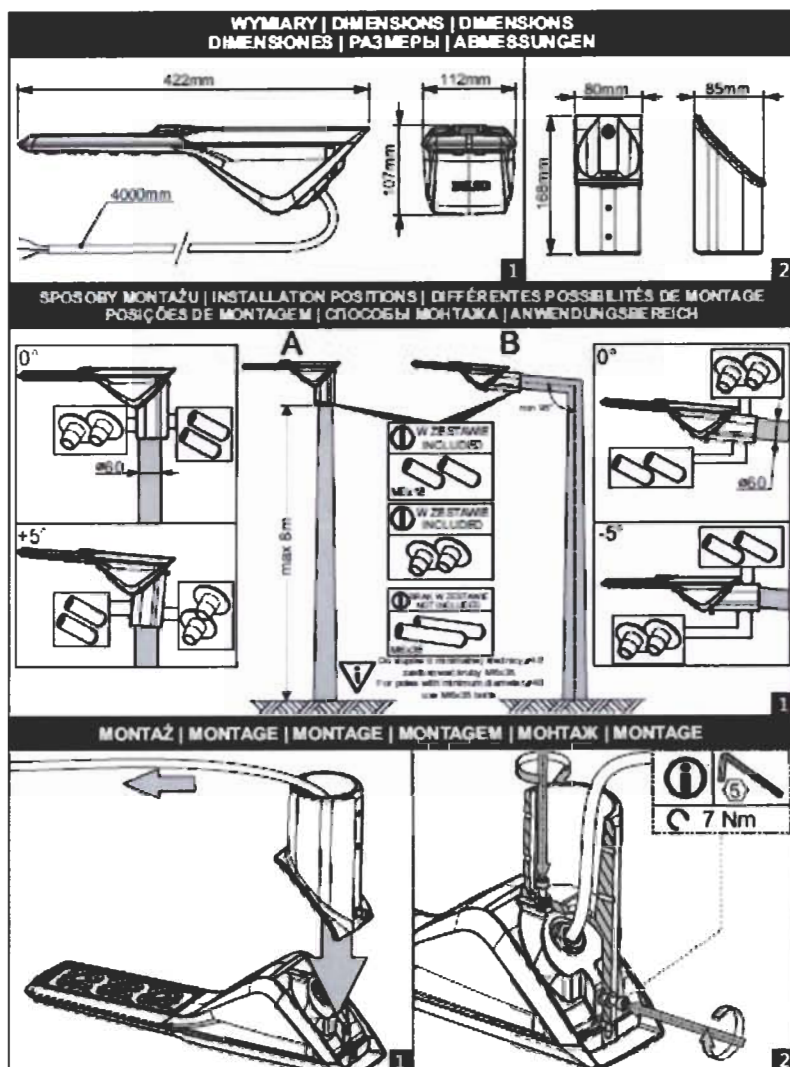
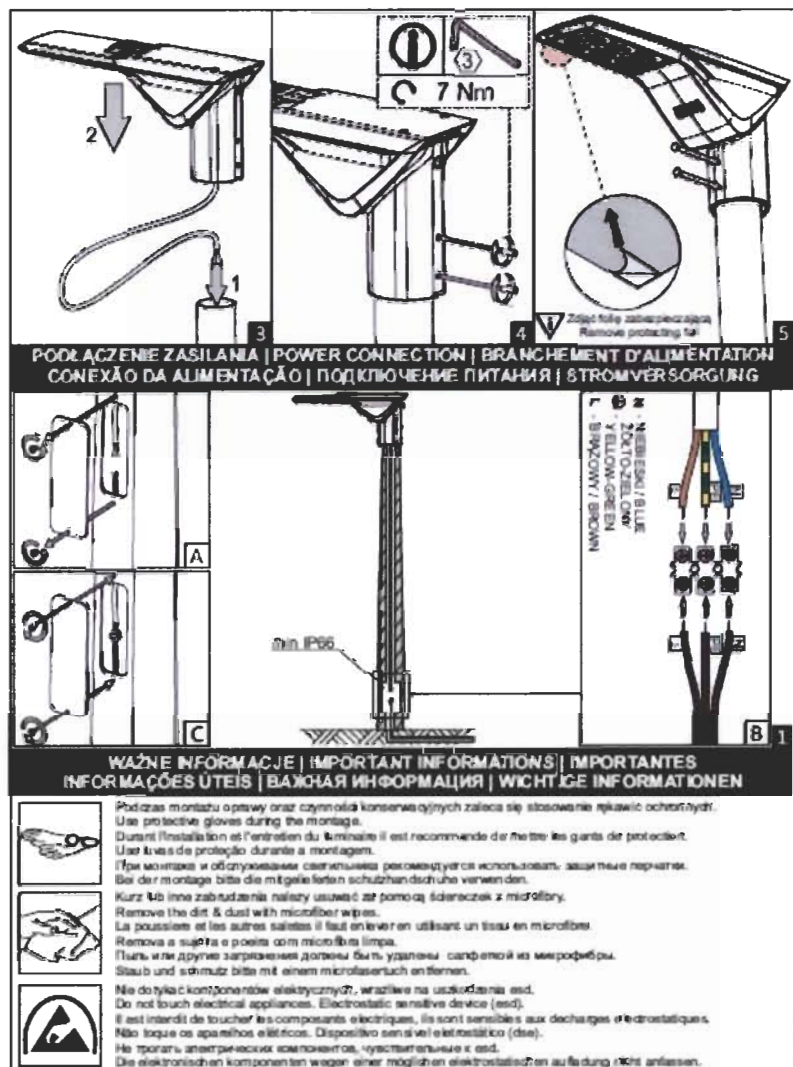
1. MONTAŻU POWINNA DOKONAĆ OSOBA POSIADAJĄCA ODPowiedzALNOŚĆ PRAWNĄ. 2. MONTAŻ Należy DOKONAĆ WŁAŚCIWIE. 3. MONTAŻ Należy DOKONAĆ WŁAŚCIWIE. 4. MONTAŻ Należy DOKONAĆ WŁAŚCIWIE. 5. MONTAŻ Należy DOKONAĆ WŁAŚCIWIE. 6. MONTAŻ Należy DOKONAĆ WŁAŚCIWIE. 7. MONTAŻ Należy DOKONAĆ WŁAŚCIWIE. 8. MONTAŻ Należy DOKONAĆ WŁAŚCIWIE. 9. MONTAŻ Należy DOKONAĆ WŁAŚCIWIE. 10. MONTAŻ Należy DOKONAĆ WŁAŚCIWIE.



1/4

INSTRUCTION BODY 1A 1308

ANNEX 4 Instructions



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

ATTACHMENT TO TEST REPORT IEC 60598-2-1
EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES
 LUMINAIRES
 PART 2: PARTICULAR REQUIREMENTS
 SECTION 1: LUMINAIRES FOR ROAD AND STREET LIGHTING

Differences according to : EN 60598-2-3:1989 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

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	CENELEC COMMON MODIFICATIONS (EN)	
--	--	--

1.5 (3)	MARKING	
1.5 (3.3.101)	For luminaires not supplied with terminal block: Adequate warning on the package	---

1.6 (4)	CONSTRUCTION	
1.6 (4.11.6)	Electro-mechanical contact systems	---

1.10 (5)	EXTERNAL AND INTERNAL WIRING	
1.10 (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	---
1.10 (5.2.2)	Cables equal to EN 50525	---
	Replace table 5.1 – Supply cord	---

1.12 (12)	ENDURANCE TESTS AND THERMAL TESTS	
1.12 (12.4.2c)	Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring	---

EN 60598-2-3			
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		---

ČSN EN 62471			
Clause	Requirement + Test	Result - Remark	Verdict

Measured values

Risk	Symbol	Measured value	Group
Blue light	L_B	$103 \text{ W}\cdot\text{m}^{-2}\cdot\text{sr}^{-1}$	RG1

Measured with supply voltage 230 V. Ambient temperature 25 °C.

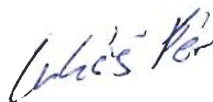
Measured at 500 lx distance.

Conclusion

Light source can be considered as light source in 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	$B(\lambda)$	L_B	$\text{W}\cdot\text{m}^{-2}\cdot\text{sr}^{-1}$	100	10000	4000000

Measured by: Lukáš Fér





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

No. of pages: 26
No. of annexes/No. of an. pages: 0/0

No. of the Test Report: 701588-01/02

Issued: 4. 8. 2017



TEST REPORT

Name of product: Fixed general purpose luminaires, recessed luminaires

Type of product: URBINI LED, class I

Ratings: 220-240 V, 50/60Hz, 21 W, 29 W, 38 W, IK 09, IP 66
Class I

Serial number: --

Manufacturer: LUG Light Factory Sp. z o.o., ul. Gorzowska 11,
65-127 Zielona Góra, Polsko

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, Polsko

Number of tested samples: 1, type representative: 130232.5L111.1X1

Samples submitted on: 3. 7. 2017

Location of testing: EZÚ

Tested from 27. 7. 2017 **through** 31. 7. 2017

Other data: -

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: David Nádherný



Approved by: Miroslav Vondra
Testing laboratory technical manager

Test results stated in the test report apply only to the tested subject and unless specified otherwise in the test report, the tests were performed using the method and under the conditions determined in the test regulations, technical norm, instructions for use and information provided by the manufacturer on the tested subject and using accessories required by the manufacturer.
Without written consent, this report must not be reproduced in any other way than as a whole.



1. Emission

- (ČSN) EN 55015:2013 *Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment*
- (ČSN) EN 61000-3-2:2014 *Electromagnetic compatibility (EMC) - Limits - Limits for harmonic current emission*
- (ČSN) 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 $\leq 16A$ per phase and not subject to conditional connection*

Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class I

Type representative: 130232.5L111.1X1

Requirements at tests:

Standard	Frequency band	Allowed values	Note
(ČSN) EN 55015 Art. 4.3.3	f [MHz] 0.15 - 0.5 0.05 - 30	QP / AV [dB(μV)] 84 - 74 / 74 - 64 74 / 64	Not applicable *1)
(ČSN) EN 55015 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	Pass
(ČSN) EN 55015 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	Pass
(ČSN) EN 55015 Art. 4.4.2	f [MHz] 30 - 230 230 - 300	QP [dB(μV/m)] 30 d=10m 37	Pass
(ČSN) EN 6100-3-2 Art. 7.3	0 - 2 kHz	Class C	Pass
(ČSN) EN 6100-3-3	50 Hz	---	Not applicable *2)

Notes:

The results of the tests specified in the protocol relating to device with electronic ballast:
130232.5L111.1X1: ELT LCM 42 / 350 ... 1050 - E

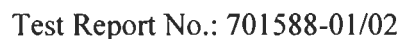
*1) The luminaire does not contains relevant terminals.

*2) According to EN 61000-3-3, Art. A2 (LED luminaires with power input $\leq 200W$)

Test result: Pass

Compiled by: Nádherný

Measured at: EZÚ



Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class I

Operating conditions:

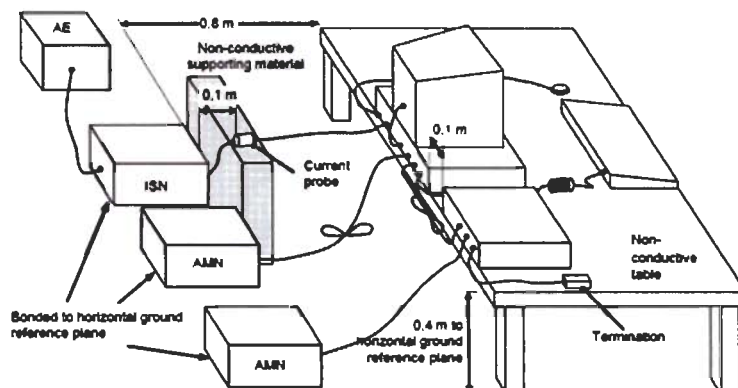
230V, 50Hz, minimally 15 minutes in operation

Temperature: 23°C Rel. humidity: 30 – 45 %

Applied limits:

Band	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

Measuring arrangement:



Notes:

For measured values see next page.

Test result: Pass

Measured by: Nádherný

Date: 27.7. 2017

Measured at: EZÚ

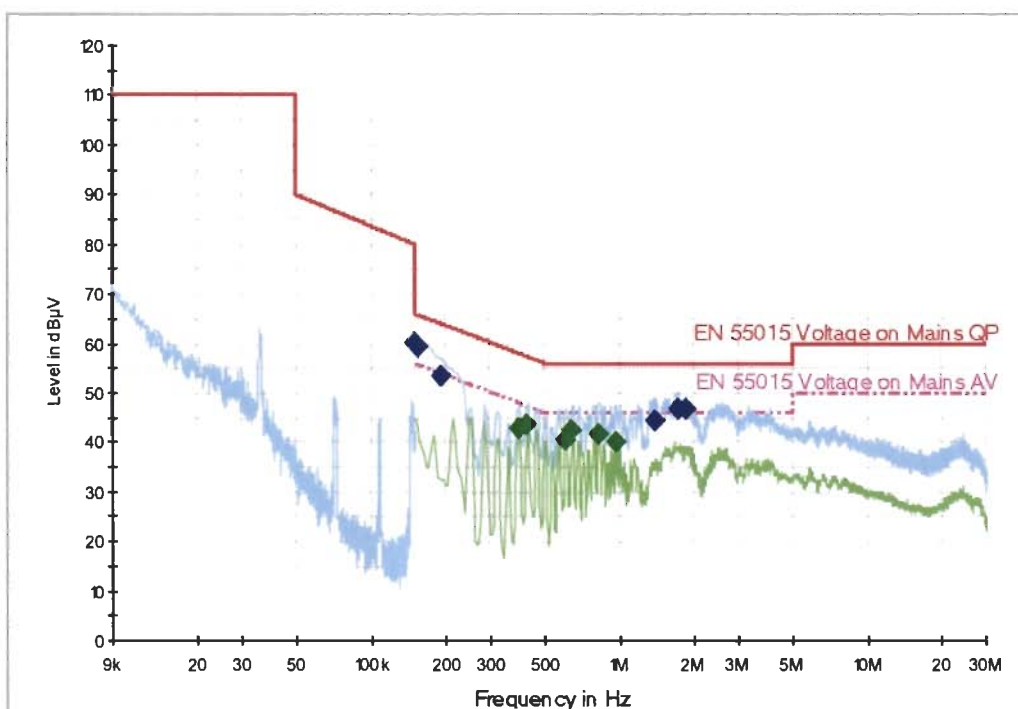


EMI Measurement

Common Information

EUT Name: Fixed general purpose luminares, recessed luminares
Type: URBINI LED, class I (130232.5L111.1X1)
Test Description: EN 55015
Operation Conditions: 230 V, 50 Hz
Operator Name: Nadherny
Comment 1: L, N - Mains

Voltage EN 55015 tab2a



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	60.3	1000.0	9.000	GN	N	10.2	5.7	66.0
0.154000	59.5	1000.0	9.000	GN	N	10.2	6.3	65.8
0.190000	53.5	1000.0	9.000	GN	N	10.2	10.5	64.0
1.394000	44.4	1000.0	9.000	GN	L1	10.5	11.6	56.0
1.706000	46.7	1000.0	9.000	GN	N	10.6	9.3	56.0
1.850000	46.9	1000.0	9.000	GN	N	10.6	9.1	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.390000	42.7	1000.0	9.000	GN	L1	10.4	5.4	48.1
0.426000	43.8	1000.0	9.000	GN	L1	10.4	3.5	47.3
0.602000	40.6	1000.0	9.000	GN	L1	10.4	5.4	46.0
0.642000	42.3	1000.0	9.000	GN	N	10.4	3.7	46.0
0.822000	41.5	1000.0	9.000	GN	N	10.4	4.5	46.0
0.958000	40.1	1000.0	9.000	GN	N	10.4	5.9	46.0



Measurement of interfering radiation in the 9 kHz - 30 MHz band
According to: (ČSN) EN 55015 - art 4.4.1

Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class I

Operating conditions:

230V, 50Hz, minimally 15 minutes in operation

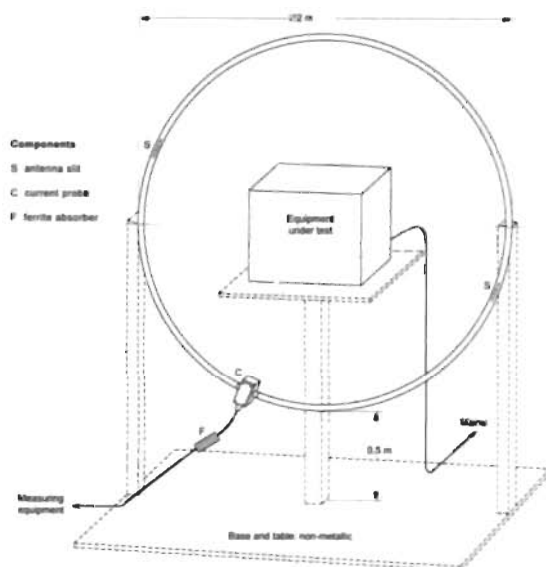
Temperature: 23°C

Rel. humidity: 30 – 45 %

Applied limits:

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

Measuring arrangement:



Notes:

For measured values see next pages

Test result: Pass

Measured by: Nádherný

Date: 31.7. 2017

Measured at: EZÚ

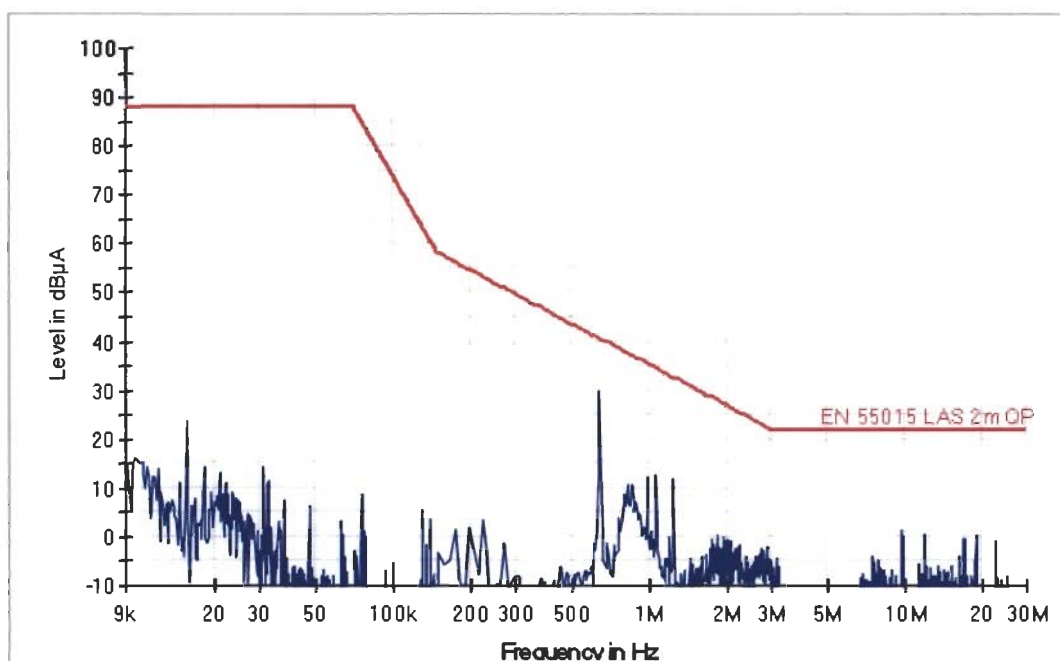


EMI Measurement

Common Information

EUT Name:	Fixed general purpose luminaires, recessed luminaires
Type	URBINI LED, class I (130232.5L111.1X1)
Test Description	EN 55015
Operating Conditions	230V, 50Hz
Operator Name:	Nadherny
Comment:	Axis X

EFS with Scans EZU KRUH2M2



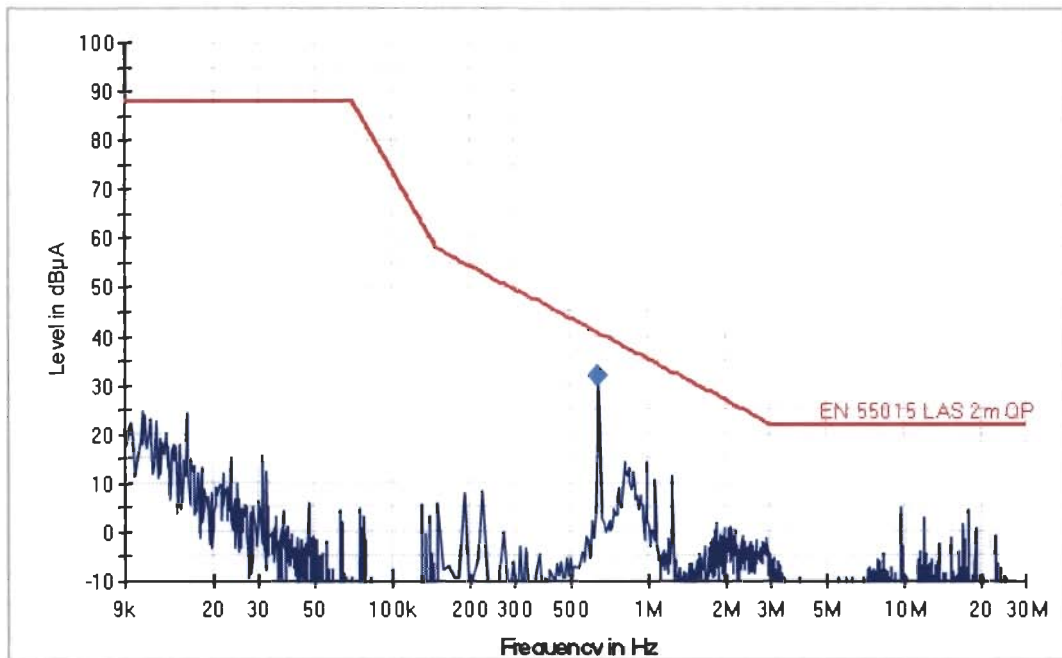


EMI Measurement

Common Information

EUT Name:	Fixed general purpose luminaires, recessed luminaires
Type	URBINI LED, class I (130232.5L111.1X1)
Test Description	EN 55015
Operating Conditions	230V, 50Hz
Operator Name:	Nadherny
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	31.7	1000.00	9.000	1.0	8.9	40.6

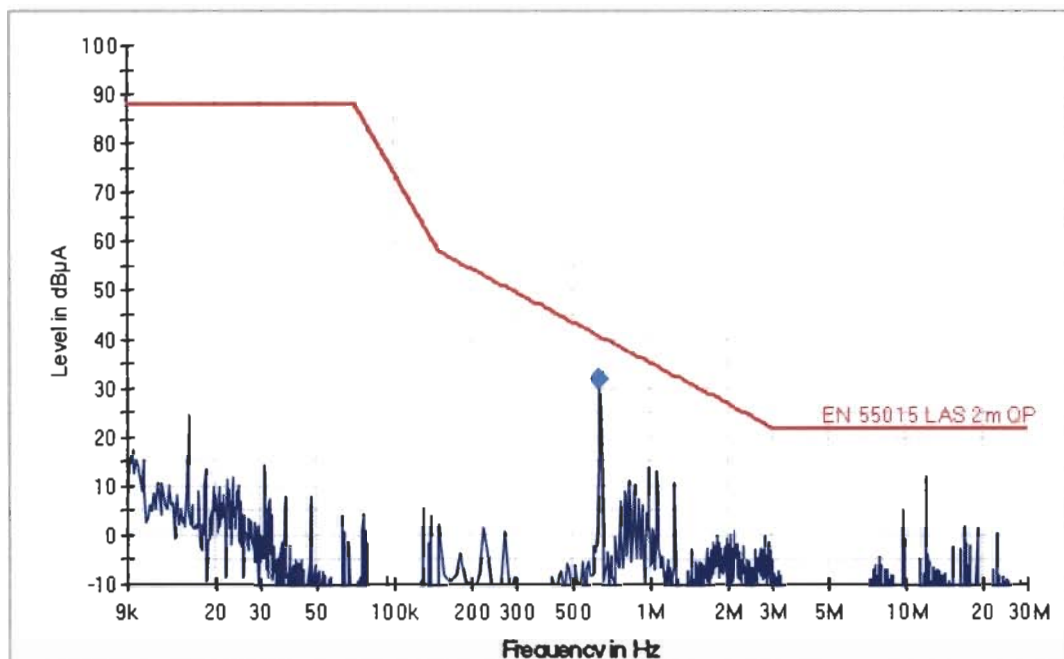


EMI Measurement

Common Information

EUT Name: Fixed general purpose luminares, recessed luminares
Type: URBINI LED, class I (130232.5L111.1X1)
Test Description: EN 55015
Operating Conditions: 230V, 50Hz
Operator Name: Nadherny
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	31.7	1000.00	9.000	1.0	8.9	40.6



Measurement of interfering radiation in the 30 - 300 MHz band
According to: (ČSN) EN 55015 Art. 4.4.2

Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class I

Operating conditions:

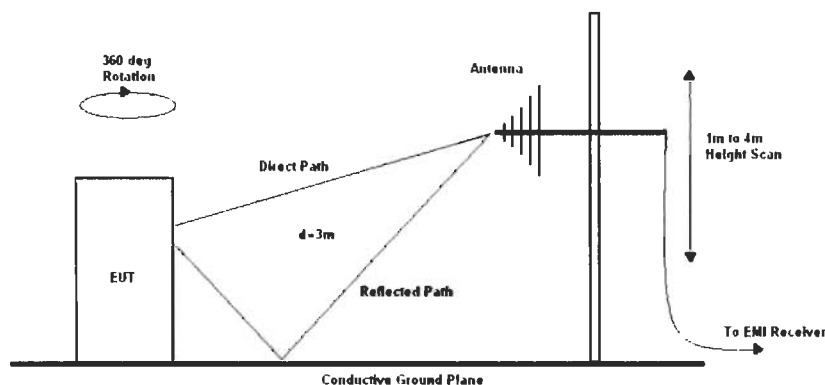
230V, 50Hz, minimally 15 minutes in operation

Temperature: 22°C Rel. humidity: 30 – 45 %

Applied limits:

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

Measuring arrangement:

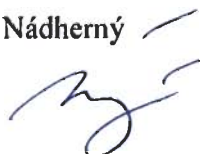


Notes:

For measured values see next pages

*) Limits and values converted to 3 m measuring distance

Test result: Pass

Measured by: Nádherný 

Date: 28.7. 2017

Measured at: EZÚ

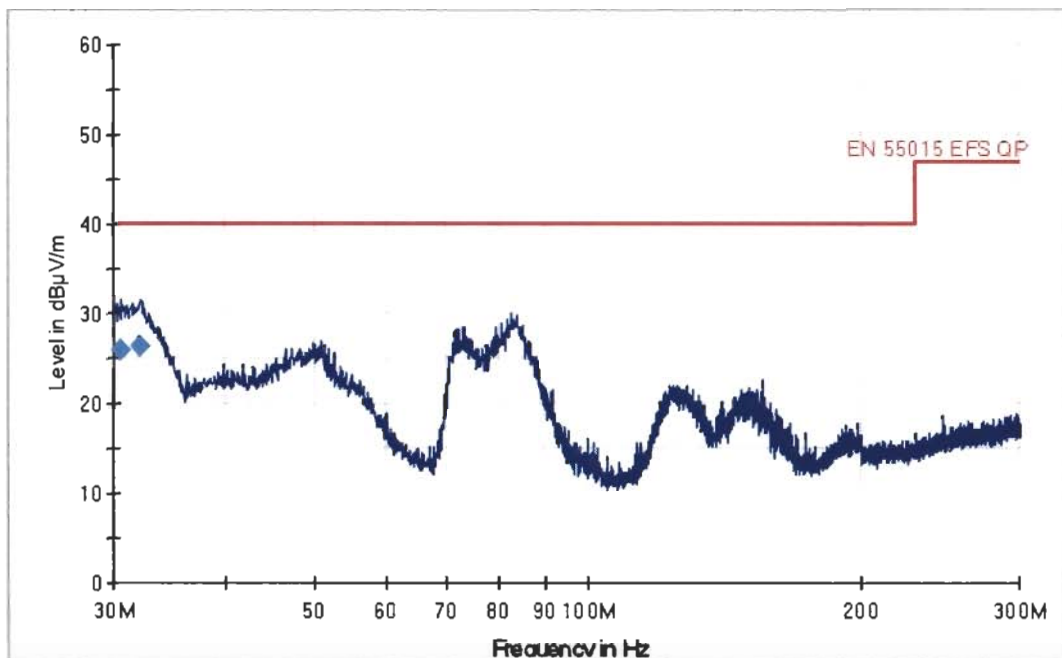


EMI Measurement

Common Information

EUT Name: Fixed general purpose luminaires, recessed luminaires
Type: URBINI LED, class I (130232.5L111.1X1)
Test Description: EN 55015
Operating Conditions: 230V, 50Hz
Operator Name: Nadherny
Comment: V, H 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)
30.600000	25.8	337.0	V	188.0	30.0	14.2	40.0
32.160000	26.2	115.0	V	114.0	30.4	13.8	40.0



**Electromagnetic compatibility (EMC) - Limits -
Limits for harmonic current emission
According to: (ČSN) EN 61000-3-2 - art. 7.3**

Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class I

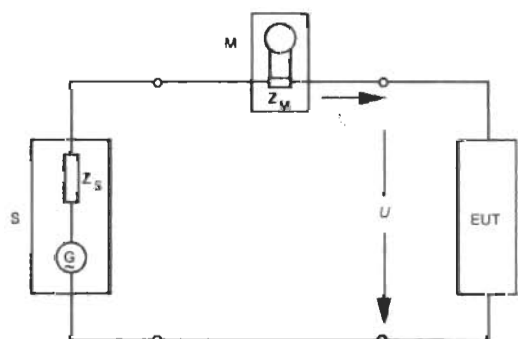
Operating conditions:

230V, 50Hz, minimally 15 minutes in operation

Teplota - Temperature: 24°C

Rel. vlhkost - Rel. humidity: 30 – 45 %

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

Applied limits:

Order of harmonics	Limit (%I ₁) P > 25W
2	2
3	30.λ
5	10
7	7
9	5
n 11 - 39 (only odd)	3

λ = účinník - power factor

Notes:

Equipment class C

For measured values see next pages

Test result: Pass

Measured by: Nádherný

Date: 28.7. 2017

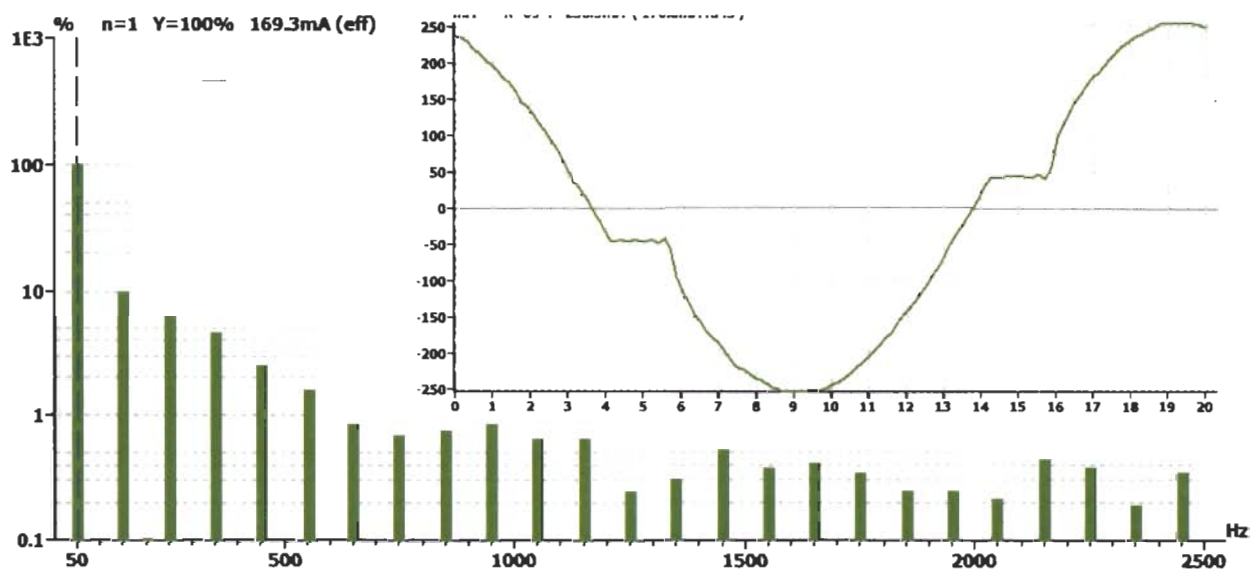
Measured at: EZÚ



Test Report No.: 701588-01/02

Report title:	701588-01/02
Company Name:	EZU
Date of test:	15:52 28.Jul 2017
Measurement file name:	Harmonics_3_2_Ed4.rsd
Tester:	Nadherny
Standard used:	EN/IEC 61000-3-2 Ed.4 Quasi-stationary Equipment class C
Observation time:	30s
Windows width:	10 periods - (EN/IEC 61000-4-7 Edition 2002 + A1:2008)
Customer:	LUG
E. U. T.:	URBINI LED, class I (130232.5L111.1X1)
Temperature :	24
Humidity :	40
Comment:	230 V, 50 Hz, 38W
Measurement smoothed data:	Fund. Current: 0.169A Power Factor: 0.948

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





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	I _{eff} [A]	I _{eff} [%]	Limit [%]	Result
1	169.303E-3	99.960		
2	339.355E-6	0.200		PASS
3	16.521E-3	9.754	28.45	PASS
4	420.270E-6	0.248		PASS
5	10.508E-3	6.204	10.00	PASS
6	541.243E-6	0.320		PASS
7	7.601E-3	4.488	7.00	PASS
8	429.171E-6	0.253		PASS
9	4.524E-3	2.671		PASS
10	310.508E-6	0.183		PASS
11	2.588E-3	1.528		PASS
12	283.192E-6	0.167		PASS
13	1.591E-3	0.939		PASS
14	309.386E-6	0.183		PASS
15	1.264E-3	0.746		PASS
16	363.008E-6	0.214		PASS
17	1.467E-3	0.866		PASS
18	304.477E-6	0.180		PASS
19	1.496E-3	0.884		PASS
20	294.158E-6	0.174		PASS
21	1.216E-3	0.718		PASS
22	327.701E-6	0.193		PASS
23	995.151E-6	0.588		PASS
24	312.142E-6	0.184		PASS
25	559.805E-6	0.331		PASS
26	299.131E-6	0.177		PASS
27	600.090E-6	0.354		PASS
28	295.850E-6	0.175		PASS
29	831.721E-6	0.491		PASS
30	278.860E-6	0.165		PASS
31	830.709E-6	0.490		PASS
32	348.079E-6	0.206		PASS
33	830.055E-6	0.490		PASS
34	280.221E-6	0.165		PASS
35	625.285E-6	0.369		PASS
36	281.892E-6	0.166		PASS
37	588.608E-6	0.348		PASS
38	360.058E-6	0.213		PASS
39	480.404E-6	0.284		PASS
40	340.761E-6	0.201		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.

**Maximum harmonic current results**

Hn	I _{eff} [A]	I _{eff} [%]	Limit [%]	Result
1	169.371E-3	100.000		
2	386.269E-6	0.228		PASS
3	16.645E-3	9.828	42.67	PASS
4	494.412E-6	0.292		PASS
5	10.635E-3	6.279	15.00	PASS
6	610.004E-6	0.360		PASS
7	7.704E-3	4.548	10.50	PASS
8	470.280E-6	0.278		PASS
9	4.699E-3	2.774		PASS
10	350.128E-6	0.207		PASS
11	2.705E-3	1.597		PASS
12	317.727E-6	0.188		PASS
13	1.720E-3	1.016		PASS
14	349.905E-6	0.207		PASS
15	1.358E-3	0.802		PASS
16	414.600E-6	0.245		PASS
17	1.628E-3	0.961		PASS
18	333.133E-6	0.197		PASS
19	1.563E-3	0.923		PASS
20	325.734E-6	0.192		PASS
21	1.383E-3	0.817		PASS
22	368.640E-6	0.218		PASS
23	1.112E-3	0.656		PASS
24	345.614E-6	0.204		PASS
25	690.098E-6	0.407		PASS
26	330.815E-6	0.195		PASS
27	629.178E-6	0.371		PASS
28	318.527E-6	0.188		PASS
29	920.187E-6	0.543		PASS
30	299.504E-6	0.177		PASS
31	1.040E-3	0.614		PASS
32	413.468E-6	0.244		PASS
33	1.000E-3	0.591		PASS
34	304.299E-6	0.180		PASS
35	668.211E-6	0.395		PASS
36	305.878E-6	0.181		PASS
37	688.436E-6	0.406		PASS
38	410.076E-6	0.242		PASS
39	517.514E-6	0.306		PASS
40	402.388E-6	0.238		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.

**Maximum harmonic voltage results**

Hn	Ueff [V]	Ueff [%]	Limit [%]	Result
1	229.85	99.933		
2	88.00E-3	0.038	0.2	PASS
3	541.86E-3	0.236	0.9	PASS
4	53.87E-3	0.023	0.2	PASS
5	59.36E-3	0.026	0.4	PASS
6	46.65E-3	0.020	0.2	PASS
7	51.09E-3	0.022	0.3	PASS
8	35.91E-3	0.016	0.2	PASS
9	29.02E-3	0.013	0.2	PASS
10	23.98E-3	0.010	0.2	PASS
11	22.52E-3	0.010	0.1	PASS
12	17.87E-3	0.008	0.1	PASS
13	23.40E-3	0.010	0.1	PASS
14	20.17E-3	0.009	0.1	PASS
15	10.96E-3	0.005	0.1	PASS
16	14.52E-3	0.006	0.1	PASS
17	14.83E-3	0.006	0.1	PASS
18	13.67E-3	0.006	0.1	PASS
19	10.62E-3	0.005	0.1	PASS
20	19.72E-3	0.009	0.1	PASS
21	11.23E-3	0.005	0.1	PASS
22	12.87E-3	0.006	0.1	PASS
23	8.61E-3	0.004	0.1	PASS
24	10.19E-3	0.004	0.1	PASS
25	13.05E-3	0.006	0.1	PASS
26	10.86E-3	0.005	0.1	PASS
27	9.23E-3	0.004	0.1	PASS
28	10.68E-3	0.005	0.1	PASS
29	10.02E-3	0.004	0.1	PASS
30	9.55E-3	0.004	0.1	PASS
31	9.84E-3	0.004	0.1	PASS
32	9.82E-3	0.004	0.1	PASS
33	8.29E-3	0.004	0.1	PASS
34	6.36E-3	0.003	0.1	PASS
35	7.75E-3	0.003	0.1	PASS
36	8.83E-3	0.004	0.1	PASS
37	9.09E-3	0.004	0.1	PASS
38	5.98E-3	0.003	0.1	PASS
39	7.80E-3	0.003	0.1	PASS
40	12.43E-3	0.005	0.1	PASS



2. Immunity

(ČSN) EN 61547 *Equipment for general lighting purposes - EMC - immunity requirements*

Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class I

Type representative: 130232.5L111.1X1

Requirements at tests:

Generic standard	Level	Allowed error *1)	Note
EN61000-4-2	±4kV / ±8 kV	B	Pass
EN61000-4-3	3V/m 80 - 1000 MHz	A	Pass
EN61000-4-4	±1kV AC power, ±0,5kV signal lines	B	Pass
EN61000-4-5	±1kV / ±2kV	C	Pass
EN61000-4-6	3 V 0,15 - 80 MHz	A	Pass
EN61000-4-8	3 A/m	A	*2) Pass
EN61000-4-11	200 ms / 70% U _T 10 ms / 0% U _T	C B	Pass

Notes:

The results of the tests specified in the protocol relating to device with electronic ballast:
130232.5L111.1X1: ELT LCM 42 / 350 ... 1050 - E

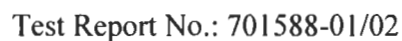
*1) Performance criteria according (ČSN) EN 61547, art. 4.2

*2) Devices do not contain parts sensitive to the magnetic field

Test result: Pass

Compiled by: Nádherný —

Measured at: EZÚ



Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class I

Operating conditions:

230V, 50Hz, minimally 15 minutes in operation

Temperature: 23°C Rel. humidity: 30 – 45 %

Allowed criterion: B

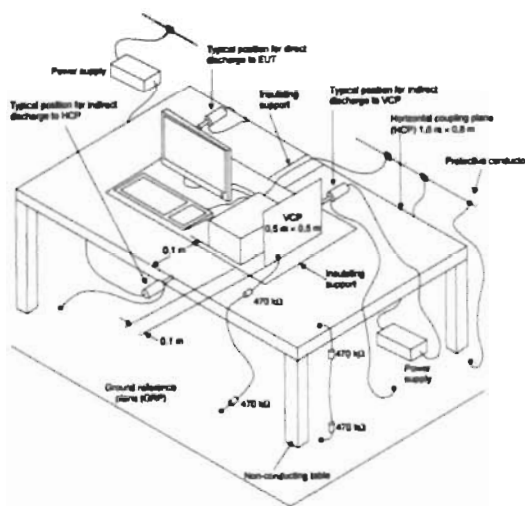
Number of testing discharges: 10/10 contact/air discharge to every test-places in each polarity, besides indirect contact discharges into a vertical and horizontal coupling plane

Tested points: Contact discharge into the metal parts and to the horizontal and vertical coupling plane. Air discharge into plastic parts. See photodocumentation.

Testing voltage [kV]: ± 4 – contact discharge / ± 8 - air discharge

Achieved criterion: A

Measuring arrangement:



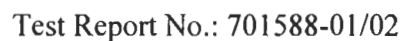
Notes:--

Test result: Pass

Measured by: Nádherný

Date: 31.7.2017

Measured at: EZÚ



Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class I

Operating conditions:

230V, 50Hz, minimally 15 minutes in operation

Temperature: 23°C Rel. humidity: 30 – 45 %

Applied limits:

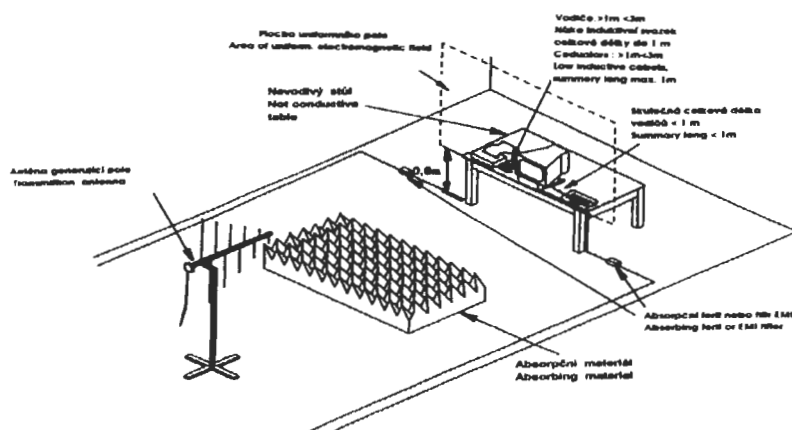
Scan spectrum: 80 - 1000 MHz

Intensity of field: 3 V/m (80% AM, 1kHz)

Allowed criterion: A

Achieved criterion: A

Measuring arrangement:



Notes: --

Test result: Pass

Measured by: Nádherný

Date: 31.7. 2017

Measured at: EZÚ

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Test by quick transient burst
According to: (ČSN) EN 61000-4-4

Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class I

Operating conditions:

230V, 50Hz, minimally 15 minutes in operation

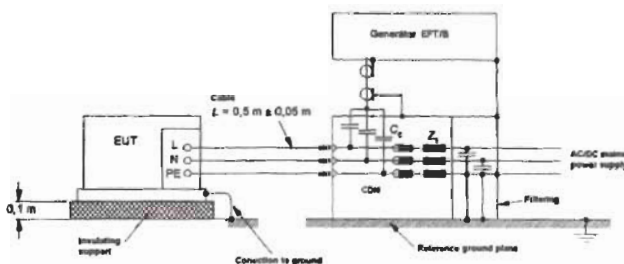
Temperature: 23°C Rel. humidity: 30 – 45 %

Allowed criterion: B

Testing voltage applied:

Applied to	Testing level	Performance criterion	Remark
L,N,L+N	±1kV	A	Coupling networks to power supply
L+PE	±1kV	A	
N+PE	±1kV	A	
L+N+PE	±1kV	A	

Measuring arrangement:



Notes: --

Test result: Pass

Measured by: Nádherný

Date: 31.7. 2017

Measured at: EZÚ



Test Report No.: 701588-01/02

Surge immunity test
According to: (ČSN) EN 61000-4-5

Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class I

Operating conditions:

230V, 50Hz, minimally 15 minutes in operation

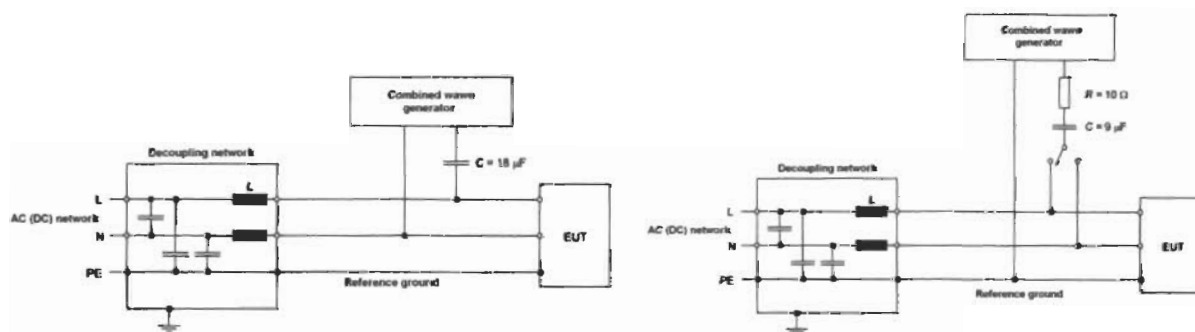
Temperature: 23°C Rel. humidity: 30 – 45 %

Allowed criterion: C

Testing voltage applied:

Applied voltage	Testing level	Performance criterion	Remark
L-N	±1kV	A	90°, 270°
L-PE, N-PE, L+N-PE	±2kV	A	90°, 270°

Uspořádání při měření - Measuring arrangement:



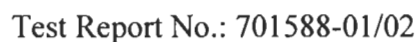
Poznámky - Notes:--

Test result: Pass

Measured by: Nádherný

Date: 31.7. 2017

Measured at: EZÚ



Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class I

Operating conditions:

230V, 50Hz, minimally 15 minutes in operation

Temperature: 24 °C Rel. humidity: 30 – 45 %

Allowed criterion: A

Testing voltage applied:

Achieved criterion: A

Measuring arrangement:



Test result: Pass

Measured by: Nádherný

Date: 31.7.2017

Measured at: EZÚ



Test Report No.: 701588-01/02

Voltage dips, short interruptions and voltage variations
According to: (ČSN) EN 61000-4-11

Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class I

Operating conditions:

230V, 50/60Hz, minimally 15 minutes in operation

Temperature: 22°C Rel. humidity: 30 – 45 %

Allowed criterion: C, B

Tests requirements:

Test level % Ut	Duration 50 / 60Hz ms	Allowed criterion	Achieved criterion
0	10 / 8,3	B	A
70	200 / 167	C	A

Notes:--

Test result: Pass

Measured by: Nádherný

Date: 31.7. 2017

Measured at: EZÚ

**Measuring equipment used:**

☒ Test receiver RaS	ESCI	110213	11.2017
☒ Měřicí přijímač- Test receiver RaS	ESIB26	110097	11.2017
☒ Continuos wave simulátor EM Test	CWS500N1	110232	03.2019
☒ Harmonic analyzer EM TEST	DPA503N	110272	02.2019
☒ Power fail simulator EM Test	PFS 500	98-6040	10.2017
☐ Ultra Compact Simulator EM Test	UCS 500N	110235	02.2019
☒ ESD generator	ESD30N	110196	03.2019
☐ ESD generátor	ESD30	110090	12.2018
☐ Artificial mains EMCO	3825/2	95-5852	07.2019
☐ Artificial mains Narda	PMM L3-32	110250	11.2019
☒ Artificial mains ESH	ESH4-Z5	5821/1	05.2020
☒ Antenna Frankonia	BTA-M	00-6321	10.2017
☐ Antenna Double Ridget	HF 907	110177	08.2017
☐ Antenna Double Ridget Advantest	TR17206	5878	10.2017
☒ Burst generátor Haefely	PEFT Junior	5872	12.2018
☒ Surge generator	VCS500-M	110114	03.2018
☐ Měřič pole Narda – Field meter Narda	ELT-400	110130	11.2018
☒ Current Probe R&S	EZ-17	110098	05.2019

Pomocná zařízení – Auxiliary equipment:

☒ Supply source EM TEST	HFS300	98-6042	02.2019
☐ Ref. impedance SCHAFFNER	LR4	X71773	02.2019
☒ Electric Field Probe Narda	EP603	110273	01.2019
☒ Amplifier PRÁNA	AP32 LT225	07-110145	
☐ Amplifier MILMEGA	AS0822-100	98-6038	
☐ Amplifier MILMEGA	AS0204-125	110144	
☐ Amplifier MILMEGA (1.8-6GHz)	AS1860-100	110219	
☒ Signal generator RaS	SMF100A	110167	11.2018
☐ Signal generator RaS	SMT03	96-5874	02.2018
☐ Multimetr - Multimeter	FLUKE189	550049	01.2018
☐ Probe RFT	TK12	700044	06. 2020
☒ Coupling/dec. EM TEST	CDN M3N	552097	06.2018
☒ Coupling/dec. EM TEST	CDN M2N	110233/2	11.2019
☐ Coupling/SCHAFFNER ISN T4xx	ISN T4xx	110032	
☐ Capacitive coupling clamp	Haefely		
☐ Current probe	P MP-120		
☐ Current probe	AM503	79-4221	
☒ Current probe RFT	SMZ 11	700459	06.2018
☒ Elektromag. kleště- Electromag. injection clamp	EM-101	110233	11.2019
☐ Ferite clamp 1-1000 MHz	EZ-24	10003	
☒ Anechoic chamber - Euroshield Oy	RFMSD-F/A	6341	02.2020
☒ Notebook Dell	Dell D351	551492	
☒ Multimeter Fluke	289	552550	06.2018
☒ Ocelové pásmo – Metal meter	5m	N400014	12.2020
☒ Pulse Limiter RaS	ESH3-Z2	5424	01.2019

Kabely - Cables:

- ☐ K1
- ☒ K22 , ESH3-Z2
- ☐ K14 , K15a , K16
- ☐ KB01, KB02, KB04
- ☒ KB06
- ☐ K4 , K19
- ☐ K23
- ☒ K27
- ☒ K25, K2, K4

EZU přípravky – EZU equipments:

- ☒ PR 51 – EN 61000-4-2 – Vertical coupling plane
- ☐ Dummy lamp: dle - according to EN55015
- ☒ Regulating transformer - ZPA RA20
- ☐ PR-21 - Stabilized power supply BS 525
- ☐ P10 - EN55015 - Spherical cover
- ☐ P11 - EN6100-4-8 - EZÚ test setup
- ☐ P13 – Třífázový přepínač - three-phase switch
- ☒ PR45 - Loop antenna 2m



Photo-documentation

Product: Fixed general purpose luminaires, recessed luminaires

Type: URBINI LED, class I



Overview: 130232.5L111.1X1



Source and LED controller: 130232.5L111.1X1



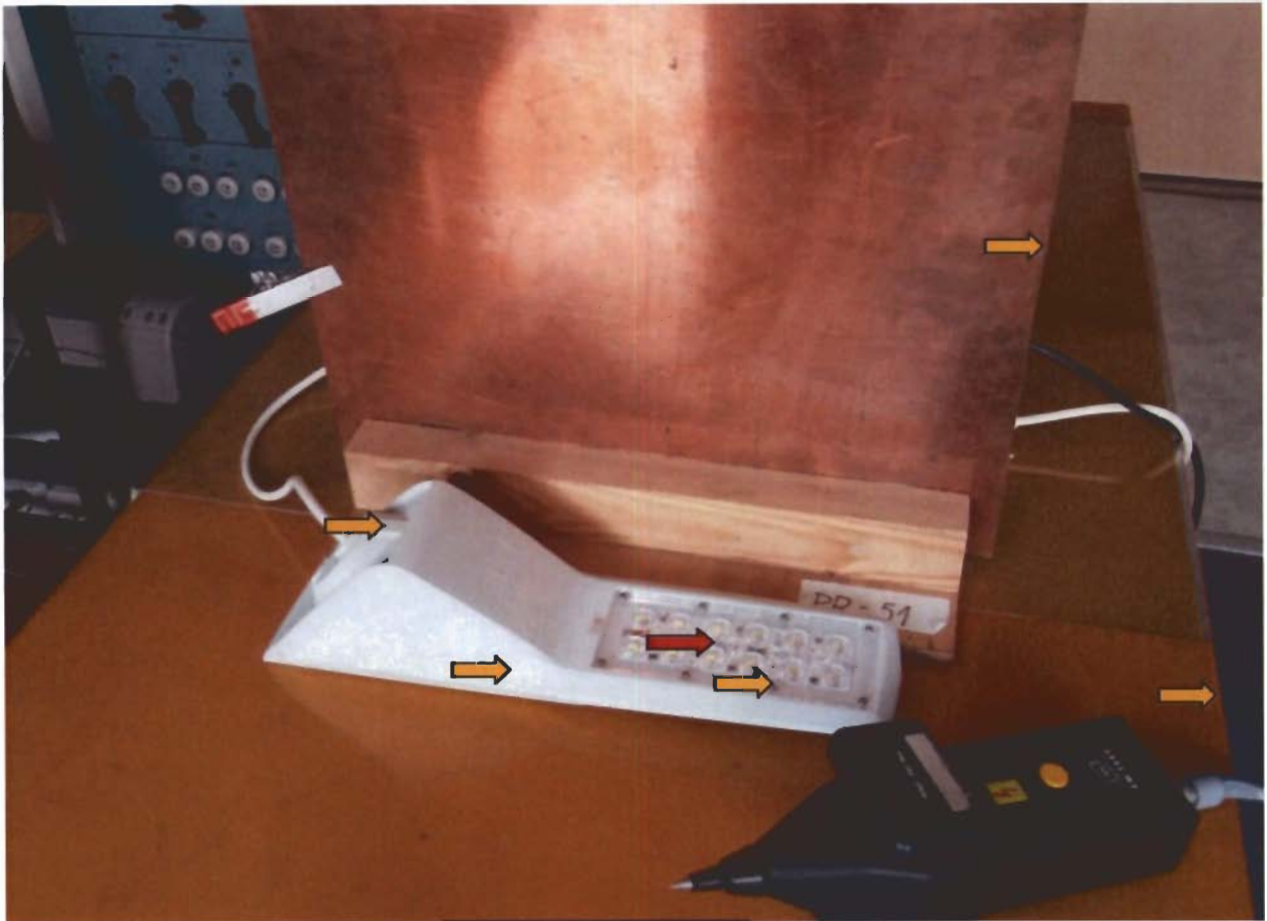
Name plate 130232.5L111.1X1

my



Test Report No.: 701588-01/02

Electrostatic discharges – tested points (→ contact discharge → air discharge)



Signature