

DECLARATION



EU DECLARATION OF CONFORMITY (DoC)

We

Company name: **Ecocity S.R.L.**
Address: **11, Mircha cel Batrin str**
Postcode: **MD-2044**
City: **Chisinau**
Telephone number: **(022) 022-000**
E-mail address: **info@ecocity.md**



declare that this Declaration of Conformity (DoC) is issued under our sole responsibility and belongs to the following product:

Apparatus model/Product: **Pro-Street Quasar**

Type: **LED Street Lamp**

Serial number: **EC-00002285 / EC-00002286 / EC-00002288 / EC-00002284 / EC-00002287 / EC-00002289**

Object of the declaration:

LED street lamp of grey color with built-in power supply, equipped with strained glass, PMMA lenses and high-brightness LEDs.

The object of the declaration described above is in conformity with the relevant Union harmonization legislation:

Low Voltage Directive (2014/35/EU)

Electromagnetic Compatibility Directive (2014/30/EU)

The following harmonised standards and technical specifications have been applied:

Title, Date of standard/specification:

EN 55015:2013	EN 61000-4-4:2012
EN 61547:2009	EN 61000-4-5:2014
EN 61000-3-2:2014	EN 61000-4-6:2014
EN 61000-3-3:2013	EN 61000-4-11:2004
EN 61000-4-2:2009	
EN 61000-4-3:2006+A1:2008+A2:2010+IS1:2009+A1:2008	

Notified body:

BelGISS Testing Center BY/112 02.1.0.0085

Signed for and on behalf of:

Ecocity S.R.L.

08.10.2019

Eftodi V. CEO Ecocity S.R.L.





CERTIFICAT DE CONFORMITATE

Nr. de înregistrare

OCpr MD 043 A 002196-18

Data emiterii:

13 martie 2018

Valabil pînă:

13 martie 2020

ORGANISMUL DE CERTIFICARE: "TRANS-STANDARD"

Certificat de acreditare nr. OCpr-043;

MD 2004, mun. Chişinău, str. Mitropolit Petru Movilă 17, ap. 1, tel/fax. 74-07-61.

PRIN PREZENTUL DOCUMENT SE CONFIRMĂ FAPTUL, CĂ PRODUSELE IDENTIFICATE ASTFEL:

DENUMIREA / DESCRIEREA

Corpuri de iluminat, tuburi pentru plafoane, proiectoare, lămpi

Corp de iluminat LED stradal de marca comercială EcoCity
de marca comercială EcoCity, de modele: conform anexei

Contract nr. DS/19/14 din 19.08.2014 cu Well Most Industrial Limited, China, SF 37525051-05001.00001:2015

Codul NM MD

9405

SÎNT CONFORME CU CERINŢELE OBLIGATORII STABILITE ÎN:

SM SR EN 60598-2-2:2014 (p.2.4-2.6; 2.7-2.11; 2.13-2.14), SM SR EN 61195:2010 (cap.2.2-2.6)

SM SR EN 60598-2-3:2014 (p.3.4-3.6; 3.7-3.11; 3.13-3.14), SM SR EN 62660:2014 (c.6-9; 11; 15-17)

SM SR EN 60598-2-3:2014 (p.3.4-3.6; 3.7-3.11; 3.13-3.14), SM SR EN 60598-1:2014 (1.4-1.8; 1.7-1.11; 1.13-1.14)

SR EN 55015:2016 compatibilitate electromagnetice, SM SR EN 13201-4:2011 Metode de măsurare a performanţelor fotometrice, SM SR EN 62282:2013 Grade de protecţie asigurate prin carcasele echipamentelor electrice împotriva Impacturilor mecanice din exterior (cod IK)

PRODUCĂTOR

"EcoCity" SRL, Republica Moldova

Codul ţării

MD

SOLICITANT

"ECOCITY" SRL, mun. Chişinău, bd. Mărcea cel Bătrîn, 11
tel. (022)

Codul IDNO

1014600030890

CERTIFICATUL ESTE ELIBERAT ÎN BAZA

Raportului de identificare Nr.45/05 din 14.02.2018

Raportului de încercări cu Nr.7279/02/18 din 23.02.2018, eliberat de LÎ "CERTIFICARE" SRL, certificat de acreditare nr. LÎ-076 din 17.06.2016, rapoarte de încercări cu nr.339/a, 339/b, 339/c din 07.11.2016, eliberate de Laborator Fotometrie și Compatibilitate Electromagnetică, acreditat pentru încercare nr. LÎ 1005/20013

Raportului asupra rezultatelor evaluării Nr.75/05 din 23.02.2018

INFORMAŢIE SUPLIMENTARĂ

Schema de certificare nr.3, cu identificarea fiecărui lot de produs importat.

Evaluarea de supraveghere a produselor este stabilită o dată pe tot termenul de valabilitate a certificatului de conformitate

Certificatul este valabil în prezenţa informaţiei în limba de stat pentru fiecare unitate de produs și în condițiile respectării cerințelor de ambalare, depozitare, transportare și păstrare.

Conducător OC
Expert

Doroş Adrian
Bartean Violeta



Copiile prezentului certificat de conformitate se legalizează în modul stabilit de Organismul de Certificare „TRANS-STANDARD”

Seria NB 2096

OC „TRANS-STANDARD”
CERTIFICARE VOLUNTARĂ

ANEXA
la certificatul de conformitate

Fila File₁

Nr.

OCpr MD 043 A 002198-18

din 13 martie 2018

Lista produselor concrete
asupra cărora se extinde acțiunea certificatului de conformitate

Nr.	Denumirea	Modele
1	Lampi pentru uz casnic	Eco-Lux, Eco-Lite, Eco-Slim, Eco-Point, Eco-Pro
2	Corp de iluminat de birou	Eco-Panel, Eco-Tube, Eco-Rail, Eco-Flat, Eco-Flip, Eco-Spot, Eco-Glow, Eco-Track, Eco-Swipe, Eco-Drop, Eco-Linear, Eco-Linear Slim, Eco-Slim Panel,
3	Iluminat public si industrial	Eco-Hip, Eco-Street, Eco-Pro, Eco-Wall Velum, Pro-Street Quasar (20-150 Watt), High Bay, Eco-Beast, Eco-Ground, Wall Washer, Pro-Street, Eco-Wall, Neon Flex, Eco-Pole
4	Corp de iluminat incastat	Eco-Disk, Eco-Cube, Eco-Moon, Eco-Slide, Eco-Blast
5	Corp de iluminat Fito	Eco-Tube fito, Eco-Rail fito, Eco-Linear fito, Eco-Linear Slim fito, Eco-Fito Cube, Eco-Fito Line
6	Corp de iluminat LED stradal	Pro-Street Quasar (20-150 Watt)



Conducător OC
EXPERT

Doros Adrian
Barteau Violeta

Seria V Nr 02321

Copiile prezentului certificat de conformitate se legalizează în modul stabilit de
Organismul de Certificare „TRANS-STANDARD”

XLAMP® XP-G3 WHITE LEDS (REV 10)

Revision: 10 (October 18, 2018)

Description Of LED Light Sources

XLamp XP-G3 White LEDs (Series: XPGDWT)

This LM-80 report is applicable to the following order codes:

XPGDWT-x1-xxxx-xxxxx

XPGDWT-x3-xxxx-xxxxx

No failures occurred during testing.

Test Summary

Data Set	Case Temp. [T _c]	Ambient Temp. [T _a]	Drive Current [I _f]	ANSI CCT Target	Sample Count	Test Duration	Reported TM-21 Lifetimes
3	85 °C	85 °C	350 mA	3000 K	25	15,120 hrs	L90(15k) > 90,700 hrs L80(15k) > 90,700 hrs L70(15k) > 90,700 hrs
4	105 °C	105 °C	350 mA	3000 K	25	15,120 hrs	L90(15k) > 90,700 hrs L80(15k) > 90,700 hrs L70(15k) > 90,700 hrs
5	120 °C	120 °C	350 mA	3000 K	25	8,568 hrs	L90(9k) > 51,400 hrs L80(9k) > 51,400 hrs L70(9k) > 51,400 hrs
6	85 °C	85 °C	700 mA	3000 K	25	19,656 hrs	L90(20k) > 118,000 hrs L80(20k) > 118,000 hrs L70(20k) > 118,000 hrs
7	105 °C	105 °C	700 mA	3000 K	25	15,120 hrs	L90(15k) > 90,700 hrs L80(15k) > 90,700 hrs L70(15k) > 90,700 hrs
8	120 °C	120 °C	700 mA	3000 K	25	8,568 hrs	L90(9k) = 39,600 hrs L80(9k) > 51,400 hrs L70(9k) > 51,400 hrs
9	85 °C	85 °C	1050 mA	3000 K	25	14,112 hrs	L90(14k) > 84,700 hrs L80(14k) > 84,700 hrs L70(14k) > 84,700 hrs
15	105 °C	105 °C	1050 mA	3000 K	25	12,096 hrs	L90(12k) > 72,600 hrs L80(12k) > 72,600 hrs L70(12k) > 72,600 hrs
10	105 °C	105 °C	1050 mA	4000 K	20	11,592 hrs	L90(12k) = 36,700 hrs L80(12k) > 69,600 hrs L70(12k) > 69,600 hrs
11	85 °C	85 °C	1500 mA	3000 K	25	17,136 hrs	L90(17k) > 103,000 hrs L80(17k) > 103,000 hrs L70(17k) > 103,000 hrs
14	105 °C	105 °C	1500 mA	3000 K	23	10,080 hrs	L90(10k) = 27,900 hrs L80(10k) > 60,500 hrs L70(10k) > 60,500 hrs



EcoCity
eco energy

Коммерческое
предложение

Производство LED освещения

www.ecocity.md

PRO-STREET QUASAR (S)



Diode ceramice
160 Lm/W



38 curbe fotometrice



Suport pivotant
reglabil



Smart City
(opțional)

Pro-Street Quasar (S) - corp de iluminat stradal cu design modern și capacitate mărită de răcire, oferă o distribuție uniformă a luminii datorită LED-urilor de mare putere, fiind rezistent la șocuri mecanice, umiditate și vibrații. Acest model este cea mai potrivită sursă de iluminat cu LED pentru montarea pe piloni cu înălțimea de 4-6 metri.

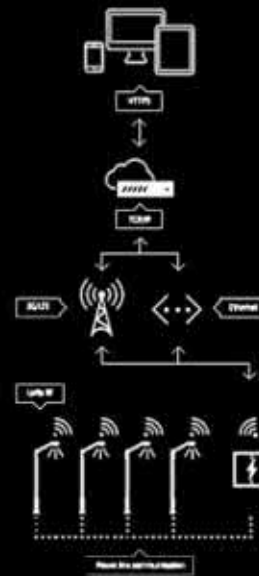
Este destinat pentru iluminatul stradal, a parcărilor, terenurilor de fotbal, parcurilor etc.



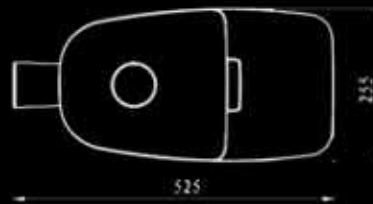
PRO-STREET QUASAR (S)

Model	Pro-Street Quasar (S) 50	Pro-Street Quasar (S) 70	Pro-Street Quasar (S) 90
Putere	50 W	70 W	90 W
Flux luminos	6500 Lm	9196 Lm	11890 Lm
Temperatura de culoare	5000 K – Lumina zilei		
Tensiune rețea	180 – 265 V / 50 – 60 Hz		
Temperatura de lucru	De la -40 °C până la +50 °C		
Dimensiuni	L-525 mm l- 250 mm H -102 mm		
Greutate	6.100 kg		
Unghi fascicul	Reglabil în dependență de lentile		
Gradul de protecție IP	IP66		
Indice de redare a culorii	>70Ra		
Material	Carcasă: aluminiu, turnată sub presiune înaltă. Compactor: cauciuc siliconic rezistent la căldură Sticlă refractară IK08		
Sursa de alimentare	Încorporat		
Montare	Pe bracket cu un diametru de 48-60 mm, acces lateral		

Sistemul de telemetrie și gestionarea a iluminatului



Sistem de control la distanță.
De la PC sau smartphone



Drumuri suburbii



Alee Pietonale

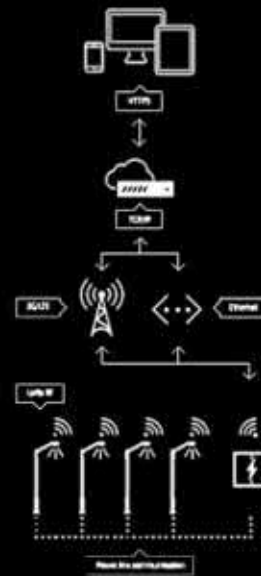


Parcări

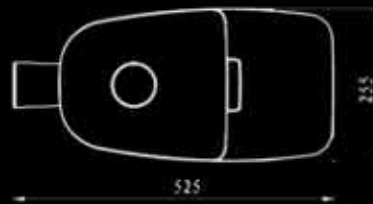
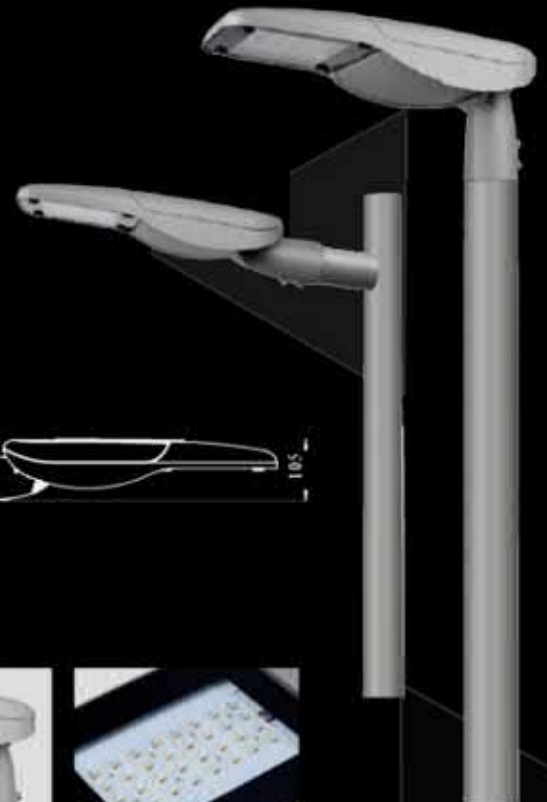
PRO-STREET QUASAR (S)

Model	Pro-Street Quasar (S) 20	Pro-Street Quasar (S) 25	Pro-Street Quasar (S) 35
Putere	20 W	25 W	35 W
Flux luminos	2628 Lm	3284 Lm	5557 Lm
Temperatura de culoare	5000 K – Lumina zilei		
Tensiune rețea	180 – 265 V / 50 – 60 Hz		
Temperatura de lucru	De la -40 °C până la +50 °C		
Dimensiuni	L-525 mm l- 250 mm H -102 mm		
Greutate	6.100 kg		
Unghi fascicul	Reglabil în dependență de lentile		
Gradul de protecție IP	IP66		
Indice de redare a culorii	>70Ra		
Material	Carcasă: aluminiu, turnată sub presiune înaltă. Compactor: cauciuc siliconic rezistent la căldură Sticlă refractară IK08		
Sursa de alimentare	Încorporat		
Montare	Pe bracket cu un diametru de 48-60 mm, acces lateral		

Sistemul de telemetrie și gestionarea a iluminatului



Sistem de control la distanță.
De la PC sau smartphone



Drumuri suburbii



Alee Pietonale



Parcări

Модель	Тех. Спецификации	Цена ед. MDL	Кол-во	Итого MDL
Pro-Street Quasar S 90W	90 Watt / IP66 / 525*250*102mm / Aluminiu	2694,00	139	374466,00
Pro-Street Quasar S 70W	70 Watt / IP66 / 525*250*102mm / Aluminiu	2301,00	109	250809,00
Pro-Street Quasar S 50W	50 Watt / IP66 / 525*250*102mm / Aluminiu	2100,00	51	107100,00
Pro-Street Quasar S 35W	35 Watt / IP66 / 525*250*102mm / Aluminiu	1971,00	18	35478,00
Pro-Street Quasar S 25W	25 Watt / IP66 / 525*250*102mm / Aluminiu	1872,00	84	157248,00
Pro-Street Quasar S 20W	20 Watt / IP66 / 525*250*102mm / Aluminiu	1774,00	36	63864,00
Итого за светильники :				988965,00

Гарантия - **6 лет**

Менеджер Проекта
Мырзенко Владимир
 Компания EcoCity S.R.L.
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CERTIFICATE

RoHS

CE



SMC 0114



SMM 0037



SMSO 0038



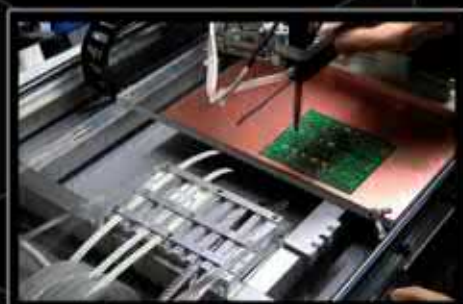
Sunt conforme cu cerințele obligatorii stabilite în:

SM SR EN 60598-2-2:2014, SM SR EN 61195:2010, SM SR EN 60598-2-3: 2014, SM SR EN 62560:2014, SM SR EN 60598-2-3:2010, SM SR EN 60598-1:2014, SR EN 55015:2016 compatibilitate electromagnetica, SM SR EN 13201-4:2011, SM SR EN 62262:2013

SHOWROOM



PRODUCERE



Producător ECOCITY S.R.L. / MADE IN EUROPE



EcoCity
eco energy

EcoCity SRL

Молдова, мун. Кишинэу

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www.ecocity.md

EMS TEST REPORT

BelGISS Testing Center

№ 2018-263
EMC
Page 1 of 30

Location address:	Legal address:
220053, Republic of Belarus, Minsk, 2a, Novatorskaya St.	220113, Republic of Belarus, Minsk, 3, Melezh St.,r.406
tel.:+375 17 269 68 19, 269 69 58 e-mail: ic26@belgiss.by	tel.:+375 17 269 69 58, fax:+375 17 269 68 89 e-mail: ic@belgiss.by

Product	LED luminaire
Name and address of the applicant	Ecocity S.R.L., 11, Mircha cel Batrin str., 2012, Chisinau, Moldova
Name and address of the Manufacturer	Ecocity S.R.L., 11, Mircha cel Batrin str., 2012, Chisinau, Moldova
Model / type	Pro - Street Quasar S SiO 80 C
Rating power	110 – 250 V~; 50-60 Hz; Rated power 80 W.
Brand names	 EcoCity
Serial №	---
EuT received	2018-06-22 No. 15348
Additional information	---


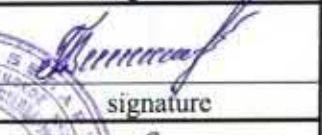

Applied Standards:	
Product- or Generic Standards	Basic Standards
EN 55015:2013; EN 61547:2009; EN 61000-3-2:2014; EN 61000-3-3:2013.	EN 61000-4-2:2009; EN 61000-4-3:2006+A1:2008+A2:2010+IS1:2009+A1:2008; EN 61000-4-4:2012; EN 61000-4-5:2014; EN 61000-4-6:2014; EN 61000-4-11:2004.

Test result: PASSED

Tested in period 2018-07-04 – 2018-07-13
Issue date 2018-07-13

Revision _____ Copy № 3

Name of the testing laboratory		Accredited Test Laboratory BELGISS
Accreditation of the testing laboratory	 № BY/112 02.1.0.0085 from 1995-09-01	Accreditation is valid until 2019-12-01

Tested by	First rank engineer	Murayou A.A.	2018-07-13	 signature
Verified by	Chief of the laboratory of Testing Centre BelGISS	Grinko V.V.	2018-07-13	 signature
Authorized by	Deputy head of Testing Centre BelGISS	Vasileuski D.V.	2018-07-13	 signature

Possible test case verdicts:

- test case does not apply to the test object: N.A. (Not applicable)
- test case meet the requirement: P(ass)
- test case does not meet the requirement: F(ail)

The test results presented in this report relate only to the object tested.
This report shall not reproduce except in full without approval of the head test centre BelGISS.

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1 Description of Equipment under Test (EuT)

Description of the EUT:

Type of EUTs:	LED luminaire
Model and/or type reference:	Pro - Street Quasar S SiO 80 C

Technical Data:

Rated voltage:	110 – 250 V ~	Protection class:	I
Rated current:	---	Maximum current:	---
Rated power:	80 W	Maximum power consumption:	---
Number of phases:	one	Rated frequency:	50-60 Hz

The classification of the EUT:

Production classification:	Electric domestic appliances
----------------------------	-------------------------------------

Ports:

a) Power Input AC:

Designation/description	Voltage	Current	Type of shielding	Power
Mains	180 – 265 V ~	---	Unshielded	---

b) Load Terminals AC:

Designation/description	Voltage	Current	Type of shielding	Power
---	---	---	---	---

c) Power Input DC:

Designation/description	Voltage	Current	Type of shielding	Power
---	---	---	---	---

d) Load Terminals DC:

Designation/description	Voltage	Current	Type of shielding	Power
---	---	---	---	---

e) Additional Terminals:

Designation/description	Specified length	Type of shielding
---	---	---

Disturbance Sources/EMC-Measure:

Disturbance sources:	Electronic components.
----------------------	------------------------

Operational modes investigated:

Working mode	Description
№ 1	Continuous operation in lighting mode

Support Equipment:

Device	Identification/Short description
---	---

Photos: see Appendix 1 on page 30.

2 Failure criteria for Immunity testing:

Performance criteria for Immunity testing to the EN 61547:2009.

Performance criteria	Description
A	During the test, no change of the luminous intensity shall be observed and the regulating control, if any, shall operate during the test as intended.
B	During the test, the luminous intensity may change to any value. After the test, the luminous intensity shall be restored to its initial value within 1 min. Regulating controls need not function during the test, but after the test, the mode of the control shall be the same as before the test provided that during the test no mode changing commands were given.
C	During and after the test, any change of the luminous intensity is allowed and the lamp(s) may be extinguished. After the test, within 30 min, all functions shall return to normal, if necessary by temporary interruption of the mains supply and/or operating the regulating control. Additional requirement for lighting equipment incorporating a starting device: After the test, the lighting equipment is switched off. After half an hour, it is switched on again. The lighting equipment shall start and operate as intended.

3 Summary of Immunity Test Result according to EN 61547:2009.

Results of the individual Tests:

Section of the Generic Standard	Test Parameters and severity Levels		Applied Basic Standard	Protocol Pages	Failure Criteria		Results			
					Standard	EUT				
Electrostatic discharge	Contact discharge: 4 kV Test voltage		EN 61000-4-2	5	B	A	Pass			
	Air discharge: 8 kV Test voltage				B	A	Pass			
Radio-frequency electromagnetic fields	80 MHz to 1 000 MHz 3 V/m (unmodulated) 1 kHz, 80 % AM, sine wave		EN 61000-4-3	7	A	A	Pass			
Power frequency magnetic fields	Field frequency 50/60 Hz Test level 3 A/m		EN 61000-4-8	9	A	-----	N.A. (note 1)			
Fast transients (Burst)	5/50 ns T _r /T _d 5 kHz rep. freq.		EN 61000-4-4	10	B	A	Pass			
	AC input	± 1 kV peak					-----	B	-----	N.A.
	AC output	± 1 kV peak					-----	B	-----	N.A.
	DC input	± 0,5 kV peak					-----	B	-----	N.A.
	DC output	± 0,5 kV peak					-----	B	-----	N.A.
Signal and control lines	± 0,5 kV peak	-----	B	-----	N.A.					
Surge Pulse	1,2/50 (8/20) T _r /T _d μs		EN 61000-4-5	13	C	A	Pass			
	AC input	line-to-line: ± 1 kV line-to-earth: ± 2 kV					13	C	A	Pass
Injected RF currents	0,15 – 230 MHz 80% AM @ 1 kHz 150 Ω source impedance		EN 61000-4-6	11	A	A	Pass			
	AC input	3 V (unmod.) e.m.f.					-----	A	-----	N.A.
	AC output	3 V (unmod.) e.m.f.					-----	A	-----	N.A.
	DC input	1 V (unmod.) e.m.f.					-----	A	-----	N.A.
	DC output	1 V (unmod.) e.m.f.					-----	A	-----	N.A.
Signal and control lines	1 V (unmod.) e.m.f.	-----	A	-----	N.A.					
Voltage dips and interruptions	Residual %	periods	EN 61000-4-11	12	B	B	Pass			
	Unom.	0,5					12	C	B	Pass
	0 %:	10								
AC input	70 %:									

1) Equipment doesn't contain components susceptible to magnetic fields, such as Hall elements or magnetic field sensors.

Result: PASS

3.1 Electrostatic Discharge according to EN 61000-4-2:2009.

Information concerning the test:

Tested by:	Murauyou A.A.	Ambient temperature:	21,2 °C
Test date:	2018-07-04	Rel. humidity:	45,6 %
		Atmospheric pressure:	99,4 kPa

Working mode	Description
№ 1	Continuous operation in lighting mode

TEST DESCRIPTION:

Method

EN 61000-4-2

Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test.

Test set-up

A ground reference plane is located on the floor, and connected to earth via a low impedance connection. The return cable of the EFT generator is connected to the reference plane.

EuT is placed on a wooden table 10 cm above the reference plane, and all cables attached to the EuT is isolated the same way.

A vertical coupling plane (VCP) of 50x50 cm is placed 10 cm from the EuT's exterior. This VCP is connected to the reference plane via a cable with two 470 kΩ resistors located one in each end of the cable.

Procedure

The test was done by applying contact and air discharge to the EuT itself, and contact discharge to the HCP and VCP. When applying the discharges to VCP the tip of the generator was located at middle edge of the VCP. VCP was located 10 cm from each side of the EuT.

Contact discharges of ± 4 kV were applied to the various points of the EuT at conductive surfaces, and to the HCP and VCP. Air discharges of ± 8 kV were applied to the various points of the EuT at non-conductive surfaces.

Test results can be found in the following pages.

Record:

See page: 6

Used test equipment:

Factory Number	Type	Manufacturer	Model	Calibration Due
308	ESD-Generator	EMC Partner	ESD 3000	2018-12-15
---	VCP (0,5m x 0,5m)	Made in Belarus	---	---
13450	Aneroid barometer	Made in Belarus	БАММ-1	2019-01-31
3000	Temperature and Humidity Meter	Made in Belarus	Сочна 004	2018-10-02

Test modes: 1.

Contact discharges

Points of Discharging	Polarity	Number	Discharge Voltage [kV]	Performance Criteria	Result	Remark
VCP (0,5m x 0,5m)	positive	40	4.0	B	Criteria A fulfilled	
	negative	40	4.0	B	Criteria A fulfilled	
HCP (2,0m x 1,0m)	positive	40	4.0	B	Criteria A fulfilled	
	negative	40	4.0	B	Criteria A fulfilled	
Enclosure front side	positive	20	4.0	B	Criteria A fulfilled	
	negative	20	4.0	B	Criteria A fulfilled	
Enclosure top side	positive	20	4.0	B	Criteria A fulfilled	
	negative	20	4.0	B	Criteria A fulfilled	
Enclosure left side	positive	20	4.0	B	Criteria A fulfilled	
	negative	20	4.0	B	Criteria A fulfilled	
Enclosure right side	positive	20	4.0	B	Criteria A fulfilled	
	negative	20	4.0	B	Criteria A fulfilled	
Enclosure rear side	positive	20	4.0	B	Criteria A fulfilled	
	negative	20	4.0	B	Criteria A fulfilled	

Air discharges

Points of Discharging	Polarity	Number	Discharge Voltage [kV]	Criteria	Result	Remark
Non-conductive surfaces	positive	50	8.0	B	Criteria A fulfilled	
	negative	50	8.0	B	Criteria A fulfilled	

Result: PASSED

3.2 Radio-frequency electromagnetic fields to EN 61000-4-3:2006+A1:2008+A2:2010+IS: 2009.

Information concerning the test:

Tested by:	MuraYOU A.A.	Ambient temperature:	23,4 °C
Test date:	2018-07-04	Rel. humidity:	45,6 %
		Atmospheric pressure:	99,4 kPa

Working mode	Description
№ 1	Continuous operation in lighting mode

TEST DESCRIPTION:

Method

EN 61000-4-3 Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test.

Test set-up

Tests were carried out in a semi anechoic chamber.

EUT is not bulky, and according to p.7.2 EN 61000-4-3 was taken on a wooden table height of 0.8 meters.

Wiring between the EUT and auxiliary equipment as follows :

- the manufacturer's specified wiring types and connectors was used;
- length of cables to auxiliary equipment 3 meters;
- wires was arranged parallel to the uniform area of the field to minimize immunity.

Procedure

The EuT is exposed to a RF electromagnetic field generated by one log-periodic antenna. The field is applied with the antennas facing each of the four faces of the EuT (0°, 90°, 180°, 270°). The polarization of the field requires testing each side of the EuT twice, once with the antenna horizontally and again with the antenna vertically. The antenna height during test is 150 cm. A field level and type as specified below is applied in the defined frequency range. The frequency is swept through the range with a step width and a dwell time per frequency as specified below. Performance is evaluated them according to the defined performance criteria.

Test results can be found in the following pages.

Used test equipment:

Factory Number	Type	Manufacturer	Model	Calibration Due
MY47420048	Signal Generator	Agilent	N5181A	2019-04-05
325513	RF Amplifier	Amplifier Research	250W1000A	---
1007	RF Amplifier	OPHIR	5263FE	---
13450	Aneroid barometer	Made in Belarus	БАММ-1	2019-01-31
3000	Temperature and Humidity Meter	Made in Belarus	Сосна 004	2018-10-02
00060032	Log-periodic antenna	ETS Lindgren	3142C	2019-04-02
117161	Tape-measure	---	P-10	2018-11-30
r. 208	Semi anechoic chamber	Made in Belarus	---	2019-02-20
---	Rotation platform	Made in Belarus	---	---
---	Antenna control device	Made in Belarus	---	---

Record:

See page: 8

TEST PARAMETERS

Port: Enclosure
Basic Standard: EN 61000-4-3
Frequency range: 80 – 1000 MHz
Frequency Step: 1,0 %
Test Level: 3 V/m

Performance Criteria: A
Dwell time: 3 sec
Modulation: 80 % AM @ 1 kHz

TEST RESULTS

Frequency range	Frequency step	Dwell time	EUT position	Test level	Antenna polarization	Criteria	Result
80 – 1000 MHz	1,0 %	3 sec	0°	3 V/m	Vertical	A	Criteria A fulfilled
		3 sec	90°	3 V/m	Vertical	A	Criteria A fulfilled
		3 sec	180°	3 V/m	Vertical	A	Criteria A fulfilled
		3 sec	270°	3 V/m	Vertical	A	Criteria A fulfilled
		3 sec	0°	3 V/m	Horizontal	A	Criteria A fulfilled
		3 sec	90°	3 V/m	Horizontal	A	Criteria A fulfilled
		3 sec	180°	3 V/m	Horizontal	A	Criteria A fulfilled
		3 sec	270°	3 V/m	Horizontal	A	Criteria A fulfilled

Result: PASSED

3.3 Power frequency magnetic fields to EN 61000-4-8:2010.

Information concerning the test:

Tested by:	Murauyou A.A.	Ambient temperature:	21,2 °C
Test date:	2018-07-04	Rel. humidity:	45,6 %
		Atmospheric pressure:	99,4 kPa

Working mode	Description
№ 1	Continuous operation in lighting mode

TEST DESCRIPTION:

Method

EN 61000-4-8:2010

Electromagnetic compatibility (EMC) -Part 4-8: Testing and measurement techniques -Power frequency magnetic field immunity test

Result: N.A. (Equipment doesn't contain components susceptible to magnetic fields, such as Hall elements or magnetic field sensors).

3.4 Fast Transient/Burst according to EN 61000-4-4:2012.

Information concerning the test:

Tested by:	MuraYOU A.A.	Ambient temperature:	23,2 °C
Test date:	2018-07-05	Rel. humidity:	46,7 %
		Atmospheric pressure:	99,9 kPa

Working mode	Description
№ 1	Continuous operation in lighting mode

TEST DESCRIPTION:

Method

EN 61000-4-4

Electromagnetic compatibility (EMC) -- Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test.

Test set-up

A ground reference plane is located on the floor, and connected to earth via a low impedance connection. The burst generator reference ground is connected to the reference plane. EuT is placed on a wooden table 10 cm above the reference plane, and all cables attached to the EuT is isolated the same way.

Procedure

The Burst were applied simultaneously between a ground reference plane and all of the power supply terminals.

Test results can be found in the following pages.

Used test equipment:

Factory Number	Type	Manufacturer	Model	Calibration Due
1125	Noise generator	EMC Partner	TRA2000	2019-06-30
13450	Aneroid barometer	Made in Belarus	БАММ-1	2019-01-31
3000	Temperature and Humidity Meter	Made in Belarus	Сосна 004	2018-10-02

Burst parameters:

Tr/Th, Repetition rate: 5/50 ns, 5 kHz
Burst-duration and -period: $T_D = 15$ ms, $T_r = 300$ ms

Record:

Terminal	Operation Mode	Test Voltage [V]	Polarity	Coupling	Duration [min]	Required Criteria	Result
Mains	Test Mode: 1	1000	+	L1+N+PE	2	B	Criterion A fulfilled
Mains	Test Mode: 1	1000	-	L1+N+PE	2	B	Criterion A fulfilled

Result: PASSED

3.5 Conductive disturbances, inducted by radio-frequency fields according to EN 61000-4-6:2014

Information concerning the test:

Tested by:	MuraYOU A.A.	Ambient temperature:	22,6 °C
Test date:	2018-07-05	Rel. humidity:	46,4 %
		Atmospheric pressure:	99,9 kPa

Working mode	Description
№ 1	Continuous operation in lighting mode

Test Procedure:

Method

EN 61000-4-6

Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields”.

Test set-up

EUT is positioned on a 0,1 m wooden support on 2*1 m metallic ground reference plane. The unwanted signal is then inducted successively into mains supply terminals. The performance is evaluated them according to the defined performance criteria.

Procedure

The unwanted signal is then inducted successively into electromagnetic clamp. Cable for mains is isolated from the reference ground plane by a 5 cm isolating support. A signal level/type as specified below is applied in the defined frequency range. The frequency is swept through the range with a step width and a dwell time per frequency as specified below.

Test results can be found in the following pages.

Used test equipment:

Factory Number	Type	Manufacturer	Model	Calibration Due
MY47420048	Signal Generator	Agilent	N5181A	2019-04-05
325513	RF Amplifier	Amplifier Research	100A400	N.A.
101133	Electromagnetic clamp	“Fischer Custom Communications Inc.”	F-2031-23	2019-01-11
13450	Aneroid barometer	Made in Belarus	БАММ-1	2019-01-31
3000	Temperature and Humidity Meter	Made in Belarus	Сосна 004	2018-10-02

Record:

See page: 12

Test Parameters

Port: AC Input
Basic Standard: EN 61000-4-6
Frequency range: 0,15 – 230 MHz
Frequency Step: 0,2 %

Test Level: 3 V (e.m.f.)
Performance Criteria: A
Dwell time: 10 sec
Modulation: 80% AM@1kHz

TEST RESULTS

Port	Operation Mode	Frequency Step:	Frequency range:	Test Level	Dwell time:	Test results
Mains	Test mode: 1	0,2 %	0,15 – 230 MHz	3 V (e.m.f.)	10 sec	Criteria A fulfilled

Result: PASSED

3.6 Surge Pulse according to EN 61000-4-5:2014

Information concerning the test:

Tested by:	MuraYOU A.A.	Ambient temperature:	22,7 °C
Test date:	2018-07-05	Rel. humidity:	45,9 %
		Atmospheric pressure:	99,9 kPa

Working mode	Description
№ 1	Continuous operation in lighting mode

TEST DESCRIPTION:

Method

EN 61000-4-5

Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test.

Test set-up

A ground reference plane is located on the floor, and connected to earth via a low impedance connection. The surge-generator and coupling/decoupling network reference ground is connected to the ground reference plane. EuT is placed on a wooden table 10 cm above the reference plane, and all cables attached to the EuT is isolated the same way.

Procedure

The surge test was applicable to AC mains (between each phase and ground and between the phases). Test results can be found in the following pages.

Used test equipment:

Factory Number	Type	Manufacturer	Model	Calibration Due
1125	Noise generator	EMC Partner	TRA2000	2019-06-30
13450	Aneroid barometer	Made in Belarus	БАММ-1	2019-01-31
3000	Temperature and Humidity Meter	Made in Belarus	Сосна 004	2018-10-02

Surge parameters:

Tr/Th: 1,2/50 (8/20) μ s
Repetition rate: 1 pulse per minute

Record:

See pages: 14

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Terminal	Operation Mode	Test Voltage [V]	Polarity	Coupling	Phase	Number of Impulses	Required Criteria	Comments/Remarks
Line-to-line								
Mains	Test mode: 1	1000	-	L1-N	90 °	5	C	Criterion A fulfilled.
Mains	Test mode: 1	1000	+	L1-N	90 °	5	C	Criterion A fulfilled.
Mains	Test mode: 1	1000	-	L1-N	270 °	5	C	Criterion A fulfilled.
Mains	Test mode: 1	1000	+	L1-N	270 °	5	C	Criterion A fulfilled.
Line-to-earth								
Mains	Test mode: 1	1000	-	L1-PE	90 °	5	C	Criterion A fulfilled.
Mains	Test mode: 1	1000	+	L1-PE	90 °	5	C	Criterion A fulfilled.
Mains	Test mode: 1	1000	-	L1-PE	270 °	5	C	Criterion A fulfilled.
Mains	Test mode: 1	1000	+	L1-PE	270 °	5	C	Criterion A fulfilled.
Mains	Test mode: 1	1000	-	N-PE	90 °	5	C	Criterion A fulfilled.
Mains	Test mode: 1	1000	+	N-PE	90 °	5	C	Criterion A fulfilled.
Mains	Test mode: 1	1000	-	N-PE	270 °	5	C	Criterion A fulfilled.
Mains	Test mode: 1	1000	+	N-PE	270 °	5	C	Criterion A fulfilled.
Mains	Test mode: 1	2000	-	L1-PE	90 °	5	C	Criterion A fulfilled.
Mains	Test mode: 1	2000	+	L1-PE	90 °	5	C	Criterion A fulfilled.
Mains	Test mode: 1	2000	-	L1-PE	270 °	5	C	Criterion A fulfilled.
Mains	Test mode: 1	2000	+	L1-PE	270 °	5	C	Criterion A fulfilled.
Mains	Test mode: 1	2000	-	N-PE	90 °	5	C	Criterion A fulfilled.
Mains	Test mode: 1	2000	+	N-PE	90 °	5	C	Criterion A fulfilled.
Mains	Test mode: 1	2000	-	N-PE	270 °	5	C	Criterion A fulfilled.
Mains	Test mode: 1	2000	+	N-PE	270 °	5	C	Criterion A fulfilled.

Result: PASSED

3.7 Voltage dip/short interruption according to EN 61000-4-11:2004.

Information concerning the test:

Tested by:	MuraYOU A.A.	Ambient temperature:	22,7 °C
Test date:	2018-07-05	Rel. humidity:	45,9 %
		Atmospheric pressure:	99,9 kPa

Working mode	Description
№ 1	Continuous operation in lighting mode

TEST DESCRIPTION:

Method

EN 61000-4-11

Electromagnetic compatibility (EMC) -- Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests.

Test set-up

EuT was placed on the reference plane on 10 cm of insulating support.

Procedure

EUT was connected to the power mains through a coupling device that directly couples to the Voltage Dips and Interruption Generator.

Test results can be found in the following pages.

Used test equipment:

Factory Number	Type	Manufacturer	Model	Calibration Due
1125	Noise generator	EMC Partner	TRA2000	2019-06-30
13450	Aneroid barometer	Made in Belarus	БАММ-1	2019-01-31
3000	Temperature and Humidity Meter	Made in Belarus	Сосна 004	2018-10-02

Record:

Test Parameters:

Operation Mode	Residual % Unom	Periods	Start Phase	Repeat	Gap (s)	Delay (s)	Failure Criteria	Result
Test mode: 1	0	0,5	0	10	10	10	B	Criterion B fulfilled
	70	10	0	10	10	10	C	Criterion B fulfilled

Result: PASSED

4 Summary of Emission Test Result according to EN 55015:2013.

Results of the individual Tests:

Section of the Generic Standard		Frequency Range	Applied Basic Standard	Reference to Protocol Pages	Results
4.2	Insertion loss	150 kHz – 1 605 kHz	CISPR 15:2013	---	N.A.
4.3	Disturbance voltages				
4.3.1	Mains terminals	9 kHz – 30 MHz	CISPR 15:2013	17	Complied
4.3.2	Load terminals			---	N.A.
4.3.3	Control terminals			---	N.A.
4.4	Radiated electromagnetic disturbances				
4.4.1	Enclosure	9 kHz – 30 MHz	CISPR 15:2013	19	Complied
4.4.2		30 MHz – 300 MHz	CISPR 32:2012	21	Complied

Result: PASSED

4.1 Terminal Disturbance Voltage Measurement according to EN 55015:2013.

Information concerning the test:

Tested by:	MuraYOU A.A.	Ambient temperature:	23,6 °C
Test date:	2018-07-09	Rel. humidity:	48,2 %
		Atmospheric pressure:	99,8 kPa

Operating modes of the sample used for testing

No.	Description
№ 1	Continuous operation in lighting mode

TEST DESCRIPTION:

Method

EN 55015:2013

Test Procedure:

The disturbance voltage measured at the mains terminals of the lighting equipment by means of the arrangement described in Figure 6 EN 55015:2013.

The output terminals of the artificial mains network (V-network) and the terminals a-b shall be positioned 0,8 m ± 20 % apart and shall be connected by the two power conductors of a flexible three-core cable of 0,8 m length.

Used test equipment:

Factory Number	Type	Manufacturer	Model	Calibration Due
02404	Test receiver	VEB MESSELEKTRONIK	SMV-11	2018-10-30
09472	Artificial Mains Network	VEB MESSELEKTRONIK	NNB-111	2018-09-14
C011230	Oscilloscope	Tektronix	TDS3052C	2018-10-04
13450	Aneroid barometer	Made in Belarus	БАММ-1	2019-01-31
3000	Temperature and Humidity Meter	Made in Belarus	Сосна 004	2018-10-02

Record:

See page: 18

Test mode 1:

Frequency, kHz	Test results, dB(μ V)		Limit, dB(μ V)		Remarks
	QP	AV	QP	AV	
	N	N			
10	85	---	110,0		Pass
58	75	---	88,7		Pass
117	45	---	82,3		Pass
150	43	---	66,0	56,0	Pass
178	48	---	64,6	54,6	Pass
289	46	---	60,6	50,6	Pass
297	48	---	60,3	50,3	Pass
355	47	---	58,9	48,9	Pass
504	38	---	56,0	46,0	Pass
1000	35	---	56,0	46,0	Pass
1528	32	---	56,0	46,0	Pass
2000	30	---	56,0	46,0	Pass
3500	21	---	56,0	46,0	Pass
6000	24	---	60,0	50,0	Pass
10000	28	---	60,0	50,0	Pass
13500	25	---	60,0	50,0	Pass
16000	21	---	60,0	50,0	Pass
20000	21	---	60,0	50,0	Pass
22000	18	---	60,0	50,0	Pass
24000	15	---	60,0	50,0	Pass
30000	23	---	60,0	50,0	Pass

Frequency, kHz	Test results, dB(μ V)		Limit, dB(μ V)		Remarks
	QP	AV	QP	AV	
	L1	L1			
10	85	---	110,0		Pass
58	75	---	88,7		Pass
117	46	---	82,3		Pass
150	42	---	66,0	56,0	Pass
178	47	---	64,6	54,6	Pass
289	47	---	60,6	50,6	Pass
297	49	---	60,3	50,3	Pass
355	48	---	58,9	48,9	Pass
504	36	---	56,0	46,0	Pass
1000	35	---	56,0	46,0	Pass
1528	32	---	56,0	46,0	Pass
2000	30	---	56,0	46,0	Pass
3500	27	---	56,0	46,0	Pass
6000	29	---	60,0	50,0	Pass
10000	32	---	60,0	50,0	Pass
13500	31	---	60,0	50,0	Pass
16000	25	---	60,0	50,0	Pass
20000	23	---	60,0	50,0	Pass
22000	24	---	60,0	50,0	Pass
24000	20	---	60,0	50,0	Pass
30000	23	---	60,0	50,0	Pass

Result: PASSED

4.2 Radiated electromagnetic disturbances in frequency range from 9 kHz to 30 MHz according to EN 55015:2013.

Information concerning the test:

Tested by:	Murauyou A.A.	Ambient temperature:	23,7 °C
Test date:	2018-07-09	Rel. humidity:	48,5 %
		Atmospheric pressure:	99,8 kPa

Operating modes of the sample used for testing

No.	Description
№ 1	Continuous operation in lighting mode

TEST DESCRIPTION:

Method

According to EN 55015:2013.

Test Procedure:

The magnetic component measured by means of a loop antenna as described in 4.7 of CISPR 16-1-4. The lighting equipment was placed in the center of the antenna shown in Annex C of CISPR 16-1-4:2010. The induced current in the loop antenna is measured by means of a current probe (1 V/A) and the CISPR measuring receiver (or equivalent). By means of a coaxial switch, the three field directions measured in sequence. Each value shall fulfill the requirements given.

Used test equipment:

Factory Number	Type	Manufacturer	Model	Calibration Due
02404	Test receiver	VEB MESSELEKTRONIK	SMV-11	2018-10-30
TPA00407	Three-axis frame antenna	ROHDE & SCHWARZ	TRA-002	2019-02-24
13450	Aneroid barometer	Made in Belarus	БАММ-1	2019-01-31
3000	Temperature and Humidity Meter	Made in Belarus	Сочна 004	2018-10-02

Record:

See page: 20

IF Bandwidth	Frequency, kHz	Measured value, dB(μ A)			Limit dB(μ A)	Results
		Loop 1	Loop 2	Loop 3		
0,2 kHz	9	< 10	< 10	< 10	88,0	Pass
	25	< 10	< 10	< 10	88,0	Pass
	50	< 10	< 10	< 10	88,0	Pass
	100	< 10	< 10	< 10	74,0	Pass
9 kHz	150	< 10	< 10	< 10	58,0	Pass
	240	< 10	< 10	< 10	52,4	Pass
	500	< 10	< 10	< 10	43,7	Pass
	1000	< 10	< 10	< 10	35,4	Pass
	1400	< 10	< 10	< 10	31,4	Pass
	2000	< 10	< 10	< 10	27,2	Pass
	6000	< 10	< 10	< 10	22,0	Pass
	10000	< 10	< 10	< 10	22,0	Pass
	22000	< 10	< 10	< 10	22,0	Pass
30000	< 10	< 10	< 10	22,0	Pass	

4.3 Radiated electromagnetic disturbances in frequency range from 30 MHz to 300 MHz according to EN 55015:2013.

Information concerning the test:

Tested by:	Murauyou A.A.	Ambient temperature:	21,1 °C
Test date:	2018-07-10	Rel. humidity:	49,3 %
		Atmospheric pressure:	99,7 kPa

Operating modes of the sample used for testing

No.	Description
№ 1	Continuous operation in lighting mode

TEST DESCRIPTION:

Method

According to EN 55015:2013.

Test Procedure:

EuT was placed on a wooden support 0.8 m parallel to the floor. The distance during measurements between antenna and the boundary of the EUT was 3 m using proportionality factor of 20 dB per decade to normalize the measured data to the specified distance for determining compliance. The antenna adjusted between 1 m and 4 m in height above ground plane for maximum meter reading at each test frequency. The measurements was applied with the antennas facing around the EuT with horizontal and vertical polarization.

Used test equipment:

Factory Number	Type	Manufacturer	Model	Calibration Due
00060032	Log-periodic antenna	ETS Lindgren	3142C	2019-04-02
1311002	Test receiver	GAUSS INSTRUMENTS	TDEMI 26G	2019-06-07
117161	Tape-measure	---	P-10	2018-11-30
---	Open area test site	---	---	2019-10-16
---	Rotation platform	Made in Belarus	---	---
---	Antenna control device	Made in Belarus	---	---
13450	Aneroid barometer	Made in Belarus	БАММ-1	2019-01-31
3000	Temperature and Humidity Meter	Made in Belarus	Сосна 004	2018-10-02

Record:

See page: 22

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Scan1: 30.0 MHz, 50.0 kHz, 300.0 MHz; IF:120 kHz, 1.0 s QP, Att AutodB, Horizontal Polarization

f	Magnitude dB μ V/m	Limit	Difference	Name	Result
30.079 MHz	30.74	40.00	9.26	EN55015,QP	Pass
46.183 MHz	22.29	40.00	17.71	EN55015,QP	Pass
72.919 MHz	33.89	40.00	6.11	EN55015,QP	Pass
93.669 MHz	23.76	40.00	16.24	EN55015,QP	Pass
104.616 MHz	31.78	40.00	8.22	EN55015,QP	Pass
111.231 MHz	20.24	40.00	19.76	EN55015,QP	Pass
143.006 MHz	20.21	40.00	19.79	EN55015,QP	Pass
159.189 MHz	21.36	40.00	18.64	EN55015,QP	Pass
174.546 MHz	24.35	40.00	15.65	EN55015,QP	Pass
175.609 MHz	24.29	40.00	15.71	EN55015,QP	Pass
201.242 MHz	23.45	40.00	16.55	EN55015,QP	Pass
223.961 MHz	23.58	40.00	16.42	EN55015,QP	Pass
238.727 MHz	24.45	47.00	22.55	EN55015,QP	Pass
247.901 MHz	25.16	47.00	21.84	EN55015,QP	Pass
264.714 MHz	25.23	47.00	21.77	EN55015,QP	Pass
288.379 MHz	26.08	47.00	20.92	EN55015,QP	Pass

Scan1: 30.0 MHz, 50.0 kHz, 300.0 MHz; IF:120 kHz, 1.0 s QP, Att AutodB, Vertical Polarization

f	Magnitude dB μ V/m	Limit	Difference	Name	Result
36.969 MHz	35.41	40.00	4.59	EN55015,QP	Pass
46.656 MHz	26.77	40.00	13.23	EN55015,QP	Pass
93.709 MHz	27.83	40.00	12.17	EN55015,QP	Pass
104.616 MHz	32.01	40.00	7.99	EN55015,QP	Pass
114.026 MHz	20.26	40.00	19.74	EN55015,QP	Pass
142.770 MHz	20.15	40.00	19.85	EN55015,QP	Pass
154.898 MHz	21.96	40.00	18.04	EN55015,QP	Pass
172.223 MHz	25.09	40.00	14.91	EN55015,QP	Pass
190.847 MHz	22.41	40.00	17.59	EN55015,QP	Pass
192.028 MHz	22.46	40.00	17.54	EN55015,QP	Pass
223.371 MHz	23.23	40.00	16.77	EN55015,QP	Pass
240.026 MHz	24.25	47.00	22.75	EN55015,QP	Pass
256.209 MHz	24.42	47.00	22.58	EN55015,QP	Pass
271.566 MHz	24.67	47.00	22.33	EN55015,QP	Pass
288.024 MHz	25.55	47.00	21.45	EN55015,QP	Pass

5 Summary of Exposure Test Result according to EN 62493:2015.

Results of the individual Tests:

Section of the Generic Standard		Frequency Range	Applied Basic Standard	Reference to Protocol Pages	Results
4.2	The weighted and total induced current density due to the electric field created by the lighting equipment	20 kHz – 10 MHz	EN 62493:2015	24	Complied

Result: PASSED

5.1 The weighted and total induced current density due to the electric field created by the lighting equipment in frequency range from 20 kHz – 10 MHz according to EN 62493:2015.

Information concerning the test:

Tested by:	MuraYOU A.A.	Ambient temperature:	22,6 °C
Test date:	2018-07-10	Rel. humidity:	47,3 %
		Atmospheric pressure:	99,7 kPa

Operating modes of the sample used for testing

No.	Description
№ 1	Continuous operation in lighting mode

TEST DESCRIPTION:

Method

According to Annex E EN 62493:2015.

Test Procedure:

According to Annex E EN 62493:2015.

Used test equipment:

Factory Number	Type	Manufacturer	Model	Calibration Due
134	"Van der Houfden" test head	SCHWARZBECK	VDHH 9502	2018-07-04
1311002	Test receiver	GAUSS INSTRUMENTS	TDEMI 26G	2019-06-07
117161	Tape-measure	---	P-10	2018-11-30
13450	Aneroid barometer	Made in Belarus	БАММ-1	2019-01-31
3000	Temperature and Humidity Meter	Made in Belarus	Сочна 004	2018-10-02

Record:

Type of equipment	Measuring distance, cm	The measured value of the weighted and total induced current density (F) due to the electric field created by the lighting equipment in the frequency range from 20 kHz to 10 MHz	Coefficient F limit	Result
Lighting equipment for roads and street lighting	200	0,051	0,85	Pass

EMC TEST REPORT
№ 2018-263 EMC

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Pages 30

6 Harmonic Currents emissions according to EN 61000-3-2:2014.

Information concerning the test:

Tested by:	Muraouyou A.A.	Ambient temperature:	23,1 °C
Test date:	2018-07-11	Rel. humidity:	48,3 %
		Atmospheric pressure:	99,1 kPa

Test mode	Description
№ 1	Continuous operation in lighting mode

TEST DESCRIPTION:

Method

EN 61000-3-2

Test Procedure:

According to clause 6.2 EN 61000-3-2

Measurement results can be found in the following pages.

Used test equipment:

Factory Number	Type	Manufacturer	Model	Calibration Due
1347A00836/ 1343A00428/ 1347A02705	The AMETEK MX15-CTSHL measuring complex consists of AMETEK PACS-1 power analyzer, AMETEK MX15-1Pi programmable power supply, programmable AMETEK OMNI 1-37 network impedance	«Ametek»	AMETEK PACS-1/ MX15-1Pi/ OMNI 1-37	2018-12-21
13450	Aneroid barometer	Made in Belarus	БАММ-1	2019-01-31
3000	Temperature and Humidity Meter	Made in Belarus	Сосна 004	2018-10-02

Record:

Result: PASSED

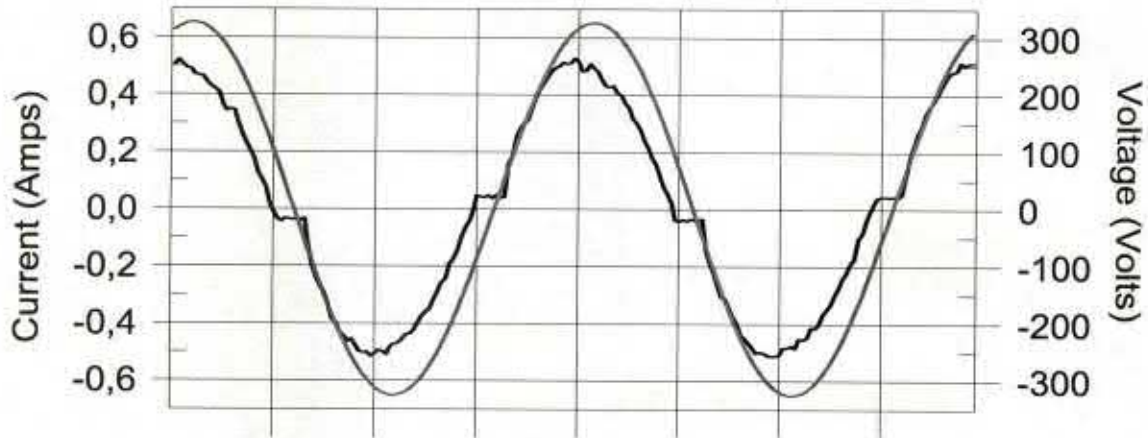
See pages: 26 - 28

Harmonics – Class-C per Ed. 4.0 (2014)(Run time)

Test category: Class-C per Ed. 4.0 (2014) (European limits) Test Margin: 100
Test date: 09.07.2018 Start time: 13:50:00 End time: 13:52:41
Test duration (min): 2,5 Data file name: H-000371.cts_data
Comment: Comment
Customer: Customer information

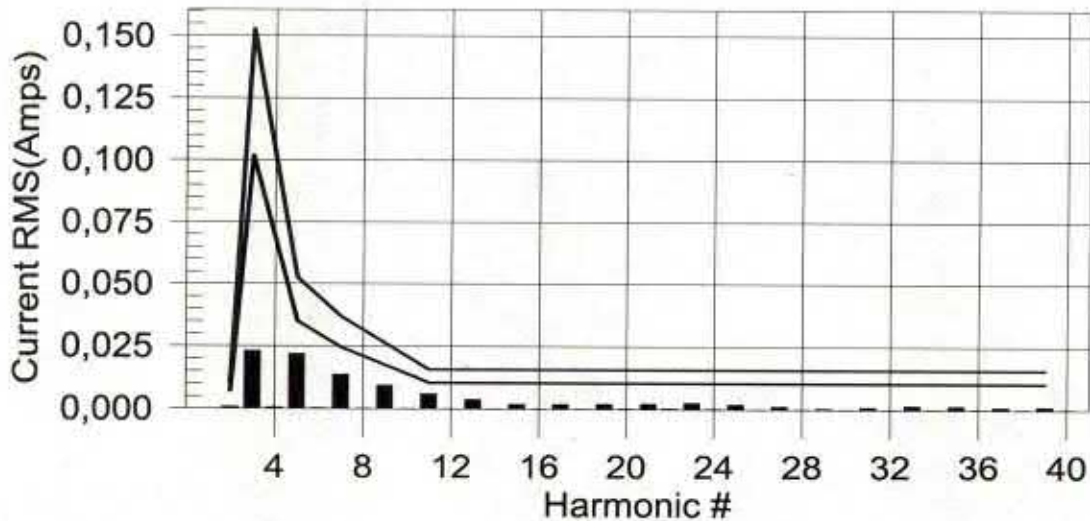
Test Result: Pass Source qualification: Normal

Current & voltage waveforms



Harmonics and Class C limit line

European Limits



Test result: Pass Worst harmonics H5-42,8% of 150% limit, H5-62,8% of 100% limit

EMC TEST REPORT
№ 2018-263 EMC

Current Test Result Summary (Run time)

Test category: Class-C per Ed. 4.0 (2014) (European limits) Test Margin: 100
 Test date: 09.07.2018 Start time: 13:50:00 End time: 13:52:41
 Test duration (min): 2,5 Data file name: H-000371.cts_data
 Comment: Comment
 Customer: Customer information

Test Result: Pass Source qualification: Normal
 THC(A): 0,037 I-THD(%): 10,7 POHC(A): 0,005 POHC Limit(A): 0,033

Highest parameter values during test:

V_RMS (Volts):	230,55	Frequency(Hz):	50,00
I_Peak (Amps):	0,551	I_RMS (Amps):	0,352
I_Fund (Amps):	0,350	Crest Factor:	1,573
Power (Watts):	78,7	Power Factor:	0,972

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0,001	0,007	0,0	0,001	0,010	0,0	Pass
3	0,023	0,102	22,6	0,025	0,153	16,3	Pass
4	0,001	0,000	0,0	0,001	0,000	0,0	Pass
5	0,022	0,035	62,8	0,022	0,052	42,8	Pass
6	0,000	0,000	0,0	0,000	0,000	0,0	Pass
7	0,014	0,024	56,1	0,014	0,037	38,6	Pass
8	0,000	0,000	0,0	0,000	0,000	0,0	Pass
9	0,010	0,017	54,5	0,010	0,026	36,9	Pass
10	0,000	0,000	0,0	0,000	0,000	0,0	Pass
11	0,006	0,010	58,0	0,006	0,016	39,6	Pass
12	0,000	0,000	0,0	0,000	0,000	0,0	Pass
13	0,004	0,010	0,0	0,004	0,016	0,0	Pass
14	0,000	0,000	0,0	0,000	0,000	0,0	Pass
15	0,002	0,010	0,0	0,002	0,016	0,0	Pass
16	0,000	0,000	0,0	0,000	0,000	0,0	Pass
17	0,002	0,010	0,0	0,002	0,016	0,0	Pass
18	0,000	0,000	0,0	0,000	0,000	0,0	Pass
19	0,002	0,010	0,0	0,002	0,016	0,0	Pass
20	0,000	0,000	0,0	0,000	0,000	0,0	Pass
21	0,002	0,010	0,0	0,003	0,016	0,0	Pass
22	0,000	0,000	0,0	0,000	0,000	0,0	Pass
23	0,003	0,010	0,0	0,003	0,016	0,0	Pass
24	0,000	0,000	0,0	0,000	0,000	0,0	Pass
25	0,002	0,010	0,0	0,002	0,016	0,0	Pass
26	0,000	0,000	0,0	0,000	0,000	0,0	Pass
27	0,001	0,010	0,0	0,001	0,016	0,0	Pass
28	0,000	0,000	0,0	0,000	0,000	0,0	Pass
29	0,001	0,010	0,0	0,001	0,016	0,0	Pass
30	0,000	0,000	0,0	0,000	0,000	0,0	Pass
31	0,001	0,010	0,0	0,001	0,016	0,0	Pass
32	0,000	0,000	0,0	0,000	0,000	0,0	Pass
33	0,002	0,010	0,0	0,002	0,016	0,0	Pass
34	0,000	0,000	0,0	0,000	0,000	0,0	Pass
35	0,002	0,010	0,0	0,002	0,016	0,0	Pass
36	0,000	0,000	0,0	0,000	0,000	0,0	Pass
37	0,001	0,010	0,0	0,001	0,016	0,0	Pass
38	0,000	0,000	0,0	0,000	0,000	0,0	Pass
39	0,001	0,010	0,0	0,001	0,016	0,0	Pass
40	0,000	0,000	0,0	0,000	0,000	0,0	Pass

EMC TEST REPORT
№ 2018-263 EMC

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Voltage Source Verification Data (Run time)

Test category: Class-C per Ed. 4.0 (2014) (European limits) Test Margin: 100
 Test date: 09.07.2018 Start time: 13:50:00 End time: 13:52:41
 Test duration (min): 2,5 Data file name: H-000371.cts_data
 Comment: Comment
 Customer: Customer information

Test Result: Pass Source qualification: Normal

Highest parameter values during test:

Voltage (Vrms):	230,55	Frequency(Hz):	50,00
I_Peak (Amps):	0,551	I_RMS (Amps):	0,352
I_Fund (Amps):	0,350	Crest Factor:	1,573
Power (Watts):	78,7	Power Factor:	0,972

Harm#	Harmonics V-rms	Limit V-rms	% of Limit	Status
2	0,075	0,461	16,21	OK
3	0,140	2,075	6,73	OK
4	0,036	0,461	7,78	OK
5	0,066	0,922	7,11	OK
6	0,018	0,461	3,98	OK
7	0,047	0,691	6,84	OK
8	0,006	0,461	1,32	OK
9	0,021	0,461	4,51	OK
10	0,009	0,461	2,04	OK
11	0,010	0,231	4,25	OK
12	0,010	0,231	4,36	OK
13	0,013	0,231	5,78	OK
14	0,005	0,231	2,01	OK
15	0,012	0,231	5,30	OK
16	0,005	0,231	2,12	OK
17	0,008	0,231	3,65	OK
18	0,005	0,231	2,29	OK
19	0,006	0,231	2,72	OK
20	0,010	0,231	4,20	OK
21	0,011	0,230	4,65	OK
22	0,004	0,231	1,81	OK
23	0,008	0,230	3,44	OK
24	0,004	0,231	1,61	OK
25	0,008	0,231	3,60	OK
26	0,004	0,231	1,54	OK
27	0,009	0,231	3,92	OK
28	0,003	0,231	1,46	OK
29	0,008	0,231	3,37	OK
30	0,003	0,231	1,37	OK
31	0,005	0,231	2,22	OK
32	0,003	0,231	1,34	OK
33	0,005	0,231	2,16	OK
34	0,004	0,230	1,58	OK
35	0,009	0,231	4,09	OK
36	0,003	0,231	1,51	OK
37	0,004	0,231	1,77	OK
38	0,003	0,231	1,30	OK
39	0,009	0,231	4,08	OK
40	0,005	0,231	2,37	OK

7 Voltage fluctuations and flicker according to EN 61000-3-3:2013.

Information concerning the test:

Tested by:	Murauyou A.A.	Ambient temperature:	23,1 °C
Test date:	2018-07-11	Rel. humidity:	48,3 %
		Atmospheric pressure:	99,1 kPa

Test mode	Description
№ 1	Continuous operation in lighting mode

TEST DESCRIPTION:

Method

EN 61000-3-3

Test Procedure:

According to clause 6 EN 61000-3-3.

Measurement results can be found in the following pages.

Used test equipment:

Factory Number	Type	Manufacturer	Model	Calibration Due
1347A00836/ 1343A00428/ 1347A02705	The AMETEK MX15-CTSHL measuring complex consists of AMETEK PACS-1 power analyzer, AMETEK MX15-1Pi programmable power supply, programmable AMETEK OMNI 1-37 network impedance	«Ametek»	AMETEK PACS-1/ MX15-1Pi/ OMNI 1-37	2018-12-21
13450	Aneroid barometer	Made in Belarus	БАММ-1	2019-01-31
3000	Temperature and Humidity Meter	Made in Belarus	Сосна 004	2018-10-02

Record:

Test mode 1:

Parameter	Measured value	Limit	Result
Vrms at the end of test (Volt)	230,31		
Highest dt (%)	0,00	N/A	N/A
T-max (mS)	0,00	500,0 mS	Pass
Highest dc (%)	0,00	3,30 %	Pass
Highest dmax (%)	< 0,10	6,00 %	Pass
Highest Pst (10 min. period)	< 0,10	1,000	Pass
Highest Plt (2 hr. period)	< 0,10	0,650	Pass

Result: PASSED

Appendix 1 (Photos of the EuT)

Marking of sample



Marking of power supply



Sample appearance





DECLARATIE DE EVALUAREA ENERGETICA

Tip produs: Pro-Street Quasar S 90,
Pro-Street Quasar S 70,
Pro-Street Quasar S 50,
Pro-Street Quasar S 35,
Pro-Street Quasar S 25,
Pro-Street Quasar S 20.

Data: "08" octombrie 2019

În prezenta declarație confirmăm evaluarea energetică pentru corpurile de iluminat a companiei EcoCity SRL – Pro Street Quasar S - în cantitate de 437 buc. Care îndeplinesc condițiile de funcționare indicate

$Eac [kWh] = \{ 3877 [h] \times (90 \times 139 + 70 \times 109 + 50 \times 51 + 35 \times 18 + 25 \times 84 + 20 \times 36) = 26,14 \times 3877 = 101\,344,78 \text{ kW/an}$

"EcoCity" SRL





CERTIFICAT

DE CONFORMITATE A SISTEMULUI DE MANAGEMENT AL CALITĂȚII nr. SMC 0114

Certificat la "17" martie 2017

Valabil până la "17" martie 2020

ELIBERAT: **SRL „EcoCity”**

MD-2044, bd. Mircea cel Bătrân 11, mun. Chișinău, Republica Moldova

Oficiu: bd. Moscova 12/3 of. 21, mun. Chișinău, Republica Moldova

Tel: 022-022-000. E-mail: info@ecosity.md

PRIN PREZENTUL CERTIFICAT SE CONFIRMĂ, CĂ SISTEMUL
DE MANAGEMENT AL CALITĂȚII PENTRU ACTIVITĂȚILE DIN DOMENIUL:

PRODUCEREA ȘI COMERCIALIZAREA SISTEMELOR DE ILUMINARE CU LED

ESTE CONFORM CU CERINȚELE STABILITE ÎN STANDARDUL INTERNAȚIONAL:

ISO 9001:2015

adoptat ca standard național SM SR EN ISO 9001:2015

CERTIFICATUL ESTE ELIBERAT ÎN BAZA RAPORTULUI DE AUDIT № 092 din 14.03.17

Certificarea a fost efectuată de către Organismul de Certificare a Sistemelor de Management (OC SM) al Întreprinderii de Stat „Centrul de Metrologie Aplicată și Certificare” (ÎS CMAC).

Certificat de acreditare nr. OC smc-01 din 29 mai 2015

Evaluarea periodică se va efectua - O DATĂ PE AN de către OC SM al ÎS CMAC

str. Muncești 162a, mun. Chișinău, MD 2002, Republica Moldova

Oficiu: str. Coca 28, mun. Chișinău, MD 2064, Republica Moldova,

tel.: 022-21-84-89, fax: 022-74-54-89

Conducătorul
Organismului de Certificare

L.S.



Valentin MARDARI



CERTIFICAT

DE CONFORMITATE A SISTEMULUI DE MANAGEMENT DE MEDIU nr. SMM 0037

Certificat inițial la "17" martie 2017

Valabil până la "17" martie 2020

ELIBERAT : **SRL „EcoCity”**

MD-2044, bd. Mircea cel Bătrân 11, mun. Chișinău, Republica Moldova

Oficiu: bd. Moscova 12/3 of. 21, mun. Chișinău, Republica Moldova

Tel: 022-022-000, E-mail: info@ecosity.md

PRIN PREZENTUL CERTIFICAT SE CONFIRMĂ,
CĂ SISTEMUL DE MANAGEMENT DE MEDIU PENTRU ACTIVITĂȚILE DIN DOMENIUL:

PRODUCEREA ȘI COMERCIALIZAREA SISTEMELOR DE ILUMINARE CU LED

ESTE CONFORM CU CERINȚELE STABILITE ÎN STANDARDUL INTERNAȚIONAL:

ISO 14001:2004

adoptat ca standard național SM SR EN ISO 14001:2006

CERTIFICATUL ESTE ELIBERAT ÎN BAZA RAPORTULUI DE AUDIT № 092 din 14.03.17
Certificarea a fost efectuată de către Organismul de Certificare a Sistemelor de Management
(OC SM) al Întreprinderii de Stat „Centrul de Metrologie Aplicată și Certificare” (ÎS CMAC).
Evaluarea periodică se va efectua - **O DATĂ PE AN** de către OC SM al ÎS CMAC
str. Muncești 162a, mun. Chișinău, MD 2002, Republica Moldova
Oficiu: str. Coca 28, mun. Chișinău, MD 2064, Republica Moldova,
tel.: 022 21-84-89, fax: 022 74-54-89

Conducătorul
Organismului de Certificare



Valentin MARDARI



CERTIFICAT

DE CONFORMITATE A SISTEMULUI DE MANAGEMENT AL SĂNĂTĂȚII ȘI SECURITĂȚII OCUPAȚIONALE

nr. SMSO 0038

Certificat la "17" martie 2017

Valabil până la "17" martie 2020

ELIBERAT: **SRL „EcoCity”**

MD-2044, bd. Mircea cel Bătrân 11, mun. Chișinău, Republica Moldova

Oficiu: bd. Moscova 12/3 of. 21, mun. Chișinău, Republica Moldova

Tel: 022-022-000, info@ecosity.md

PRIN PREZENTUL CERTIFICAT SE CONFIRMĂ, CĂ SISTEMUL
DE MANAGEMENT AL SĂNĂTĂȚII ȘI SECURITĂȚII OCUPAȚIONALE
PENTRU ACTIVITĂȚILE DIN DOMENIUL:

PRODUCEREA ȘI COMERCIALIZAREA SISTEMELOR DE ILUMINARE CU LED

ESTE CONFORM CU CERINȚELE STABILITE ÎN STANDARDUL INTERNAȚIONAL:

OHSAS 18001:2007

adoptat ca standard național SM SR OHSAS 18001:2011

CERTIFICATUL ESTE ELIBERAT ÎN BAZA RAPORTULUI DE AUDIT № 092 din 14.03.17

Certificarea a fost efectuată de către Organismul de Certificare a Sistemelor de Management (OC SM) al Întreprinderii de Stat „Centrul de Metrologie Aplicată și Certificare” (ÎS CMAC).

Evaluarea periodică se va efectua - O DATĂ PE AN de către OC SM al ÎS CMAC

str. Muncești 162a, mun. Chișinău, MD 2002, Republica Moldova

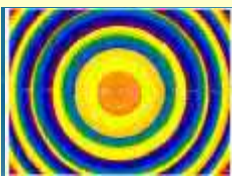
Oficiu: str. Coca 28, mun. Chișinău, MD 2064, Republica Moldova,

tel.: 022-21-84-89, fax: 022-74-54-89

Conducătorul
Organismului de Certificare



Valentin MARDARI



Laborator Fotometrie si Compatibilitate Electromagnetica



266-268 Calea Rahovei Sector 5 050912 – Bucharest Tel: +40 21 4042 146 Fax: +40 21 4042 148
E-mail: stelian.matei@electromagnetica.ro www.electromagnetica-led.ro

Raport de Incercare

X
X

Fotometrica Compatibilitate Electromagnetica

Continut

- 1 Date Identificare
- 2 Conditii si Echipamente
- 3 Rezultate Fotometrice
- 4 Tabel Distributie
- 5 Tabel Distributie
- 6 Tabel Distributie
- 7 Tabel Distributie
- 8 Rezultate Compatibilitate Electromagnetica

Număr Raport: 40	Data Raport: 20.02.2017	Întocmit de: R Matei
Laborator de Incercări: Laborator Fotometric si Compatibilitate Electromagnetica – Electromagnetica S A- Email: info@electromagnetica.ro		
Număr de înregistrare: 40/ 20.02.2017		
Adresa: Calea Rahovei, 266-268, Sector 5, Bucuresti, Romania		

Detalii Client	
Contact: EcoCity	Compania: EcoCity
Adresa: 11, Mircea cel Batrin str., 2012, Chisinau, Moldova- Tel/Fax: +373 22 022-000 Cell: +373790022099	Comandă: 40 20.02.2017
Data primiri : 20.02.2017	Email: marcel.malai@ecocity.md www.ecocity.md
Data incercarii : 20.02.2017	Data Raport: 20.02.2017

Detalii Produs	
Producător: EcoCity	Tip: Corp de iluminat cu LED
Model: Pro - Street Quasar 27W	COD: 170217/00
Descriere: Optica: Lens WR - R3	
Număr produse: 1	Stare: Functionare
LED: N/A	
Sursa de Alimentare : EcoCity LED driver20W	
Tensiune alimentare(V): 230	Curent alimentare (mA): 0.159
Putere (W): 18.1	Factor Putere: -0.490
Lungime aparat (mm): 380	Latime aparat (mm): 760
Înăltime aparat (mm): N/A	Greutate: N/A
Mod Functionare: Montare pe stalp	



Conditii

- Rezultatele încercărilor se refera numai la obiectele încercate.
- Reproducerea continutului acestui raport intr-o alta forma decat cea completa nu este permisa fara acordul scris al ELECTROMAGNETICA SA.
- Obiectele încercate au fost prezentate de catre beneficiar.

STANDARDE UTILIZATE

Fotometrie:

IES LM 79-8

Masurare prin metoda substitutiei. Valorile raportate sunt valori mediate si corectate prin program, in functie de distributia spectrala a fluxului emis de lampile de referinta si de responsivitatea spectrala a fotometrului etalon

Compatibilitate:

SR EN 55015:2007+
A1:2008+A2:2009

Incertitudinea de masurare reprezinta incertitudinea extinsa obtinuta prin multiplicarea incertitudinii standard cu factorul de extindere $k=2$ si a fost estimat in conformitate cu Ghidul de incertitudine de masurare CEI 98-3:2010 Partea 3. Valoarea masurandului se afla in intervalul de valori indicat, cu un nivel de incredere de 95%. Rezultatul masuratorilor sunt trasabile la Sistemul International de Unitati (SI). Trasabilitatea rezultatelor masurarilor este realizata si mentinuta prin comparari si etalonari in accord cu Standardele locale.

Sfera Integrare

Flux luminos, Temperatură de culoare		
Etalon: Flux -Lampa Halogen ceramic 24V/50W , Seria 1203006		
Echipamentul utilizat: Sistem automat Spectrofotocolorimetru tip LMS 5000		
Diametru sfera(m):	0.5	1.5 x 2.5
Detector:Fotometru cu corectie $V(\lambda)$ si monocromator	Metoda masurare: Substitutie	
Trasabilitate: cu etaloane INMB (acreditat CIPM-MRA)	Interval scanare (nm): 5	
Data ultimei calibrări:26.02.2016		Nr. Certificat de etalonare lampă etalon: 04.03.058/2016 la data 10.02.2016
Timpul de stabilizare (minute): 30	Temperatura ambientala: 25°C	
Incertitudinea de măsurare $\pm 4.22\%$ (0,01 - 200 klx) (CIE sursa iluminant tip A) $\pm 3.55\text{ K}$ (1500 K - 25000 K) (CIE sursa iluminant tip A)		

Fotogoniometru

Distributie intensitate, Flux luminos		
Echipamentul utilizat: Sistem automa - Fotogoniometru tip LSG 1800 cu fotometru cu corectie $V(\lambda)$		
Distanța de lucru a fotometrului: 8.7 m	Tipul (geometria) măsurării: Far-Field	
Etalon: Flux/Intensitate -Lampa Halogen ceramic 24V/50W , Seria 1208040	Serie fotometru: 1001027	
Trasabilitate: cu etaloane INMB (acreditat CIPM-MRA)	Nr./Data Certificat de etalonare lampă etalon: 04.03.058/2016 la data 10.02.2016	
Data ultimei calibrări: 26.02.2016		
Timpul de stabilizare (minute): 30	Temperatura ambientala: 25°C	
Incertitudinea de măsurare: $\pm 1.88\%$ (0.01 - 100 klux) (CIE sursa iluminant tip A)		
Directie	Domeniu	Pas increment
Plan orizontal	-90° +90°	5°
Plan vertical	-90° +90°	1°
Tip masurare:	B- β si C- γ	

Compatibilitate Electromagnetica

Tensiune perturbatoare condusa		
Echipamentul Utilizat: Sistem cu scanare automata: Receptor (EMC 300A) , Retea artificiala (EMC 200A), Sursa curent alternativ (LSP 500)		
Domeniu frecventa: 9 kHz-30 MHz	Tip masurare: Masurarea tensiunilor perturbatoare la bornele de alimentare	
Largime banda: 200 Hz, pentru (9 ÷ 150) kHz 9 kHz, pentru (0.15 ÷ 30) MHz	Pas frecventa: 100 Hz pentru domeniul (9 ÷ 150) kHz 5 kHz, pentru domeniul (0,15 ÷ 30) MHz	
Detector: Prescanare -Valoare de vârf (QP) Scanare finala- Valoare medie (AV) și de cvasivârf (QP)	Timp masurare:	
		9 kHz-150 kHz 150 kHz-30 MHz
	Prescanare	10 ms 0.5 ms
	Scanare	4 sec 2 sec
Sursa de referinta: Sursa de tensiuni perturbatoare conduse	Seria: 11009 CRC Laplace	
Trasabilitate: Receptor, AMN, Sursa AC, Atenuator 20dB	Nr./Data Certificat de etalonare: SS1S1125CDNEM3037, SS1602045R1006W040 Nr.03.02-007/2016	
Timpul de stabilizare (minute): 30	Temperatura ambientala: 25°C	
Incertitudinea de Masurare: $\pm 4,12\text{ dB}\mu\text{V}$		

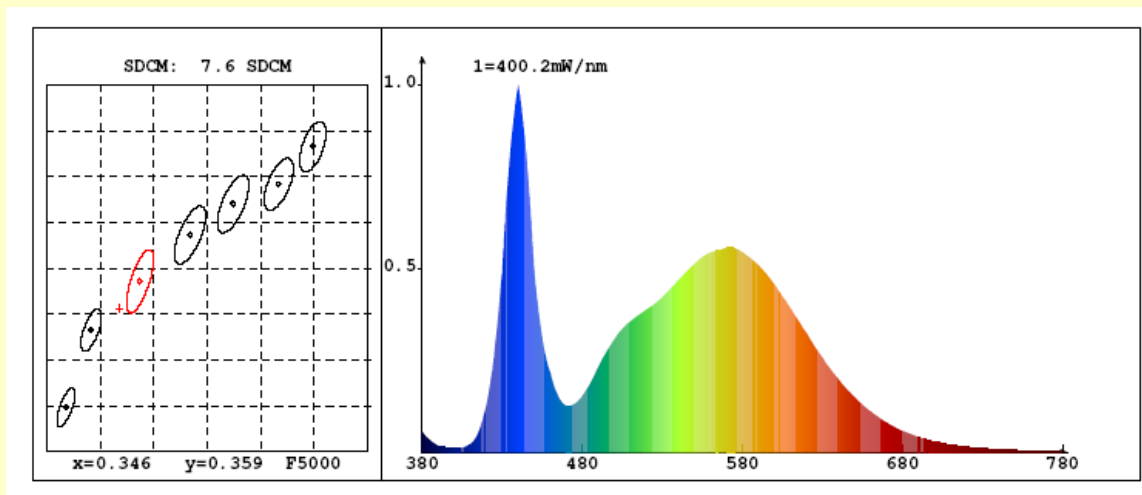
Rezultate Sfera Integrare



Modul de amplasare in sfera de integrare al aparatului supus incercarii

Flux (lumens): 2466.9	Temperatura (°C): 25.2
CIE 1931 Chromaticity Cx: 0.3321	CIE 1931 Chromaticity Cy: 0.3466
CRI (%):70.7	CCT (K): 5519
Eficienta (lm/W): 136.31	Putere Luminoasa (W): 7.774

Distributie Spectrala si departare de locul Planckian



Parametri electrici la momentul incercarii		Data: 20.02.2017	
Tensiune:230V	Curent:0.159A	Putere:18.1W	Factor de Putere:-0.490

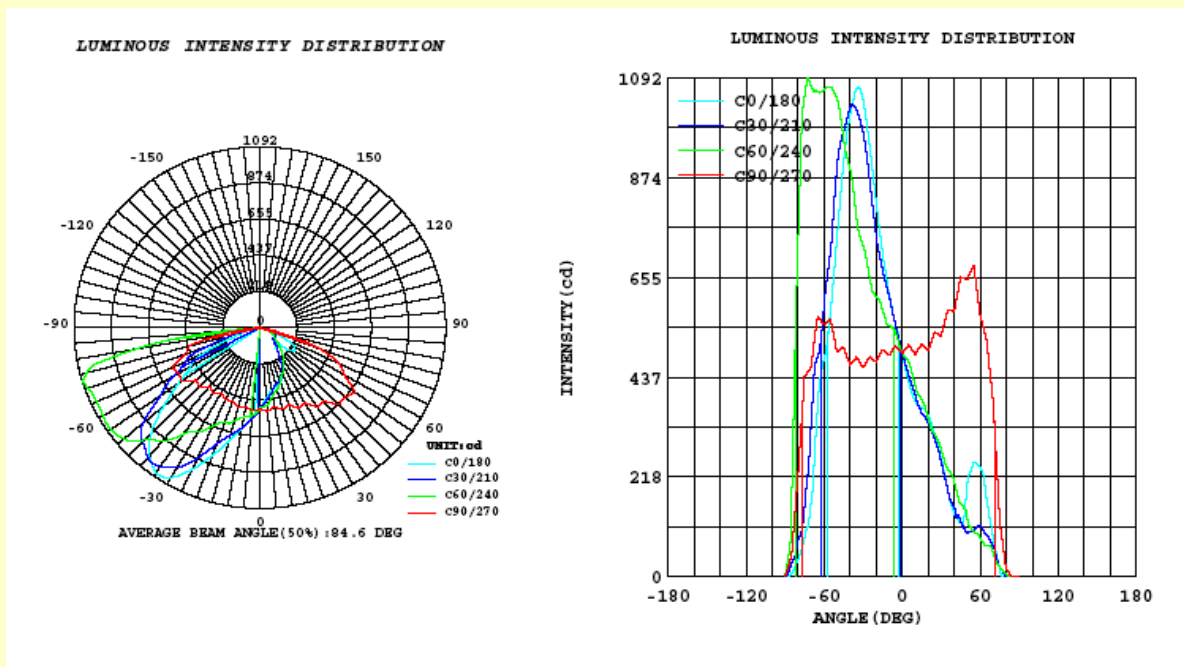
Rezultate Fotogoniometru



Modul de amplasare in
fotogoniometru al
aparaturii supus incercarii

Data Testarii: 20.02.2017		Temperatura Ambientala: 25.3°C	
Numele Fisierului masurarii: Pro - Street Quasar 27W COD: 170217/00			
Flux Luminos Integrat (lumeni): 2410.1	Intensitatea maxima (1° Unghi de Vedere in candela): 1287		
Unghi Distributie (la 50 % din intensitatea maxima C0-180, in grade): 42.1			
Fisier Fotometric (IES LM-63-2002) Pro - Street Quasar 27W COD COD: 170217/00		Format Fisier IES:	

Distributie Polara si carteziana



Parametri electrici la momentul incercarii			
Tensiune: 230V	Curent: 0.150A	Putere: 17.9W	Factor de Putere : -0.519

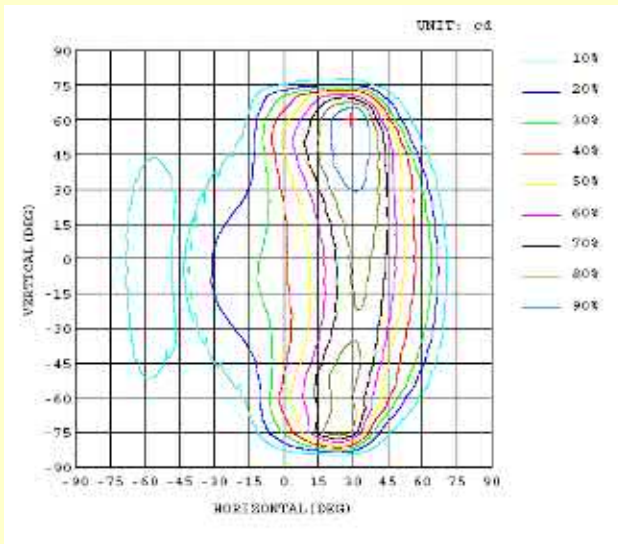


Diagrama Isocandela

Distributia Intensitatii luminoase in Candela

γ (DEG)	C(DEG)														
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
0.0	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489
5.0	552	553	553	553	553	552	550	548	546	544	541	537	533	530	525
10.0	621	623	624	624	622	620	616	605	594	582	571	560	549	538	527
15.0	709	713	715	714	709	692	673	654	634	621	609	597	584	570	556
20.0	821	828	831	826	801	774	748	735	719	700	674	643	614	588	562
25.0	945	954	957	935	904	883	870	852	810	765	719	686	657	626	596
30.0	1044	1047	1044	1024	1006	996	973	931	887	859	826	783	726	671	620
35.0	1068	1055	1054	1056	1049	1042	1022	1003	986	953	900	838	788	736	681
40.0	1010	985	996	1000	1002	1028	1026	1025	1016	998	979	949	893	816	734
45.0	905	861	904	886	933	948	975	1009	1022	1032	1031	1005	959	901	825
50.0	742	704	735	748	789	824	897	930	995	1042	1057	1064	1046	991	899
55.0	581	560	563	613	613	682	713	836	907	979	1049	1080	1072	1037	972
60.0	476	471	467	474	507	517	590	630	767	901	978	1037	1066	1045	977
65.0	367	374	393	405	406	440	481	548	612	736	905	1018	1062	1053	994
70.0	158	143	150	168	221	299	325	416	531	619	780	972	1075	1077	1004
75.0	84.3	82.2	87.8	90.2	105	124	153	159	260	404	605	856	1053	1119	1089
80.0	37.0	31.3	35.7	41.8	53.5	60.2	78.6	85.6	95.7	136	274	493	732	817	709
85.0	7.32	4.22	11.5	17.0	15.1	21.5	30.1	39.3	49.0	60.3	83.8	118	154	152	123
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

γ (DEG)	C(DEG)														
	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145
0.0	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489
5.0	521	516	511	505	500	495	489	484	478	473	467	462	457	453	448
10.0	517	506	495	485	475	465	456	448	440	433	427	422	417	414	411
15.0	541	527	512	496	481	465	450	435	422	411	401	393	387	383	382
20.0	538	515	492	470	449	430	414	401	391	384	380	378	376	374	373
25.0	566	538	510	481	452	425	400	380	365	357	354	354	354	354	356
30.0	574	533	495	458	422	390	363	343	332	329	329	323	315	305	302
35.0	627	575	527	481	434	389	348	318	299	285	272	267	266	261	248
40.0	656	585	521	463	406	352	308	278	261	248	234	219	204	197	198
45.0	741	658	578	503	429	356	291	248	222	201	181	175	170	154	138
50.0	793	687	586	491	397	312	246	207	184	170	156	138	123	121	117
55.0	880	779	673	563	445	327	233	178	140	126	113	110	106	96.1	97.8
60.0	872	767	663	552	420	289	182	137	116	105	98.1	86.2	79.0	83.2	95.8
65.0	893	778	674	570	449	308	182	116	87.6	78.2	68.7	65.9	67.7	73.5	92.4
70.0	863	709	580	458	343	214	115	76.8	68.2	64.8	58.3	54.8	54.7	61.0	73.5
75.0	978	757	583	437	328	202	97.5	57.4	49.9	46.2	39.3	36.0	37.9	44.1	52.8
80.0	561	431	327	223	136	68.1	34.9	25.6	23.5	22.2	20.4	20.0	20.8	21.4	19.5
85.0	96.6	78.8	61.3	44.3	29.9	17.6	9.49	6.53	5.84	4.72	3.00	2.36	1.50	0.06	0.00
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

γ (DEG)	C(DEG)														
	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220
0.0	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489
5.0	444	440	437	433	431	429	427	428	430	432	435	438	441	445	450
10.0	409	404	399	395	391	388	385	386	387	388	391	394	398	399	400
15.0	381	381	380	378	375	373	370	369	368	367	365	362	359	357	356
20.0	370	369	368	369	365	359	353	353	354	353	346	340	336	335	335
25.0	347	336	330	331	332	320	310	313	317	309	300	298	301	304	298
30.0	303	297	283	279	283	273	260	266	267	254	249	253	252	245	243
35.0	239	244	234	210	213	209	193	203	200	191	199	198	192	197	206
40.0	186	167	174	159	152	157	139	152	142	140	152	142	153	162	160
45.0	142	131	124	130	120	127	118	124	115	120	114	117	122	117	129
50.0	108	113	108	135	159	152	202	159	173	139	111	106	96.8	101	102
55.0	107	158	180	213	225	236	248	244	234	220	169	142	99.3	88.0	82.6
60.0	134	164	203	223	235	238	239	244	243	228	198	144	110	81.2	71.3
65.0	122	171	208	213	199	179	169	175	180	183	177	138	92.5	71.5	60.5
70.0	103	145	165	156	123	108	86.6	102	114	119	102	76.8	65.0	51.6	43.3
75.0	62.8	76.8	69.9	68.2	47.8	33.7	17.0	23.8	25.3	31.0	22.5	25.7	22.0	24.8	20.5
80.0	14.7	16.2	7.62	7.13	1.75	0.29	0.00	0.00	0.00	0.00	0.00	0.57	0.00	1.06	0.52
85.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

γ(DEG)	C(DEG)														
	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295
0.0	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489
5.0	455	460	465	471	477	483	489	496	502	508	514	519	524	529	534
10.0	403	408	413	420	428	438	449	460	473	486	499	512	526	539	551
15.0	358	365	374	387	404	422	444	466	488	510	531	551	569	587	604
20.0	334	335	339	346	360	379	403	432	463	495	525	555	585	616	647
25.0	295	294	300	312	332	363	403	448	494	536	576	614	650	686	720
30.0	251	260	270	279	295	322	363	414	470	527	580	632	685	740	796
35.0	210	213	219	237	263	305	366	439	514	585	649	713	774	833	890
40.0	162	178	192	207	228	264	323	403	492	580	664	746	827	909	991
45.0	138	141	144	159	193	242	329	438	550	656	751	840	920	998	1070
50.0	101	111	123	129	155	193	285	404	528	650	757	854	945	1037	1125
55.0	86.8	87.7	89.3	98.9	118	168	285	434	568	682	778	870	966	1067	1155
60.0	66.9	69.6	77.5	85.6	94.4	116	195	340	465	573	675	792	920	1058	1179
65.0	55.1	52.6	56.1	68.1	74.9	94.7	178	308	424	516	623	749	896	1034	1147
70.0	39.1	40.0	44.8	51.0	51.5	56.8	94.6	186	300	382	477	600	719	858	962
75.0	17.2	17.3	19.0	21.5	23.8	26.0	41.4	75.5	111	120	177	207	254	318	410
80.0	1.04	3.24	4.23	4.14	3.63	3.81	4.94	7.71	11.0	14.5	20.8	30.1	41.2	52.8	69.2
85.0	0.00	0.00	0.00	0.00	0.00	0.08	0.09	0.09	0.04	0.00	0.08	0.39	1.02	1.95	3.16
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

γ(DEG)	C(DEG)											
	300	305	310	315	320	325	330	335	340	345	350	355
0.0	489	489	489	489	489	489	489	489	489	489	489	489
5.0	538	542	545	548	551	553	554	555	555	555	555	553
10.0	563	575	587	598	609	619	628	630	631	630	629	625
15.0	620	634	646	655	666	683	699	714	727	729	725	718
20.0	677	708	738	762	776	785	791	810	831	848	846	836
25.0	752	781	811	852	890	924	931	932	942	963	975	962
30.0	853	909	946	972	989	1019	1045	1052	1047	1052	1061	1056
35.0	942	990	1046	1086	1103	1102	1100	1101	1095	1088	1078	1068
40.0	1067	1120	1141	1151	1153	1143	1124	1107	1073	1052	1031	1003
45.0	1131	1175	1198	1196	1177	1153	1100	1052	1015	945	943	878
50.0	1191	1223	1226	1211	1162	1084	1032	930	865	799	767	717
55.0	1215	1246	1243	1180	1102	1014	847	778	663	642	574	564
60.0	1261	1280	1228	1151	1005	823	736	610	558	491	475	474
65.0	1235	1278	1205	1008	809	702	539	446	368	367	353	351
70.0	1041	1059	916	703	550	356	218	188	147	123	118	128
75.0	510	544	480	329	199	108	93.8	81.0	75.4	59.4	61.9	67.2
80.0	85.3	82.6	65.5	45.5	39.1	43.1	41.7	28.2	25.0	18.8	17.8	20.3
85.0	4.05	3.40	2.08	1.54	1.31	0.11	0.00	0.20	0.00	0.43	0.93	0.10
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Rezultate Compatibilitate Electromagnetica

Data Testarii: 20.02.2017	Temperatura Ambientala: 25°C	Umiditate: 40%
Conditii Instalare: EUT a fost conectat. la rețeaua artificială nealimentat		Amplasare: - EUT montat pe masa conform fotografie
Criteriul de performanță:	Valorile medii (AV) și de cvasivârf (QP) ale perturbațiilor transmise în rețea de către EUT pe fiecare din liniile de alimentare (linie și neutru) nu trebuie să depășească limitele impuse de SR EN 55015, tabelul 2a	



Modul de amplasare al aparatului supus incercarii pentru domeniul 9kHz-30MHZ

Limitele tensiunii perturbatoare la bornele de alimentare

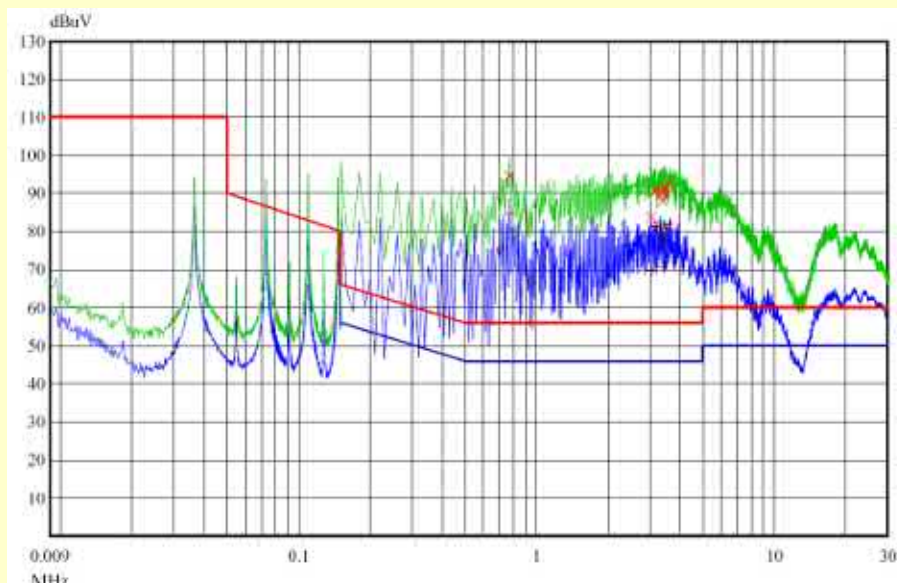
Banda de frecvență	Limite dB(μV) ¹	
	Valoare de cvasi vârf (QP)	Valoare medie (AV)
9 kHz ÷ 50 kHz	110	-
50 kHz ÷ 150 kHz	90 ÷ 80 ²	-
150 kHz ÷ 0,5 MHz	90 ÷ 80 ²	90 ÷ 80 ²
0,5 MHz ÷ 5,0 MHz	56 ³	46 ³
5 MHz ÷ 30 MHz	60	50

¹ La frecvența de tranziție se aplică limitele mai mici

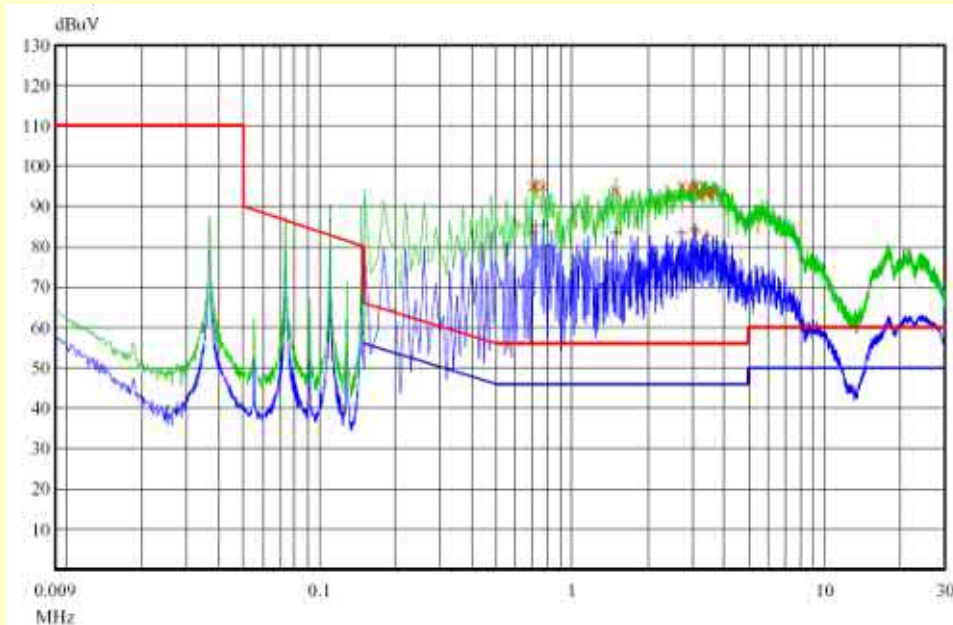
² Limita descrește liniar cu logaritmul frecvenței în intervalele :50KHz÷150KHz și 150KHz÷0,5 MHz

³ Pentru lămpile fără electrozi și corpuri de iluminat, limita în banda de frecvențe 2.51 MHz÷3,0 MHz este de 73 dB(μV) pentru QP și 63 dB(μV) pentru AV

Perturbatii pe faza alimentarii



Perturbatii pe nulul alimentarii



Legendă : PK(-) valorile de vârf ,valorile medii AV(-) si valorile de cvasivârf QP(X) ale perturbatiilor

Perturbatii pe faza alimentarii

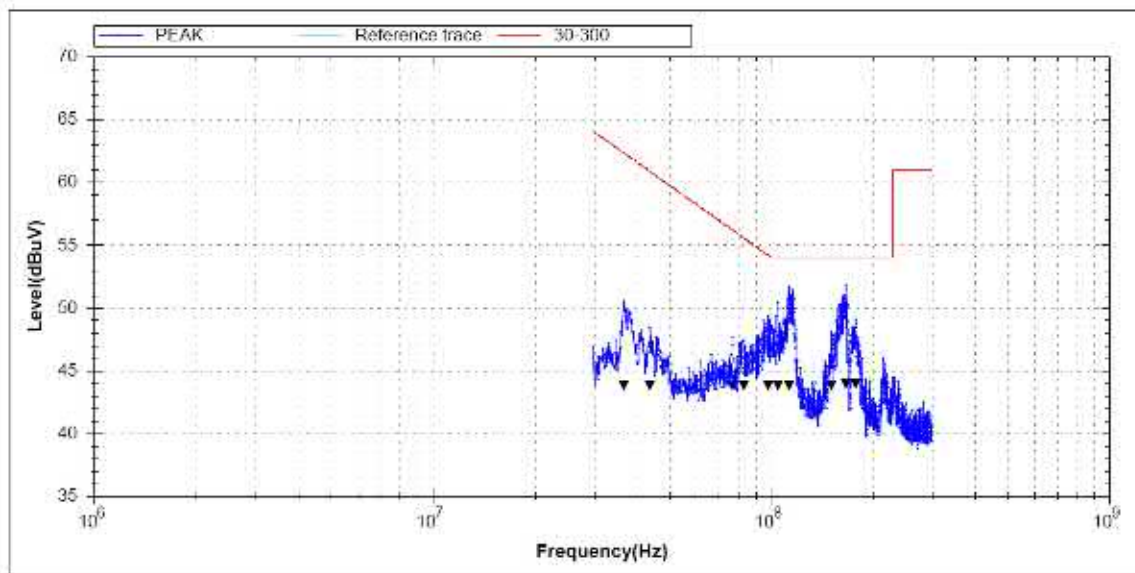
Frequency MHz	QP Level dBuV	QP Limit dBuV	QP Delta dB	AV Level dBuV	AV Limit dBuV	AV Delta dB
0.77	94.51	56.00	-38.51	84.57	46.00	-38.57
3.04	83.72	56.00	-27.72	69.59	46.00	-23.59
3.14	90.81	56.00	-34.81	81.36	46.00	-35.36
3.18	90.50	56.00	-34.50	81.15	46.00	-35.15
3.33	90.64	56.00	-34.64	79.68	46.00	-33.68
3.39	87.86	56.00	-31.86	70.72	46.00	-24.72
3.43	90.18	56.00	-34.18	77.61	46.00	-31.61
3.47	91.28	56.00	-35.28	81.78	46.00	-35.78
3.51	89.63	56.00	-33.63	80.61	46.00	-34.61
3.62	92.37	56.00	-36.37	81.98	46.00	-35.98

Perturbatii pe nulul alimentarii

Frequency MHz	QP Level dBuV	QP Limit dBuV	QP Delta dB	AV Level dBuV	AV Limit dBuV	AV Delta dB
0.7	94.77	56.00	-38.77	83.39	46.00	-37.39
0.72	95.17	56.00	-39.17	85.20	46.00	-39.20
0.77	94.80	56.00	-38.80	85.35	46.00	-39.35
1.49	93.76	56.00	-37.76	83.34	46.00	-37.34
2.72	94.76	56.00	-38.76	83.42	46.00	-37.42
3.05	94.38	56.00	-38.38	84.50	46.00	-38.50
3.09	95.10	56.00	-39.10	83.65	46.00	-37.65
3.25	92.22	56.00	-36.22	79.01	46.00	-33.01
3.42	93.36	56.00	-37.36	82.77	46.00	-36.77
3.64	93.53	56.00	-37.53	81.06	46.00	-35.06

Legendă : PK(-) valorile de vârf ,valorile medii AV(-) si valorile de cvasivârf QP(X) ale perturbatiilor

Perturbatii conduse in domeniul 30MHz-300MHz



Frequency	Level	old level	Delta Limit
35,52 MHz	83.57 dBuV	86.61 dBuV	20.97dBuV
41,76 MHz	82.50 dBuV	85.49 dBuV	21.24dBuV
68,40 MHz	75.45 dBuV	80.29 dBuV	18.29dBuV
78,12 MHz	73.84 dBuV	78.19 dBuV	17.79dBuV
59,04 MHz	72.19 dBuV	76.68 dBuV	13.81dBuV
90,60 MHz	68.08 dBuV	72.92 dBuV	13.26dBuV
124,68 MHz	64.86 dBuV	67.98 dBuV	10.86dBuV
224,52 MHz	56.92 dBuV	63.38 dBuV	2.92 dBuV
186,60 MHz	54.83 dBuV	59.88 dBuV	0.83 dBuV
191,40 MHz	55.37 dBuV	59.87 dBuV	1.37 dBuV



Modul de amplasare al aparatului supus incercarii pentru domeniul 30-300MHz

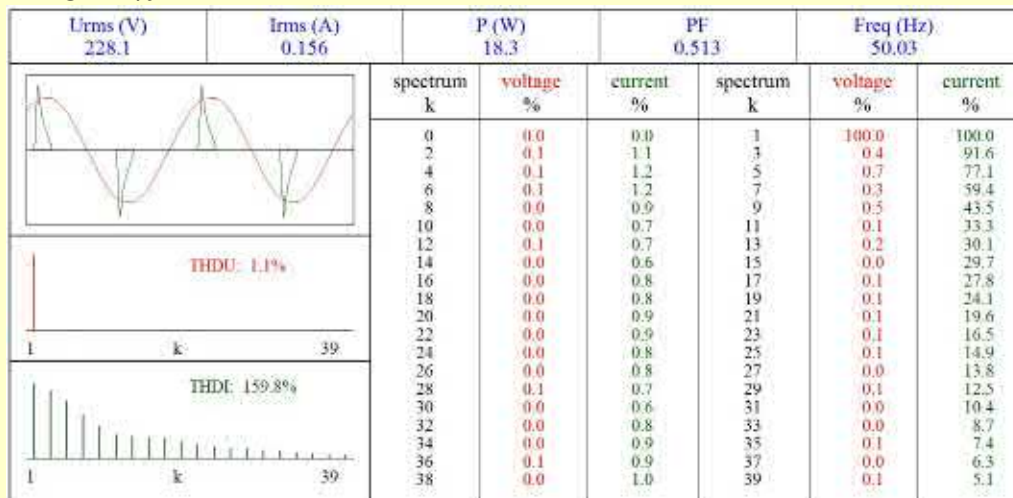
Interpretare rezultate si comentarii

S-a efectuat deasemeni analiza continutului de armonici

Rezultatele sunt urmatoarele

THDI:159.8%

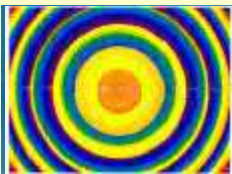
THDU:1.1 %



spectrum k	voltage %	current %	spectrum k	voltage %	current %
0	0.0	0.0	1	100.0	100.0
2	0.1	1.1	3	0.4	91.6
4	0.1	1.2	5	0.7	77.1
6	0.1	1.2	7	0.3	59.4
8	0.0	0.9	9	0.5	43.5
10	0.0	0.7	11	0.1	33.3
12	0.1	0.7	13	0.2	30.1
14	0.0	0.6	15	0.0	29.7
16	0.0	0.8	17	0.1	27.8
18	0.0	0.8	19	0.1	24.1
20	0.0	0.9	21	0.1	19.6
22	0.0	0.9	23	0.1	16.5
24	0.0	0.8	25	0.1	14.9
26	0.0	0.8	27	0.0	13.8
28	0.1	0.7	29	0.1	12.5
30	0.0	0.6	31	0.0	10.4
32	0.0	0.8	33	0.0	8.7
34	0.0	0.9	35	0.1	7.4
36	0.1	0.9	37	0.0	6.3
38	0.0	1.0	39	0.1	5.1

Data întocmirii: 20.02.2017	Intocmit de: R.Matei	Semnatura:
Număr total exemplare: 2	La client: 1	
Manager tehnic sau persoana autorizata: S.Matei		

Sfarsit document



Laborator Fotometrie si Compatibilitate Electromagnetica



266-268 Calea Rahovei Sector 5 050912 – Bucharest Tel: +40 21 4042 146 Fax: +40 21 4042 148
E-mail: stelian.matei@electromagnetica.ro www.electromagnetica-led.ro

Raport de Incercare

X
X

Fotometrica Compatibilitate Electromagnetica

Continut

- 1 Date Identificare
- 2 Conditii si Echipamente
- 3 Rezultate Fotometrice
- 4 Tabel Distributie
- 5 Tabel Distributie
- 6 Tabel Distributie
- 7 Tabel Distributie
- 8 Rezultate Compatibilitate Electromagnetica

Număr Raport: 339/a	Data Raport: 7.11.2016	Întocmit de: R Matei
Laborator de Incercări: Laborator Fotometric si Compatibilitate Electromagnetica – Electromagnetica S A- Email: info@electromagnetica.ro		
Număr de înregistrare: 339/ 7.11.2016		
Adresa: Calea Rahovei, 266-268, Sector 5, Bucuresti, Romania		

Detalii Client	
Contact: EcoCity	Compania: EcoCity
Adresa: 11, Mircea cel Batrin str., 2012, Chisinau, Moldova- Tel/Fax: +373 22 022-000 Cell: +373790022099	Comandă: 339 7.11.2016
Data primiri: 7.11.2016	Email: marcel.malai@ecocity.md www.ecocity.md
Data incercarii : 7.11.2016	Data Raport: 7.11.2016

Detalii Produs	
Producător: EcoCity	Tip: Corp de iluminat cu LED
Model: Pro - Street Quasar 34C	COD: 0950 161103 00
Descriere: Optica: 4250Lm 1 Lens 120°x60'	
Număr produse: 1	Stare: Functionare
LED: 5000k/Pure White	
Sursa de Alimentare : HLG-100H-36A	
Tensiune alimentare(V): 230	Curent alimentare (mA): 0.170
Putere (W): 34.1	Factor Putere: -0.950
Lungime aparat (mm): 500	Latime aparat (mm): 250
Înălțime aparat (mm): N/A	Greutate: N/A
Mod Functionare: montare pe stalp	



Conditii

- Rezultatele încercărilor se refera numai la obiectele încercate.
- Reproducerea continutului acestui raport intr-o alta forma decat cea completa nu este permisa fara acordul scris al ELECTROMAGNETICA SA.
- Obiectele încercate au fost prezentate de catre beneficiar.

STANDARDE UTILIZATE

Fotometrie:

IES LM 79-8

Masurare prin metoda substitutiei. Valorile raportate sunt valori mediate si corectate prin program, in functie de distributia spectrala a fluxului emis de lampile de referinta si de responsivitatea spectrala a fotometrului etalon

Compatibilitate:

SR EN 55015:2007+ A1:2008+A2:2009

Incertitudinea de masurare reprezinta incertitudinea extinsa obtinuta prin multiplicarea incertitudinii standard cu factorul de extindere $k=2$ si a fost estimat in conformitate cu Ghidul de incertitudine de masurare CEI 98-3:2010 Partea 3. Valoarea masurandului se afla in intervalul de valori indicat, cu un nivel de incredere de 95%. Rezultatul masuratorilor sunt trasabile la Sistemul International de Unitati (SI). Trasabilitatea rezultatelor masurarilor este realizata si mentinuta prin comparari si etalonari in accord cu Standardele locale.

Sfera Integrare

Flux luminos, Temperatură de culoare		
Etalon: Flux -Lampa Halogen ceramic 24V/50W , Seria 1203006		
Echipamentul utilizat: Sistem automat Spectrofotocolorimetru tip LMS 5000		
Diametru sfera(m):	0.5 x 1.5 x 2.5	Metoda masurare: Substitutie
Detector:Fotometru cu corectie $V(\lambda)$ si monocromator		Interval scanare (nm): 5
Trasabilitate: cu etaloane INMB (acreditat CIPM-MRA)		Nr. Certificat de etalonare lampă etalon: 04.03.058/2016 la data 10.02.2016
Data ultimei calibrări:26.02.2016		
Timpul de stabilizare (minute): 30		Temperatura ambientala: 25°C
Incertitudinea de măsurare $\pm 4.22\%$ (0,01 - 200 klx) (CIE sursa iluminant tip A) $\pm 3.55\text{ K}$ (1500 K - 25000 K) (CIE sursa iluminant tip A)		

Fotogoniometru

Distributie intensitate, Flux luminos		
Echipamentul utilizat: Sistem automa - Fotogoniometru tip LSG 1800 cu fotometru cu corectie $V(\lambda)$		
Distanța de lucru a fotometrului: 8.7 m	Tipul (geometria) măsurării: Far-Field	
Etalon: Flux/Intensitate -Lampa Halogen ceramic 24V/50W , Seria 1208040	Serie fotometru: 1001027	
Trasabilitate: cu etaloane INMB (acreditat CIPM-MRA)	Nr./Data Certificat de etalonare lampă etalon: 04.03.058/2016 la data 10.02.2016	
Data ultimei calibrări: 26.02.2016		
Timpul de stabilizare (minute): 30		Temperatura ambientala: 25°C
Incertitudinea de măsurare: $\pm 1.88\%$ (0.01 - 100 klux) (CIE sursa iluminant tip A)		
Directie	Domeniu	Pas increment
Plan orizontal	-90° +90°	5°
Plan vertical	-90° +90°	1°
Tip masurare:		B- β si C- γ

Compatibilitate Electromagnetica

Tensiune perturbatoare condusa		
Echipamentul Utilizat: Sistem cu scanare automata: Receptor (EMC 300A) , Retea artificiala (EMC 200A), Sursa curent alternativ (LSP 500)		
Domeniu frecventa: 9 kHz-30 MHz	Tip masurare: Masurarea tensiunilor perturbatoare la bornele de alimentare	
Largime banda: 200 Hz, pentru (9 ÷ 150) kHz 9 kHz, pentru (0.15 ÷ 30) MHz	Pas frecventa: 100 Hz pentru domeniul (9 ÷ 150) kHz 5 kHz, pentru domeniul (0,15 ÷ 30) MHz	
Detector: Prescanare -Valoare de vârf (QP) Scanare finala- Valoare medie (AV) și de cvasivârf (QP)	Timp masurare:	
		9 kHz-150 kHz 150 kHz-30 MHz
	Prescanare	10 ms 0.5 ms
	Scanare	4 sec 2 sec
Sursa de referinta: Sursa de tensiuni perturbatoare conduse	Seria: 11009 CRC Laplace	
Trasabilitate: Receptor, AMN, Sursa AC, Atenuator 20dB	Nr./Data Certificat de etalonare: SS1S1125CDNEM3037, SS1602045R1006W040 Nr.03.02-007/2016	
Timpul de stabilizare (minute): 30	Temperatura ambientala: 25°C	
Incertitudinea de Masurare: $\pm 4,12\text{ dB}\mu\text{V}$		

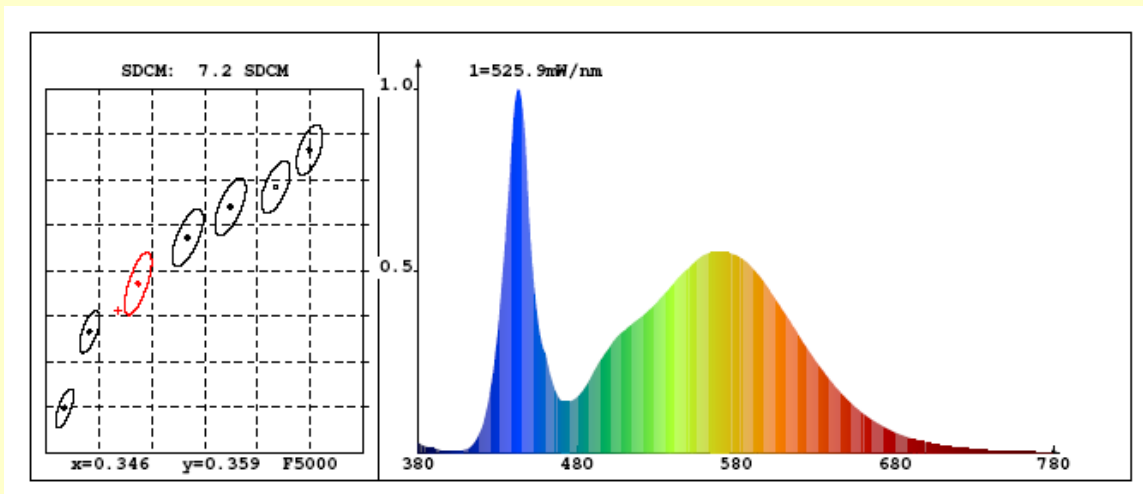
Rezultate Sfera Integrare



Modul de amplasare in sfera de integrare al aparatului supus incercarii

Flux (lumens): 4466.6	Temperatura (°C): 25.2
CIE 1931 Chromaticity Cx: 0.3327	CIE 1931 Chromaticity Cy: 0.3466
CRI (%):70.6	CCT (K): 5494
Eficienta (lm/W): 131.01	Putere Luminoasa (W): 10.221

Distributie Spectrala si departare de locul Planckian



Parameteri electrici la momentul incercarii		Data: 7.11.2016	
Tensiune:230V	Curent:0.170A	Putere:34.1W	Factor de Putere:-0.880

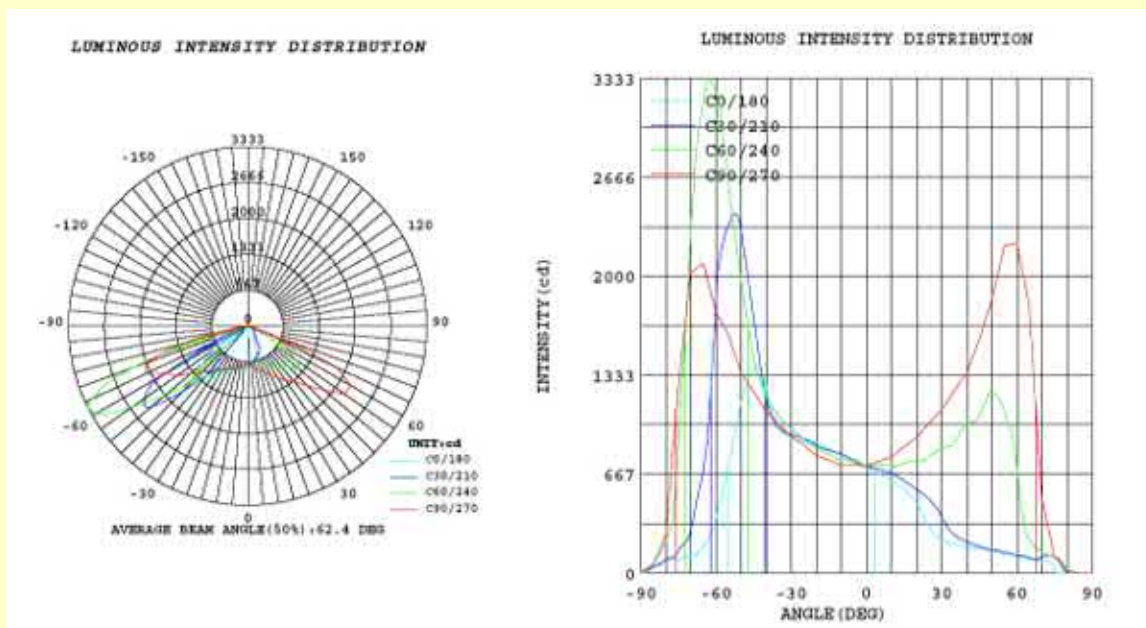
Rezultate Fotogoniometru



Modul de amplasare in fotogoniometru al aparatului supus incercarii

Data Testarii: 7.11.2016		Temperatura Ambientala: 25.3°C	
Numele Fisierului masurarii: Pro - Street Quasar 34C COD: 0950 161103 00			
Flux Luminos Integrat (lumeni): 4599.3		Intensitatea maxima (1° Unghi de Vedere in candela): 3600	
Unghi Distributie (la 50 % din intensitatea maxima C0-180, in grade): 36.9			
Fisier Fotometric (IES LM-63-2002)		Format Fisier IES:	
Pro - Street Quasar 34C COD: 0950 161103 00			

Distributie Polara si carteziana



Parameteri electrici la momentul incercarii			
Tensiune: 230V	Curent: 0.172A	Putere: 34.5W	Factor de Putere : -0.874

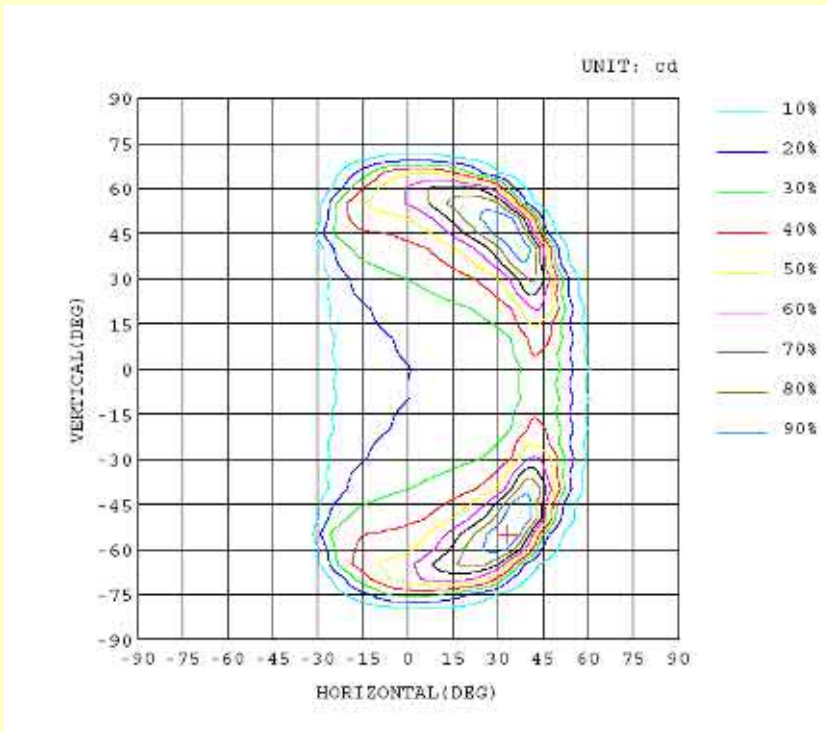


Diagrama Isocandela

Distributia Intensitatii luminoase in Candela

γ (DEG)	C(DEG)														
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
0.0	719	719	719	719	719	719	719	719	719	719	719	719	719	719	719
5.0	761	762	762	762	762	761	760	759	757	755	753	751	748	745	742
10.0	797	799	801	803	803	803	801	796	790	785	779	773	766	760	754
15.0	837	841	843	845	845	837	828	818	809	807	806	805	803	799	795
20.0	880	876	871	869	870	867	861	860	857	854	851	849	847	843	838
25.0	890	884	878	880	886	896	907	913	910	903	897	899	903	905	904
30.0	910	908	903	898	903	916	931	947	954	960	964	969	973	975	972
35.0	986	1002	984	955	977	979	979	1002	1021	1033	1041	1044	1056	1062	1061
40.0	249	1277	1222	1214	1220	1148	1180	1175	1158	1169	1198	1201	1201	1194	1180
45.0	367	1301	1361	1396	1507	1648	1727	1571	1625	1580	1514	1470	1464	1452	1416
50.0	127	1050	1150	1252	1475	1852	2320	2627	2562	2297	2227	2124	2003	1879	1752
55.0	729	688	734	945	1134	1753	2338	3082	3312	3408	3124	2827	2622	2452	2271
60.0	374	379	403	487	785	1070	1820	2374	3172	3529	3563	3518	3242	2979	2721
65.0	173	183	215	264	323	520	698	1252	1629	2445	3055	3297	3185	3077	2937
70.0	118	111	113	122	155	231	284	384	533	883	1164	1840	2250	2401	2434
75.0	3.8	93.0	93.5	94.2	107	118	149	163	226	287	369	573	850	976	1043
80.0	2.9	76.9	77.2	77.3	76.7	76.3	88.3	93.9	103	119	142	176	214	257	287
85.0	7.7	33.0	46.3	48.8	42.1	40.9	41.7	41.2	43.0	46.5	53.0	59.1	65.4	71.8	77.1
90.0	.00	0.00	1.34	2.62	3.76	4.23	4.16	2.89	2.55	2.62	3.63	4.84	5.71	6.65	7.73

γ (DEG)	C(DEG)														
	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145
0.0	719	719	719	719	719	719	719	719	719	719	719	719	719	719	719
5.0	739	735	732	728	724	720	716	712	708	705	701	697	694	690	687
10.0	747	740	732	725	717	709	702	694	687	680	673	667	661	656	652
15.0	789	782	773	763	752	740	726	710	694	677	659	642	624	609	602
20.0	831	822	809	794	775	755	734	712	690	669	648	628	608	583	559
25.0	901	893	881	864	843	817	785	751	711	669	625	590	565	540	517
30.0	965	954	939	920	896	867	830	786	737	683	633	582	518	437	388
35.0	1055	1043	1027	1007	984	954	913	857	784	694	598	532	459	379	284
40.0	1161	1138	1112	1087	1062	1027	983	925	849	746	616	461	325	261	237
45.0	1360	1312	1264	1223	1185	1147	1100	1033	927	746	521	354	252	209	197
50.0	1608	1498	1416	1354	1310	1271	1229	1168	1058	874	598	294	189	179	176
55.0	2066	1876	1721	1607	1530	1468	1419	1353	1207	973	567	222	180	162	153
60.0	2426	2146	1922	1755	1667	1617	1553	1446	1303	1060	633	195	150	144	142
65.0	2777	2581	2311	2086	1924	1821	1669	1472	1219	702	238	151	124	127	117
70.0	2396	2338	2192	2024	1869	1656	1394	1092	729	371	172	127	109	102	102
75.0	1115	1199	1253	1234	1178	963	725	517	313	141	107	93.2	96.6	115	110
80.0	302	299	281	252	235	213	183	158	135	108	107	108	132	149	143
85.0	74.4	68.7	62.2	56.8	56.5	61.5	65.7	71.4	76.3	75.7	47.7	37.2	42.6	36.6	12.4
90.0	7.73	6.05	3.29	2.89	1.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

γ (DEG)	C(DEG)														
	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220
0.0	719	719	719	719	719	719	719	719	719	719	719	719	719	719	719
5.0	685	682	680	678	677	676	675	678	681	685	689	694	698	703	708
10.0	648	642	637	633	629	626	623	629	637	644	653	662	671	679	686
15.0	596	592	589	581	573	567	562	572	582	595	607	614	623	633	646
20.0	532	520	514	512	498	482	469	488	509	529	535	546	563	596	628
25.0	467	414	380	377	374	341	315	347	386	392	397	435	495	552	584
30.0	356	308	255	239	243	232	221	237	251	250	269	327	382	426	489
35.0	236	226	214	201	203	202	195	203	204	203	222	241	258	303	403
40.0	211	193	193	187	184	185	179	184	180	184	192	197	208	221	242
45.0	189	181	172	176	168	174	163	171	162	171	166	172	179	179	197
50.0	164	165	162	165	162	164	153	160	153	154	154	158	156	169	170
55.0	157	146	150	145	154	149	138	133	138	130	137	135	130	142	151
60.0	130	131	122	132	136	126	119	126	113	118	111	121	118	130	127
65.0	116	108	108	98.6	109	98.9	96.6	98.8	85.3	90.4	97.2	96.1	103	102	109
70.0	98.9	92.2	91.1	89.1	95.1	88.5	79.9	88.2	85.0	89.1	92.9	95.5	104	107	103
75.0	117	109	98.3	91.1	83.1	61.7	32.0	41.1	49.1	69.4	62.3	76.9	106	142	115
80.0	96.8	70.2	33.5	16.0	3.68	0.18	0.00	0.00	0.00	0.33	0.00	5.96	0.00	10.3	8.52
85.0	0.00	3.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

γ(DEG)	C(DEG)														
	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295
0.0	719	719	719	719	719	719	719	719	719	719	719	719	719	719	719
5.0	713	718	723	728	733	737	742	746	750	753	757	760	763	766	768
10.0	694	703	713	722	732	743	753	763	772	781	789	797	803	808	813
15.0	668	692	717	740	763	784	804	822	839	852	864	873	880	884	885
20.0	663	694	725	756	786	816	843	868	890	910	927	940	950	957	961
25.0	619	660	721	783	839	888	928	962	988	1011	1029	1043	1053	1059	1063
30.0	583	676	764	837	903	957	1002	1039	1070	1095	1118	1140	1161	1177	1189
35.0	502	609	739	886	989	1061	1115	1159	1196	1229	1262	1298	1332	1360	1386
40.0	332	569	824	997	1106	1177	1229	1271	1307	1345	1390	1445	1511	1585	1673
45.0	263	478	789	1057	1242	1340	1394	1440	1503	1569	1657	1769	1898	2026	2138
50.0	178	395	928	1219	1401	1545	1625	1676	1752	1842	1970	2137	2341	2546	2738
55.0	170	213	523	1091	1443	1669	1852	1973	2074	2203	2377	2595	2800	2957	3111
60.0	132	158	285	698	1072	1397	1653	1890	2068	2219	2413	2614	2746	2823	2901
65.0	115	115	133	224	492	835	1100	1433	1693	1802	1860	1869	1776	1705	1658
70.0	102	109	120	143	217	318	394	449	493	499	502	530	545	549	481
75.0	119	106	97.5	107	114	124	131	128	119	112	114	118	124	130	126
80.0	7.66	11.0	28.6	29.5	26.1	23.6	23.7	22.1	20.5	17.6	16.3	19.2	23.3	26.0	25.8
85.0	0.00	0.00	0.00	0.00	0.65	0.77	0.60	0.29	0.08	0.00	0.06	0.26	0.64	1.09	1.34
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

γ(DEG)	C(DEG)											
	300	305	310	315	320	325	330	335	340	345	350	355
0.0	719	719	719	719	719	719	719	719	719	719	719	719
5.0	769	771	772	772	773	772	772	771	770	768	766	763
10.0	816	818	819	820	820	820	818	816	813	810	806	802
15.0	884	882	877	871	865	864	862	860	857	854	850	844
20.0	962	960	954	946	936	925	912	911	912	909	902	892
25.0	1062	1052	1039	1030	1018	1003	991	975	960	946	928	909
30.0	1194	1191	1181	1158	1123	1102	1079	1050	1012	981	961	937
35.0	1387	1372	1379	1370	1344	1295	1226	1200	1159	1085	1074	1049
40.0	1730	1763	1763	1711	1711	1718	1672	1548	1592	1487	1391	1363
45.0	2203	2265	2352	2448	2454	2397	2474	2349	2111	1822	1598	1399
50.0	2906	3038	3087	3160	3271	3198	2975	2524	2041	1609	1317	1109
55.0	3270	3430	3495	3459	3207	3019	2259	1861	1259	1094	749	692
60.0	2962	2943	2665	2489	1888	1100	985	542	544	376	341	347
65.0	1653	1440	966	547	410	323	244	215	165	171	168	165
70.0	357	257	223	192	172	136	121	119	103	97.7	99.7	104
75.0	113	97.9	95.2	82.7	73.2	68.7	75.8	71.3	75.1	76.5	84.2	88.2
80.0	25.0	23.0	21.3	18.5	18.5	26.2	32.3	34.1	40.8	45.8	52.4	62.0
85.0	1.52	1.51	1.28	0.86	0.37	0.00	0.00	2.04	0.73	5.98	5.99	4.69
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Rezultate Compatibilitate Electromagnetica

Data Testarii: 7-11-2016	Temperatura Ambientala: 25°C	Umiditate: 40%
Conditii Instalare: EUT a fost conectat. la rețeaua artificială nealimentat	Amplasare: - EUT montat pe masa conform fotografie	
Criteriul de performanță:	Valorile medii (AV) și de cvasivârf (QP) ale perturbațiilor transmise în rețea de către EUT pe fiecare din liniile de alimentare (linie și neutru) nu trebuie să depășească limitele impuse de SR EN 55015, tabelul 2a	



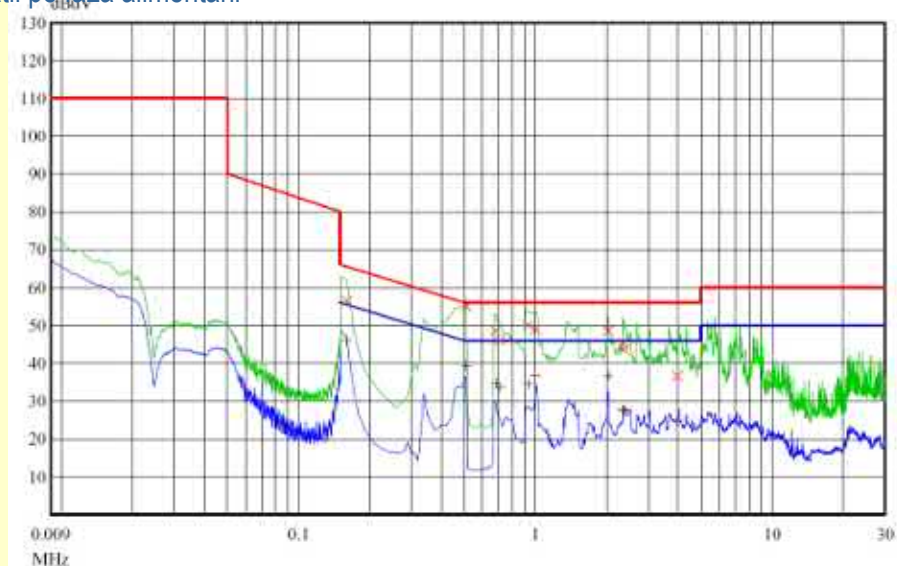
Modul de amplasare al aparatului supus incercarii

Limitele tensiunii perturbatoare la bornele de alimentare

Banda de frecvență	Limite dB(μV) ¹	
	Valoare de cvasi vârf (QP)	Valoare medie (AV)
9 kHz ÷ 50 kHz	110	-
50 kHz ÷ 150 kHz	90 ÷ 80 ²	-
150 kHz ÷ 0,5 MHz	90 ÷ 80 ²	90 ÷ 80 ²
0,5 MHz ÷ 5,0 MHz	56 ³	46 ³
5 MHz ÷ 30 MHz	60	50

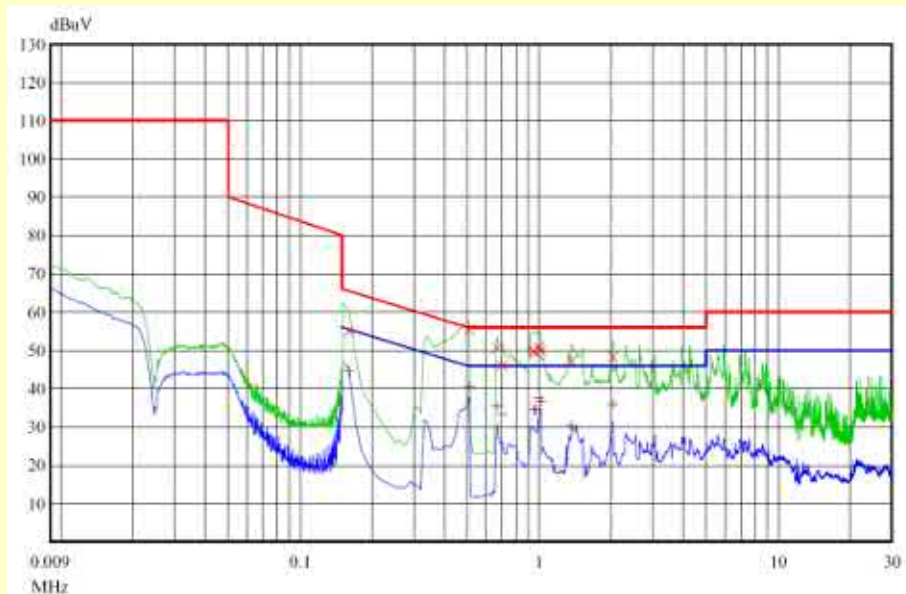
¹ La frecvența de tranziție se aplică limitele mai mici
² Limita descrește liniar cu logaritmul frecvenței în intervalele :50KHz÷150KHz și 150KHz÷0,5 MHz
³ Pentru lămpile fără electrozi și corpuri de iluminat, limita în banda de frecvențe 2.51 MHz÷3,0 MHz este de 73 dB(μV) pentru QP și 63 dB(μV) pentru AV

Perturbații pe faza alimentării



Legendă : PK(-) valorile de vârf ,valorile medii AV(-) și valorile de cvasivârf QP(X) ale perturbațiilor

Perturbatii pe nulul alimentarii



Legendă : PK(-) valorile de vârf ,valorile medii AV(-) si valorile de cvasivârf QP(X) ale perturbatiilor

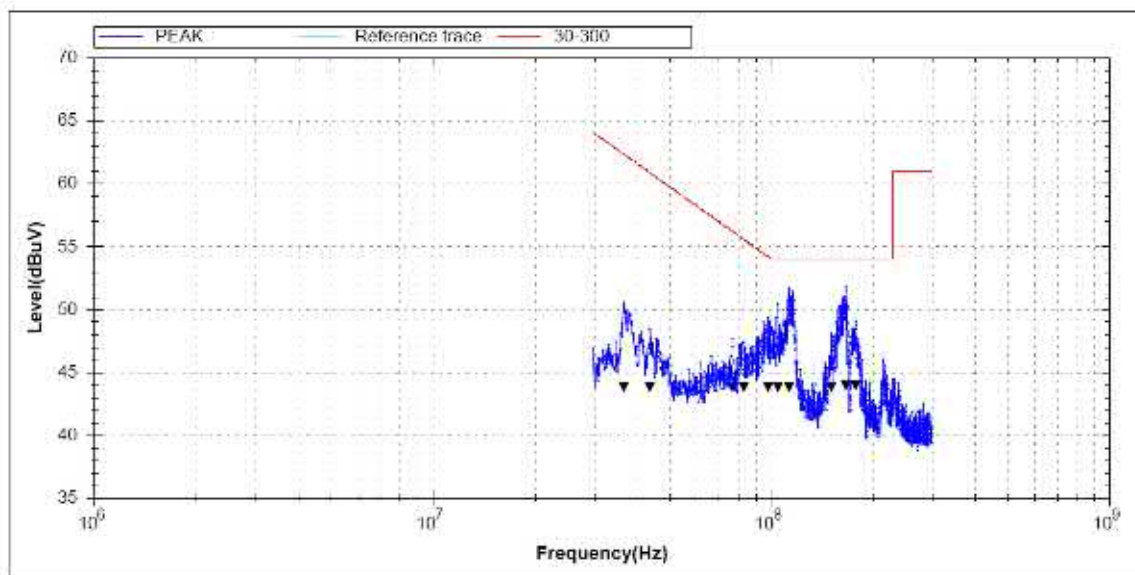
Perturbatii pe faza alimentarii

Frequency MHz	QP Level dBuV	QP Limit dBuV	QP Delta dB	AV Level dBuV	AV Limit dBuV	AV Delta dB
0.16	56.40	65.46	9.07	46.03	55.46	9.44
0.51	54.99	56.00	1.01	39.28	46.00	6.72
0.68	48.63	56.00	7.37	34.69	46.00	11.31
0.71	46.06	56.00	9.94	33.64	46.00	12.36
0.93	50.00	56.00	6.00	34.52	46.00	11.48
1	48.87	56.00	7.13	36.85	46.00	9.15
2.03	48.46	56.00	7.54	36.59	46.00	9.41
2.35	45.05	56.00	10.95	27.71	46.00	18.29
2.37	43.56	56.00	12.44	27.49	46.00	18.51
3.98	36.58	56.00	19.42	24.76	46.00	21.24

Perturbatii pe nulul alimentarii

Frequency MHz	QP Level dBuV	QP Limit dBuV	QP Delta dB	AV Level dBuV	AV Limit dBuV	AV Delta dB
0.16	54.95	65.46	10.51	44.53	55.46	10.94
0.51	55.51	56.00	0.49	40.46	46.00	5.54
0.67	50.54	56.00	5.46	35.47	46.00	10.53
0.7	46.06	56.00	9.94	33.46	46.00	12.54
0.95	49.68	56.00	6.32	34.52	46.00	11.48
0.97	49.43	56.00	6.57	34.52	46.00	11.48
1	50.79	56.00	5.21	37.35	46.00	8.65
1.02	49.84	56.00	6.16	36.72	46.00	9.28
1.37	47.21	56.00	8.79	30.37	46.00	15.63
2.04	48.24	56.00	7.76	35.91	46.00	10.09

Perturbatii conduse in domeniul 30MHz-300MHz



Frequency	Level	old level	Fin...	Delta Limit
167,04 MHz	43.86 dBuV	51.74 dBuV	*	-10.14 dBuV
113,04 MHz	43.77 dBuV	51.63 dBuV	*	-10.23 dBuV
36,84 MHz	43.77 dBuV	50.43 dBuV	*	-18.53 dBuV
104,88 MHz	43.82 dBuV	50.42 dBuV	*	-10.18 dBuV
98,40 MHz	43.81 dBuV	49.31 dBuV	*	-10.32 dBuV
178,08 MHz	43.87 dBuV	49.06 dBuV	*	-10.13 dBuV
44,16 MHz	43.77 dBuV	48.42 dBuV	*	-17.02 dBuV
151,08 MHz	43.79 dBuV	48.07 dBuV	*	-10.21 dBuV
77,16 MHz	43.79 dBuV	47.67 dBuV	*	-12.36 dBuV
83,28 MHz	43.74 dBuV	47.34 dBuV	*	-11.78 dBuV

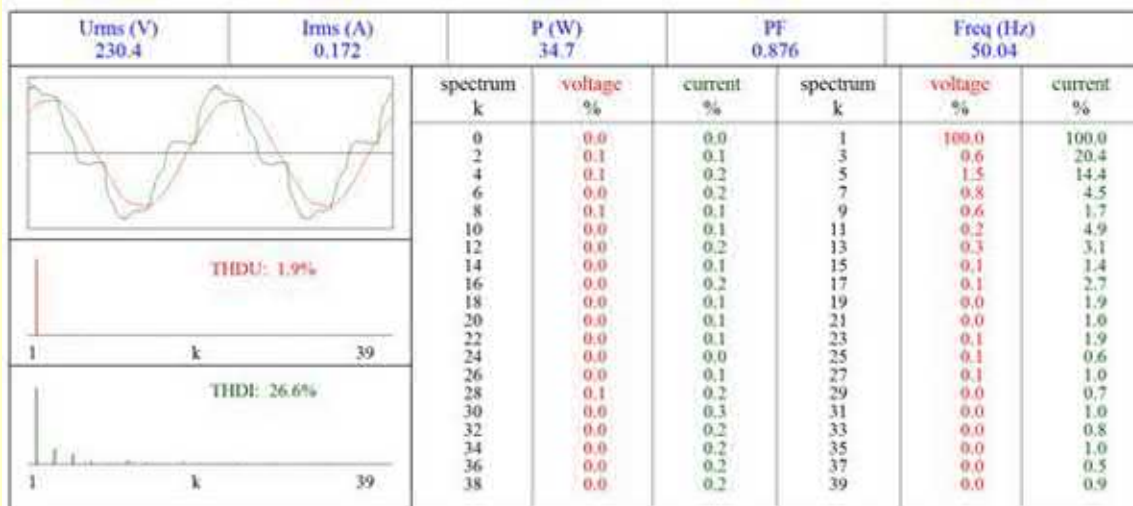
Interpretare rezultate si comentarii

S-a efectuat deasemeni analiza continutului de armonici


Rezultatele sunt urmatoarele

THDI:26.6%

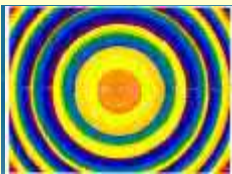
THDU:1.9%



spectrum	voltage	current	spectrum	voltage	current
k	%	%	k	%	%
0	0.0	0.0	1	100.0	100.0
2	0.1	0.1	3	0.6	20.4
4	0.1	0.2	5	1.5	14.4
6	0.0	0.2	7	0.8	4.5
8	0.1	0.1	9	0.6	1.7
10	0.0	0.1	11	0.2	4.9
12	0.0	0.2	13	0.3	3.1
14	0.0	0.1	15	0.1	1.4
16	0.0	0.2	17	0.1	2.7
18	0.0	0.1	19	0.0	1.9
20	0.0	0.1	21	0.0	1.0
22	0.0	0.1	23	0.1	1.9
24	0.0	0.0	25	0.1	0.6
26	0.0	0.1	27	0.1	1.0
28	0.1	0.2	29	0.0	0.7
30	0.0	0.3	31	0.0	1.0
32	0.0	0.2	33	0.0	0.8
34	0.0	0.2	35	0.0	1.0
36	0.0	0.2	37	0.0	0.5
38	0.0	0.2	39	0.0	0.9

Data întocmirii: 7.11.2016	Intocmit de: R.Matei	Semnatura: 
Număr total exemplare: 2	La client: 1	
Manager tehnic sau persoana autorizata: S.Matei		

Sfarsit document



Laborator Fotometrie si Compatibilitate Electromagnetica



ELECTROMAGNETICA

266-268 Calea Rahovei Sector 5 050912 – Bucharest Tel: +40 21 4042 146 Fax: +40 21 4042 148
E-mail: stelian.matei@electromagnetica.ro www.electromagnetica-led.ro

Raport de Incercare

X
X

Fotometrica Compatibilitate Electromagnetica

Continut

- 1 Date Identificare
- 2 Conditii si Echipamente
- 3 Rezultate Fotometrice
- 4 Tabel Distributie
- 5 Tabel Distributie
- 6 Tabel Distributie
- 7 Tabel Distributie
- 8 Rezultate Compatibilitate Electromagnetica

Număr Raport: 339/b	Data Raport: 7.11.2016	Întocmit de: R Matei
Laborator de Incercări: Laborator Fotometric si Compatibilitate Electromagnetica – Electromagnetica S A- Email: info@electromagnetica.ro		
Număr de înregistrare: 339/ 7.11.2016		
Adresa: Calea Rahovei, 266-268, Sector 5, Bucuresti, Romania		

Detalii Client	
Contact: EcoCity	Compania: EcoCity
Adresa: 11, Mircea cel Batrin str., 2012, Chisinau, Moldova- Tel/Fax: +373 22 022-000 Cell:+373790022099	Comandă: 339 7.11.2016
Data primiri :7.11.2016	Email: marcel.malai@ecocity.md www.ecocity.md
Data încercării : 7.11.2016	Data Raport: 7.11.2016

Detalii Produs	
Producător: EcoCity	Tip:Corp de iluminat cu LED
Model: Pro - Street Quasar 68C	COD: 0950 161103 00
Descriere: Optica: 8160Lm 1 Lens 120'x60'	
Număr produse: 1	Stare: Functionare
LED: 5000k/Pure White	
Sursa de Alimentare : HLG-100H-36A	
Tensiune alimentare(V): 230	Curent alimentare (mA): 0.315
Putere (W):68.7	Factor Putere: -0.950
Lungime aparat (mm):500	Latime aparat (mm):250
Înălțime aparat (mm):N/A	Greutate:N/A
Mod Functionare: montare pe stalp	



Conditii

- Rezultatele încercărilor se refera numai la obiectele încercate.
- Reproducerea continutului acestui raport intr-o alta forma decat cea completa nu este permisa fara acordul scris al ELECTROMAGNETICA SA.
- Obiectele încercate au fost prezentate de catre beneficiar.

STANDARDE UTILIZATE

Fotometrie:

IES LM 79-8

Masurare prin metoda substitutiei. Valorile raportate sunt valori mediate si corectate prin program, in functie de distributia spectrala a fluxului emis de lampile de referinta si de responsivitatea spectrala a fotometrului etalon

Compatibilitate:

SR EN 55015:2007+
A1:2008+A2:2009

Incertitudinea de masurare reprezinta incertitudinea extinsa obtinuta prin multiplicarea incertitudinii standard cu factorul de extindere $k=2$ si a fost estimat in conformitate cu Ghidul de incertitudine de masurare CEI 98-3:2010 Partea 3. Valoarea masurandului se afla in intervalul de valori indicat, cu un nivel de incredere de 95%. Rezultatul masuratorilor sunt trasabile la Sistemul International de Unitati (SI). Trasabilitatea rezultatelor masurarilor este realizata si mentinuta prin comparari si etalonari in accord cu Standardele locale.

Sfera Integrare

Flux luminos, Temperatură de culoare		
Etalon: Flux -Lampa Halogen ceramic 24V/50W , Seria 1203006		
Echipamentul utilizat: Sistem automat Spectrofotocolorimetru tip LMS 5000		
Diametru sfera(m):	0.5	1.5 x 2.5
Detector:Fotometru cu corectie $V(\lambda)$ si monocromator	Metoda masurare: Substitutie	
Trasabilitate: cu etaloane INMB (acreditat CIPM-MRA)	Interval scanare (nm): 5	
Data ultimei calibrări:26.02.2016		Nr. Certificat de etalonare lampă etalon: 04.03.058/2016 la data 10.02.2016
Timpul de stabilizare (minute): 30	Temperatura ambientala: 25°C	
Incertitudinea de măsurare $\pm 4.22\%$ (0,01 - 200 klx) (CIE sursa iluminant tip A) $\pm 3.55\text{ K}$ (1500 K - 25000 K) (CIE sursa iluminant tip A)		

Fotogoniometru

Distributie intensitate, Flux luminos		
Echipamentul utilizat: Sistem automa - Fotogoniometru tip LSG 1800 cu fotometru cu corectie $V(\lambda)$		
Distanța de lucru a fotometrului: 8.7 m	Tipul (geometria) măsurării: Far-Field	
Etalon: Flux/Intensitate -Lampa Halogen ceramic 24V/50W , Seria 1208040	Serie fotometru: 1001027	
Trasabilitate: cu etaloane INMB (acreditat CIPM-MRA)	Nr./Data Certificat de etalonare lampă etalon: 04.03.058/2016 la data 10.02.2016	
Data ultimei calibrări: 26.02.2016		
Timpul de stabilizare (minute): 30	Temperatura ambientala: 25°C	
Incertitudinea de măsurare: $\pm 1.88\%$ (0.01 - 100 klux) (CIE sursa iluminant tip A)		
Directie	Domeniu	Pas increment
Plan orizontal	-90° +90°	5°
Plan vertical	-90° +90°	1°
Tip masurare:	B- β si C- γ	

Compatibilitate Electromagnetica

Tensiune perturbatoare condusa		
Echipamentul Utilizat: Sistem cu scanare automata: Receptor (EMC 300A) , Retea artificiala (EMC 200A), Sursa curent alternativ (LSP 500)		
Domeniu frecventa: 9 kHz-30 MHz	Tip masurare: Masurarea tensiunilor perturbatoare la bornele de alimentare	
Largime banda: 200 Hz, pentru (9 ÷ 150) kHz 9 kHz, pentru (0.15 ÷ 30) MHz	Pas frecventa: 100 Hz pentru domeniul (9 ÷ 150) kHz 5 kHz, pentru domeniul (0,15 ÷ 30) MHz	
Detector: Prescanare -Valoare de vârf (QP) Scanare finala- Valoare medie (AV) și de cvasivârf (QP)	Timp masurare:	
		9 kHz-150 kHz
	150 kHz-30 MHz	
Sursa de referinta: Sursa de tensiuni perturbatoare conduse	Seria: 11009 CRC Laplace	
Trasabilitate: Receptor, AMN, Sursa AC, Atenuator 20dB	Nr./Data Certificat de etalonare: SS1S1125CDNEM3037, SS1602045R1006W040 Nr.03.02-007/2016	
Timpul de stabilizare (minute): 30	Temperatura ambientala: 25°C	
Incertitudinea de Masurare: $\pm 4,12\text{ dB}\mu\text{V}$		

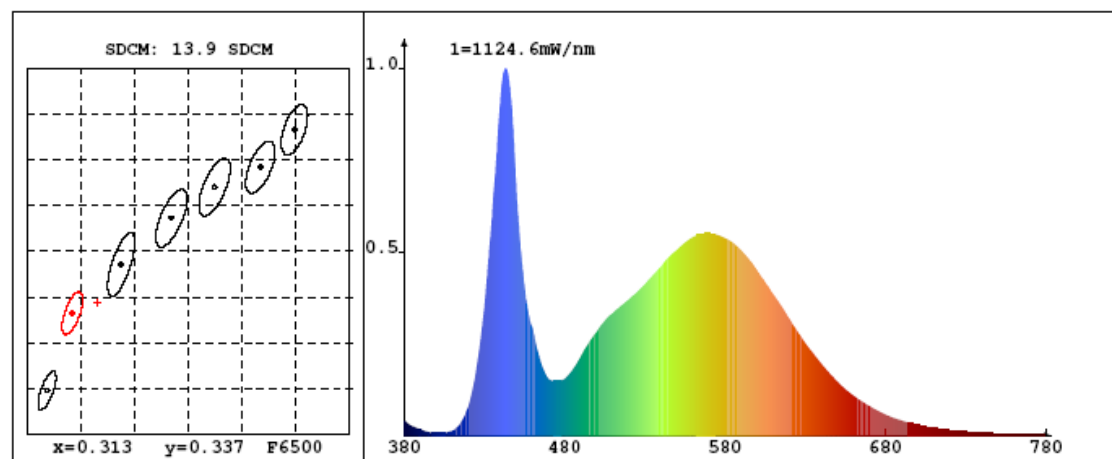
Rezultate Sfera Integrare



Modul de amplasare in sfera de integrare al aparatului supus incercarii

Flux (lumens): 8527.3	Temperatura (°C): 25.2
CIE 1931 Chromaticity Cx: 0.3299	CIE 1931 Chromaticity Cy: 0.3416
CRI (%):71.2	CCT (K): 5613
Eficienta (lm/W): 124.11	Putere Luminoasa (W): 21.845

Distributie Spectrala si departare de locul Planckian



Parameteri electrici la momentul incercarii		Data: 7.11.2016	
Tensiune:230V	Curent:0.315A	Putere:68.7W	Factor de Putere:-0.950

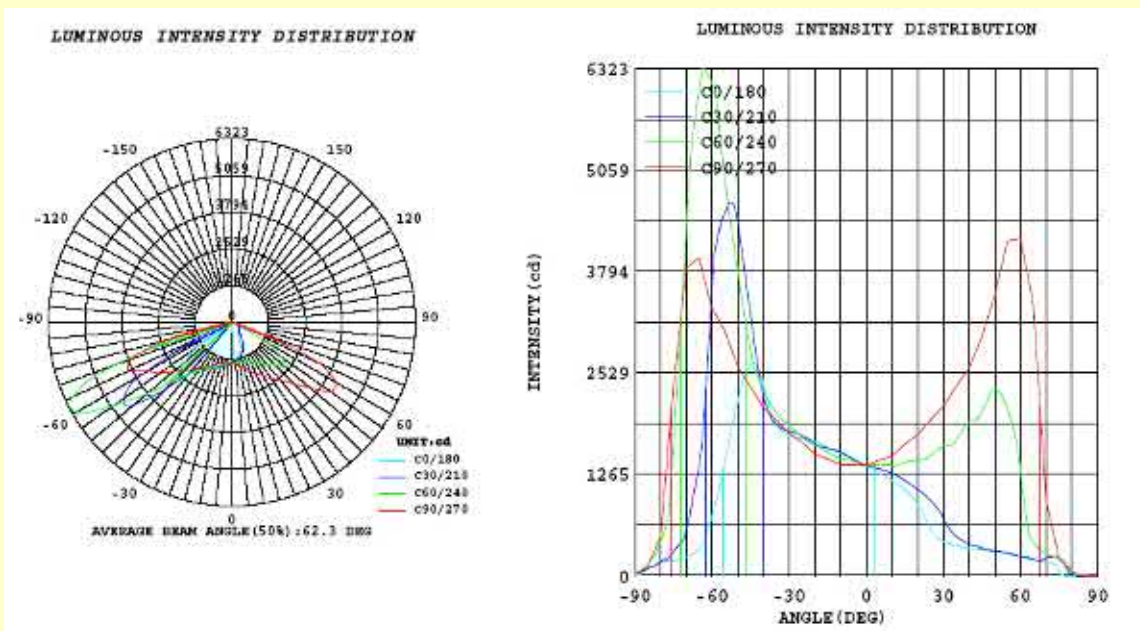
Rezultate Fotogoniometru



Modul de amplasare in fotogoniometru al aparatului supus incercarii

Data Testarii: 7.11.2016		Temperatura Ambientala: 25.3°C	
Numele Fisierului masurarii: Pro - Street Quasar 68C COD: 0950 161103 00			
Flux Luminos Integrat (lumeni): 8784.4		Intensitatea maxima (1° Unghi de Vedere in candela): 6858	
Unghi Distributie (la 50 % din intensitatea maxima C0-180, in grade): 37			
Fisier Fotometric (IES LM-63-2002) Pro - Street Quasar 68C COD: 0950 161103 00		Format Fisier IES:	

Distributie Polara si carteziana



Parametri electrici la momentul incercarii			
Tensiune: 230V	Curent: 0.319A	Putere: 69.69W	Factor de Putere : -0.951

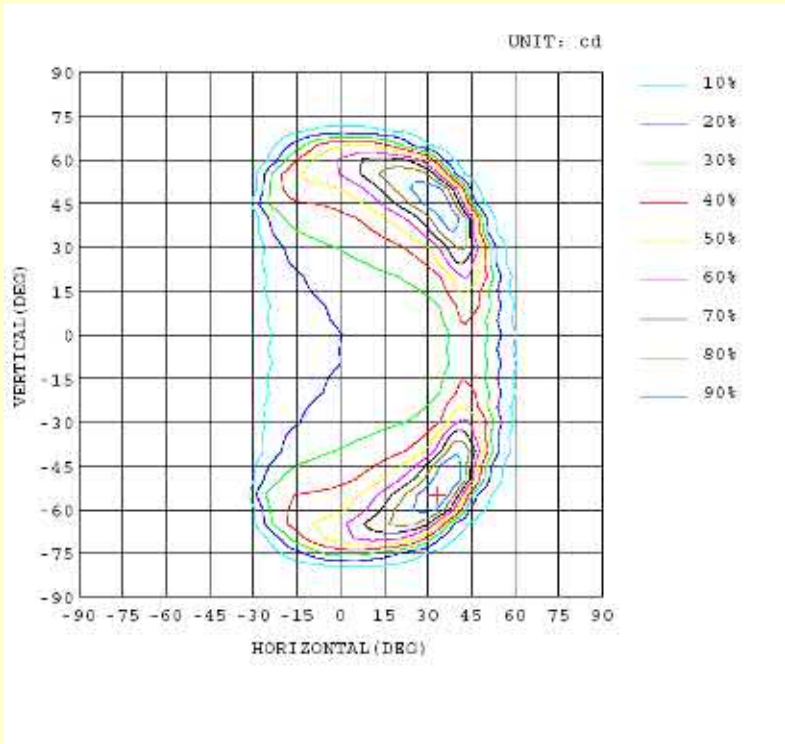


Diagrama Isocandela

Distributia Intensitatii luminoase in Candela

γ (DEG)	C(DEG)														
	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
0.0	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372
5.0	1452	1453	1454	1454	1453	1452	1450	1447	1444	1440	1436	1431	1425	1420	1414
10.0	1521	1528	1534	1538	1541	1543	1542	1529	1517	1505	1492	1478	1463	1451	1438
15.0	1598	1608	1616	1623	1624	1606	1586	1566	1545	1543	1544	1544	1541	1536	1530
20.0	1679	1677	1674	1673	1669	1657	1644	1646	1644	1641	1638	1632	1625	1616	1605
25.0	1715	1703	1690	1696	1709	1729	1745	1757	1751	1740	1730	1721	1731	1738	1739
30.0	1752	1747	1737	1730	1739	1765	1795	1825	1838	1849	1857	1866	1874	1879	1875
35.0	1892	1916	1885	1835	1873	1881	1884	1928	1963	1988	2004	2012	2035	2047	2045
40.0	2384	2432	2329	2311	2316	2194	2252	2246	2223	2247	2303	2310	2311	2300	2274
45.0	2623	2510	2614	2692	2888	3136	3261	2993	3083	2991	2905	2826	2809	2779	2704
50.0	2175	2046	2230	2433	2861	3576	4425	4988	4845	4340	4217	4036	3806	3574	3330
55.0	1414	1339	1433	1842	2228	3403	4520	5904	6309	6472	5925	5362	4979	4656	4310
60.0	720	738	791	956	1543	2110	3547	4601	6077	6729	6776	6674	6148	5652	5159
65.0	331	356	420	516	636	1021	1364	2426	3203	4706	5833	6267	6047	5839	5569
70.0	228	222	232	252	311	447	553	743	1027	1705	2272	3517	4272	4547	4604
75.0	184	185	187	191	209	234	292	334	436	552	709	1099	1612	1849	1972
80.0	164	155	154	155	153	143	173	189	211	241	286	341	412	493	547
85.0	79.2	71.7	94.9	98.7	87.1	84.1	85.3	84.5	88.2	95.3	107	119	131	143	153
90.0	2.21	4.10	8.80	11.0	13.2	13.9	13.8	11.2	10.6	10.8	12.8	15.0	16.7	18.4	20.5

γ (DEG)	C(DEG)														
	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145
0.0	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372
5.0	1408	1401	1394	1386	1379	1372	1364	1357	1349	1342	1335	1328	1322	1316	1310
10.0	1425	1412	1398	1384	1369	1354	1339	1325	1311	1297	1283	1271	1260	1249	1240
15.0	1518	1505	1477	1454	1433	1409	1382	1352	1321	1289	1256	1223	1190	1161	1147
20.0	1591	1571	1546	1516	1480	1440	1399	1358	1315	1273	1232	1194	1155	1109	1062
25.0	1733	1720	1697	1665	1623	1571	1510	1437	1354	1273	1191	1123	1073	1023	976
30.0	1861	1840	1812	1776	1723	1657	1587	1500	1403	1299	1202	1104	980	823	729
35.0	2033	2010	1978	1939	1895	1836	1754	1644	1500	1324	1135	1005	862	709	534
40.0	2237	2192	2144	2098	2048	1981	1896	1784	1629	1417	1163	863	609	490	447
45.0	2614	2521	2431	2352	2281	2207	2117	1990	1774	1418	980	660	470	396	375
50.0	3089	2880	2724	2607	2522	2449	2369	2251	2034	1672	1123	547	360	344	335
55.0	3928	3561	3268	3053	2910	2821	2728	2600	2318	1853	1059	415	341	314	300
60.0	4604	4074	3647	3333	3202	3107	2981	2770	2491	1997	1153	371	294	280	277
65.0	5268	4893	4385	3959	3657	3458	3164	2789	2306	1290	438	296	262	246	233
70.0	4533	4423	4147	3835	3542	3163	2657	2050	1358	693	322	247	214	204	202
75.0	2118	2272	2363	2326	2213	1795	1349	956	579	293	213	189	192	228	227
80.0	575	565	527	473	441	400	353	307	264	218	213	219	270	295	277
85.0	147	136	123	113	114	124	133	144	154	151	94.4	78.2	89.0	71.1	25.8
90.0	20.5	17.2	11.9	11.4	8.74	5.44	3.89	2.55	1.34	0.00	0.00	0.00	0.00	0.00	0.00

γ (DEG)	C(DEG)														
	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220
0.0	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372
5.0	1305	1300	1297	1293	1291	1289	1287	1293	1299	1307	1314	1322	1331	1340	1349
10.0	1233	1223	1213	1205	1198	1192	1188	1200	1213	1227	1243	1260	1278	1292	1307
15.0	1134	1125	1119	1105	1091	1080	1071	1088	1108	1131	1153	1168	1186	1207	1231
20.0	1012	987	975	970	944	915	890	925	966	1002	1016	1038	1073	1134	1195
25.0	882	781	716	709	702	643	595	656	727	739	750	823	937	1045	1109
30.0	666	577	481	453	458	441	422	449	474	474	508	614	717	803	923
35.0	446	428	407	383	387	385	374	386	388	388	420	454	487	568	754
40.0	400	368	367	356	351	353	342	350	345	351	365	375	395	417	456
45.0	359	344	334	336	329	331	320	325	318	326	323	331	343	344	374
50.0	320	319	315	318	316	314	302	307	298	298	299	305	305	321	328
55.0	301	286	288	287	296	288	275	276	268	259	269	266	282	279	292
60.0	256	256	243	255	279	249	238	249	222	228	222	235	235	250	250
65.0	227	214	211	197	218	199	196	199	168	178	191	191	201	204	213
70.0	195	185	181	176	186	175	159	173	170	180	186	192	211	213	205
75.0	237	221	197	183	167	121	62.6	76.8	81.6	119	115	154	212	280	234
80.0	190	135	65.9	32.2	9.84	1.13	0.00	0.18	0.16	3.20	1.25	13.3	1.24	21.4	21.4
85.0	0.00	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

γ(DEG)	C(DEG)														
	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295
0.0	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372
5.0	1358	1368	1378	1387	1396	1405	1413	1421	1428	1435	1442	1449	1454	1459	1463
10.0	1323	1340	1358	1377	1396	1416	1436	1455	1473	1491	1506	1520	1533	1543	1554
15.0	1273	1319	1364	1409	1459	1505	1544	1580	1611	1638	1660	1677	1690	1697	1698
20.0	1259	1320	1379	1439	1498	1556	1609	1657	1705	1754	1785	1810	1828	1841	1849
25.0	1176	1255	1374	1496	1605	1701	1780	1846	1898	1941	1975	2003	2022	2035	2042
30.0	1104	1281	1452	1604	1735	1840	1927	1998	2059	2107	2150	2191	2231	2262	2283
35.0	943	1152	1404	1689	1902	2039	2141	2224	2295	2357	2421	2490	2554	2608	2644
40.0	624	1070	1567	1909	2123	2260	2361	2442	2510	2582	2668	2772	2896	3036	3170
45.0	489	890	1493	2030	2382	2570	2674	2760	2851	2975	3142	3357	3605	3852	4049
50.0	347	733	1757	2327	2682	2960	3116	3201	3325	3495	3736	4052	4439	4824	5187
55.0	322	406	967	2074	2743	3163	3511	3740	3928	4173	4501	4914	5305	5603	5897
60.0	261	304	522	1294	2019	2649	3149	3574	3917	4202	4565	4945	5196	5343	5497
65.0	223	234	266	416	915	1564	2066	2697	3178	3391	3498	3514	3369	3233	3134
70.0	204	213	231	276	415	594	735	839	919	932	938	993	1026	1037	906
75.0	239	214	192	215	229	240	253	248	229	218	222	231	242	252	242
80.0	18.6	23.6	51.7	61.0	56.4	51.1	51.1	47.9	45.0	39.4	36.9	42.3	50.2	55.5	54.8
85.0	0.00	0.00	0.00	0.27	1.85	1.84	1.35	0.65	0.17	0.00	0.14	0.57	1.41	2.46	3.17
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

γ(DEG)	C(DEG)											
	300	305	310	315	320	325	330	335	340	345	350	355
0.0	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372	1372
5.0	1466	1469	1473	1478	1481	1482	1480	1477	1473	1469	1464	1458
10.0	1561	1566	1570	1573	1575	1575	1575	1569	1561	1553	1544	1533
15.0	1696	1689	1679	1665	1652	1652	1651	1650	1648	1640	1628	1614
20.0	1850	1845	1834	1817	1796	1781	1757	1755	1754	1749	1731	1706
25.0	2040	2023	1998	1981	1957	1927	1904	1875	1847	1820	1786	1751
30.0	2291	2284	2264	2223	2156	2116	2070	2015	1945	1886	1846	1801
35.0	2652	2631	2642	2623	2571	2477	2349	2294	2216	2080	2054	2003
40.0	3277	3343	3354	3266	3234	3243	3163	2943	2995	2817	2649	2596
45.0	4171	4288	4449	4622	4633	4521	4665	4434	3988	3464	3059	2695
50.0	5503	5753	5841	5974	6190	6073	5653	4822	3905	3100	2541	2153
55.0	6198	6498	6629	6585	6117	5770	4359	3596	2472	2121	1455	1342
60.0	5624	5608	5077	4765	3630	2193	1915	1060	1057	737	665	671
65.0	3130	2722	1852	1059	793	618	468	422	334	333	324	318
70.0	677	496	428	373	328	281	244	231	207	198	203	208
75.0	218	199	184	161	146	138	149	141	149	153	167	175
80.0	53.6	49.8	46.6	41.3	41.0	55.4	66.8	70.9	83.4	94.2	107	121
85.0	3.80	4.18	4.27	4.09	4.02	4.42	4.10	7.44	6.98	16.1	17.5	15.9
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Rezultate Compatibilitate Electromagnetica

Data Testarii: 7-11-2016	Temperatura Ambientala: 25°C	Umiditate: 40%
Conditii Instalare: EUT a fost conectat. la rețeaua artificială nealimentat		Amplasare: - EUT montat pe masa conform fotografie
Criteriul de performanță:	Valorile medii (AV) și de cvasivârf (QP) ale perturbațiilor transmise în rețea de către EUT pe fiecare din liniile de alimentare (linie și neutru) nu trebuie să depășească limitele impuse de SR EN 55015, tabelul 2a	



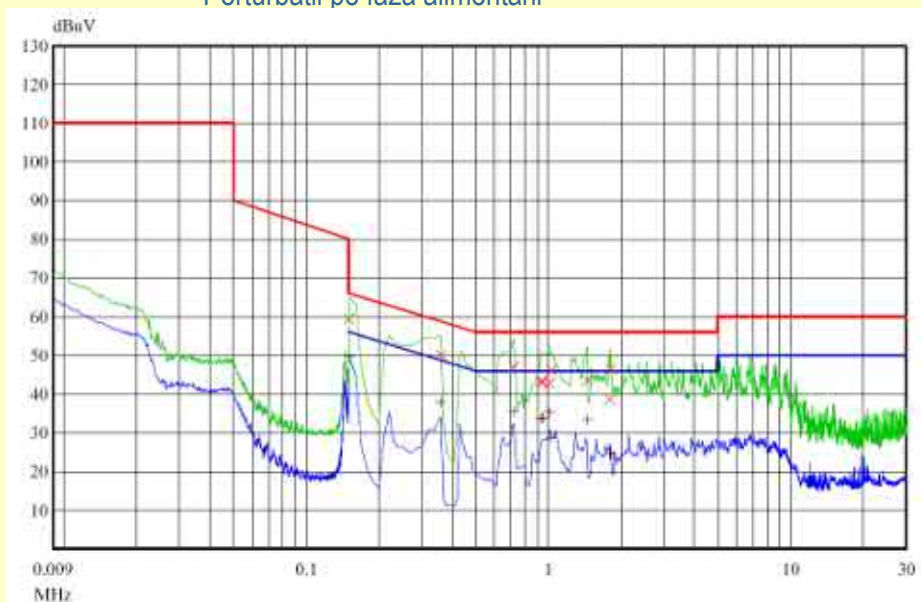
Modul de amplasare al aparatului supus incercarii

Limitele tensiunii perturbatoare la bornele de alimentare

Banda de frecvență	Limite dB(μV) ¹	
	Valoare de cvasi vârf (QP)	Valoare medie (AV)
9 kHz ÷ 50 kHz	110	-
50 kHz ÷ 150 kHz	90 ÷ 80 ²	-
150 kHz ÷ 0,5 MHz	90 ÷ 80 ²	90 ÷ 80 ²
0,5 MHz ÷ 5,0 MHz	56 ³	46 ³
5 MHz ÷ 30 MHz	60	50

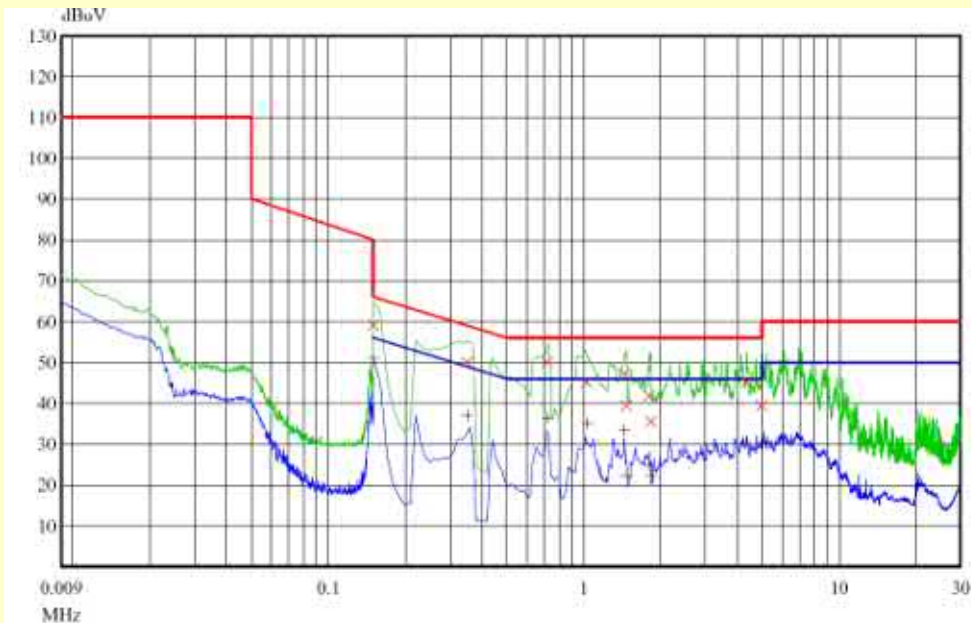
¹ La frecvența de tranziție se aplică limitele mai mici
² Limita descrește liniar cu logaritmul frecvenței în intervalele :50KHz÷150KHz și 150KHz÷0,5 MHz
³ Pentru lămpile fără electrozi și corpuri de iluminat, limita în banda de frecvențe 2.51 MHz÷3,0 MHz este de 73 dB(μV) pentru QP și 63 dB(μV) pentru AV

Perturbatii pe faza alimentarii



Legendă : PK(-) valorile de vârf ,valorile medii AV(-) și valorile de cvasivârf QP(X) ale perturbațiilor

Perturbatii pe nulul alimentarii



Legendă : PK(-) valorile de vârf ,valorile medii AV(-) si valorile de cvasivârf QP(X) ale perturbatiilor

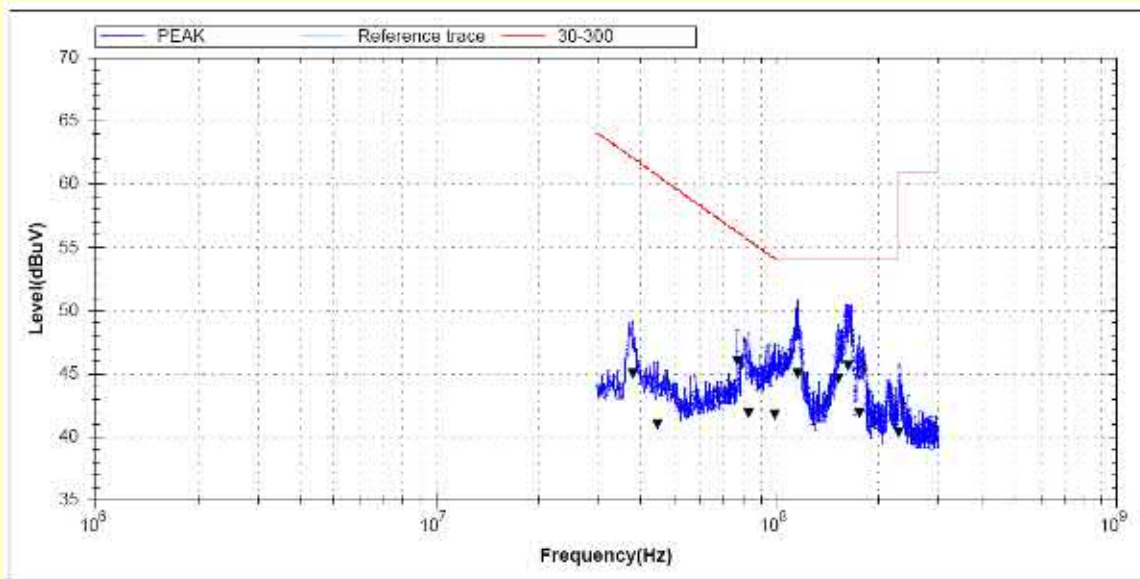
Perturbatii pe faza alimentarii

Frequency MHz	QP Level dBuV	QP Limit dBuV	QP Delta dB	AV Level dBuV	AV Limit dBuV	AV Delta dB
0.15	59.43	66.00	6.57	49.64	56.00	6.36
0.36	50.00	58.73	8.73	37.82	48.73	10.91
0.72	47.11	56.00	8.89	35.47	46.00	10.53
0.93	43.28	56.00	12.72	33.64	46.00	12.36
0.95	43.11	56.00	12.89	33.82	46.00	12.18
1.01	42.74	56.00	13.26	35.32	46.00	10.68
1.03	46.06	56.00	9.94	28.69	46.00	17.31
1.45	43.53	56.00	12.47	33.46	46.00	12.54
1.79	38.66	56.00	17.34	24.35	46.00	21.65
1.81	46.37	56.00	9.63	24.91	46.00	21.09

Perturbatii pe nulul alimentarii

Frequency MHz	QP Level dBuV	QP Limit dBuV	QP Delta dB	AV Level dBuV	AV Limit dBuV	AV Delta dB
0.15	59.12	66.00	6.88	50.91	56.00	5.09
0.35	49.99	58.96	8.97	37.05	48.96	11.91
0.72	50.00	56.00	6.00	36.46	46.00	9.54
1.03	45.09	56.00	10.91	35.16	46.00	10.84
1.44	47.22	56.00	8.78	33.37	46.00	12.63
1.47	39.37	56.00	16.63	22.28	46.00	23.72
1.81	41.83	56.00	14.17	24.81	46.00	21.19
1.84	35.53	56.00	20.47	22.28	46.00	23.72
4.34	45.15	56.00	10.85	30.71	46.00	15.29
4.98	39.34	56.00	16.66	30.29	46.00	15.71

Perturbatii conduse in domeniul 30MHz-300MHz



Frequency	Level	old level	Fin...	Delta Limit
115,56 MHz	44.90 dBuV	50.68 dBuV	*	-9.10 dBuV
164,40 MHz	45.55 dBuV	50.38 dBuV	*	-8.45 dBuV
37,92 MHz	44.92 dBuV	49.01 dBuV	*	-17.14 dBuV
153,00 MHz	44.59 dBuV	48.79 dBuV	*	-9.41 dBuV
77,04 MHz	46.01 dBuV	48.37 dBuV	*	-10.15 dBuV
83,52 MHz	41.84 dBuV	48.11 dBuV	*	-13.66 dBuV
177,00 MHz	41.87 dBuV	47.84 dBuV	*	-12.13 dBuV
99,00 MHz	41.65 dBuV	47.25 dBuV	*	-12.43 dBuV
44,76 MHz	40.97 dBuV	45.81 dBuV	*	-19.71 dBuV
231,24 MHz	40.27 dBuV	45.68 dBuV	*	-20.73 dBuV

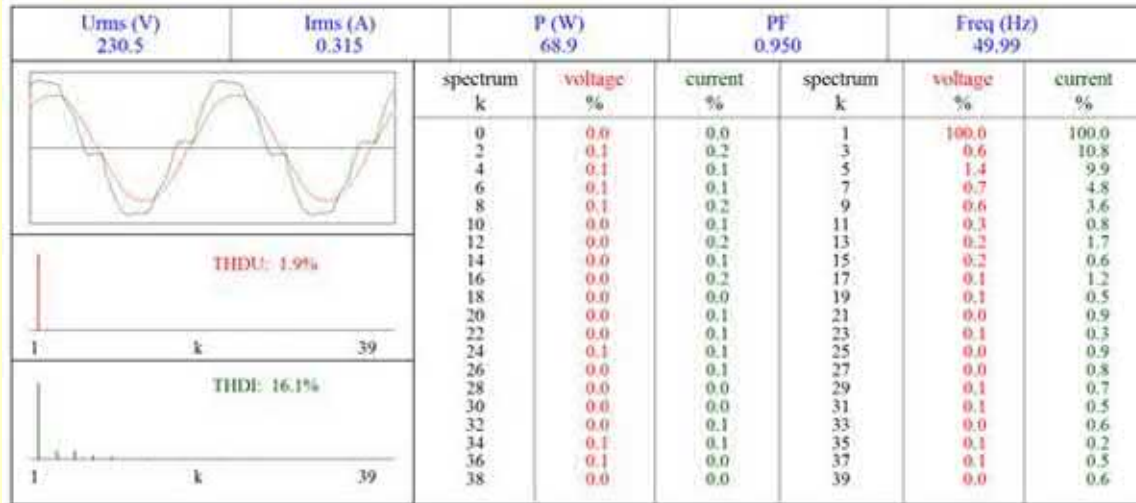
Interpretare rezultate si comentarii

S-a efectuat deasemeni analiza continutului de armonici

Rezultatele sunt urmatoarele

THDI:16.1%

THDU:1.9%



spectrum	voltage	current	spectrum	voltage	current
k	%	%	k	%	%
0	0.0	0.0	1	100.0	100.0
2	0.1	0.2	3	0.6	10.8
4	0.1	0.1	5	1.4	9.9
6	0.1	0.1	7	0.7	4.8
8	0.1	0.2	9	0.6	3.6
10	0.0	0.1	11	0.3	0.8
12	0.0	0.2	13	0.2	1.7
14	0.0	0.1	15	0.2	0.6
16	0.0	0.2	17	0.1	1.2
18	0.0	0.0	19	0.1	0.5
20	0.0	0.1	21	0.0	0.9
22	0.0	0.1	23	0.1	0.3
24	0.1	0.1	25	0.0	0.9
26	0.0	0.1	27	0.0	0.8
28	0.0	0.0	29	0.1	0.7
30	0.0	0.0	31	0.1	0.5
32	0.0	0.1	33	0.0	0.6
34	0.1	0.1	35	0.1	0.2
36	0.1	0.0	37	0.1	0.5
38	0.0	0.0	39	0.0	0.6

Data întocmirii: 7.11.2016	Intocmit de: R.Matei	Semnatura:
Număr total exemplare: 2	La client: 1	
Manager tehnic sau persona autorizata: S.Matei		

Sfarsit document



TEST REPORT

EN 60598-2-3

Luminaires

Part 2: Particular requirements
Section 3: Luminaires for road and
street lighting

EN 62471

Photobiological safety of lamps and
lamp systems



Report reference No.:	2018-267
Approved by (name, job title and signature):	Mordachov R.A. – The head of Testing Centre BelGISS
Verified by (name, job title and signature):	Hryno V.V. – The head of laboratory of Testing Centre BelGISS
Tested by (name, job title and signature):	Boika V. V. – The lead engineer
Date of issue:	2018.07.31
Test laboratory:	Testing Center BelGISS
Address:	Location address: 220053, Republic of Belarus, Minsk, 2a Novatorskaya St, Phone 375 17 2696819 2696958; E-mail: ic26@belgiss.by Legal address: 220113 Republic of Belarus, Minsk, 3 Melezh St, room 406 Tel: 375 17 2696838; Fax: 375 17 2696889 E-mail: ic@belgiss.by
Accreditation certificate	№ BY/112 02.1.0.0085 from 01.09.1995 Validity: from December 1, 2014 to December 1, 2019
Applicant's name:	EcoCity S.R.L.
Address:	bd. Moscova, 12/3 ap. (of.) 21, MD-2068 Chisinau, Republica Moldova
Manufacturer:	EcoCity S.R.L.
Address:	Mircea cel Batrin str. 11, Chisinau, Republica Moldova
Tested according to standard	EN 60598-2-3:2003/A1:2011, EN 60598-1:2015, EN 62471:2008
Non-standard test methods	Were not applied
Number of samples	1 (one sample) without serial number
Conditions of realization of tests	Normal climatic conditions
The act of sampling	№ 15348 from 2018.06.22
Date of receipt of sample(s)	2018.06.22
Date of realization of tests	2018.07.09 - 2018.07.31
The name of test item	LED Luminaire

The trademark	EcoCity S.R.L.
Model / type of a sample	Eco-Pro Street Quasar S SiO 80 C
Test result	PASSED

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

- ANNEX 1: Critical components information – 1 page (page 31)
 ANNEX 2: Thermal tests of Section 12 – 1 page (page 32)
 ANNEX 3 Screw terminals (part of the luminaire) – 1 page (page 33)
 ANNEX 4 Screwless terminals (part of the luminaire) – 2 pages (pages 34 – 35)
 ANNEX 5 Testing luminaire in accordance with EN 62471 – 3 pages (pages 36 – 38)
 ANNEX 6 Fotos, manual – 10 pages (pages 39–47)

General product information:

LED Luminaire is intended for lighting of roads, streets, parkings, manufacturing facilities and interior lighting of industrial buildings, storages, etc. Luminaire is designed for console mounting on a support with diameter 48–60mm

Possible test case verdicts:

- test case does not apply to the test object	N/A (Not applied)
- test object does meet the requirement	P (Pass)
- test object does not meet the requirement	F (Fail)
- test were not conducted	—

The general(common) notes:

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

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

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

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

Test items (or destructed parts) after the tests are returned to the Applicant, except in cases where the recycling needed.

Test report was issued in 3 copies and sent to:

- 1 Test centre BelGISS
2. EcoCity S.R.L.
3. Technical Testing Institute (TSU Piestyany)

Tests item particulars	
Rated voltage	110–250 V 50–60Hz
Rated power	80 W
Class of protection against electric shock	I
Protection against ingress of water	IP66
Dimensions	102×250×525 mm
Weight	5,4 kg

Test conditions	
Temperature	21°C – 24°C
Relative humidity of air	59% – 68%
Atmospheric pressure	98 кПа – 101 кПа

The test equipment and means of measurement			
№	Name	Factory number	Certificated, calibrated up to
1.	Thermohygrometer UNITESS THB-1	170018	28.11.2018
2.	Test device to verify protection of jet-proof appliances	2	01.02.2019
3.	Dust chamber DI-3000	LP201610DI015	06.06.2019
4.	Climatic chamber Feutron КРК 1700	085/08	04.12.2018
5.	Thermal vacuum chamber ТБК-1000	11122016	03.03.2019
6.	Power meter PPA 510 (ПРИЗМА-50/1)	111-04272	04.04.2019
7.	Oscilloscope Tektronix, TDS2014B	C035910	25.01.2019
8.	Earth continuity tester Kikusui TOS6210	XK002785	05.10.2018
9.	Withstanding voltage tester УПУ-10	0449	20.11.2018
10.	Spring-operated impact test apparatus	2	07.10.2018
11.	Calibration device for spring-operated impact test apparatus	2	07.10.2018
12.	Apparatus for ball pressure test	M23	21.12.2018
13.	Thermometer Sosna 002	818	04.07.2019
14.	Glow-wire test apparatus	2999	26.01.2020
15.	Needle-test apparatus	2	01.02.2019
16.	Tracking-test apparatus	A07	26.01.2020
17.	Stopwatch СДСпр 1-2-00	0480142	05.02.2019
18.	Ruler	117160	30.04.2019
19.	Microscope Mitutoyo TM 505	381311	13.09.2018
20.	Calipers SHAN 0-150 мм	D0611/D18842	04.04.2019
21.	Test finger	B	11.12.2019
22.	Dynamometer PCE-FB200	139	20.11.2018
23.	Torque screwdriver TOPTUL ANAM0803 1-25 Nm	PF00503	04.07.2019
24.	Scales BTC 100Д14	2141	30.09.2018
25.	Test machine Time WDW-5E	4792	15.05.2019
26.	IDR300-PSL Photobiological Safety Spectroradiometer	19041	31.12.2018
27.	CL6 Halogen Spectral Irradiance Standard (250-3000nm)	19068/1	31.12.2018

28.	CL7 Deuterium Spectral Irradiance Standard (200-400nm)	18721/2	31.12.2018
29.	SRS12 Halogen Spectral Radiance Standard (250-2500nm)	18732/2	31.12.2018
30.	Power supply APS77100	GEQ221859	—

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
3.2 (0)	GENERAL TEST REQUIREMENTS		
3.2 (0.3)	More sections applicable	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Section/s:	—
3.2 (0.5)	Components	(see Annex 1)	—
3.2 (0.7)	Information for luminaire design in light sources standards		—
3.2 (0.7.2)	Light source safety standard		—
	Luminaire design in the light source safety standard		N/A

3.4 (2)	CLASSIFICATION OF LUMINAIRES		
3.4 (2.2)	Type of protection	Class I	P
3.4 (2.3)	Degree of protection	IP 66	—
3.4 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
3.4 (2.5)	Luminaire for normal use	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	Luminaire for rough service	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
3.4 (-)	Modes of installation of road or street lighting		—
	a) on a pipe	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	b) on a mast arm	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	c) on a post top	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	d) on span or suspension wires	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	e) on a wall	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—

3.5 (3)	MARKING		
3.5 (3.2)	Mandatory markings	See foto 3	P
	Position of the marking		P
	Format of symbols/text		P
3.5 (3.3)	Additional information		P
	Language of instructions	English (See fotos 7–12)	P
3.5 (3.3.1)	Combination luminaires		N/A
3.5 (3.3.2)	Nominal frequency in Hz	50–60 Hz	P
3.5 (3.3.3)	Operating temperature	-45 ⁰ C – +50 ⁰ C	P
3.5 (3.3.5)	Wiring diagram		N/A
3.5 (3.3.6)	Special conditions		N/A
3.5 (3.3.7)	Metal halide lamp luminaire – warning		N/A

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
3.5 (3.3.8)	Limitation for semi-luminaires		N/A
3.5 (3.3.9)	Power factor and supply current	PF > 0,95, I < 1,1 A	P
3.5 (3.3.10)	Suitability for use indoors		P
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
3.5 (3.3.22)	Controllable luminaires, classification of insulation provided		N/A
3.5 (3.3.23)	Luminaire without controlgear provided with necessary information for selection of appropriate component		N/A
3.5 (3.3.24)	If not supplied with terminal block, information on the packaging	Terminal block in the luminaire	N/A
3.5 (3.4)	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		N/A
3.5 (-)	Additional information in instruction leaflet		P
	a) Design attitude	More than 15 m	N/A
	b) Weight	5,4 kg	P
	c) Overall dimensions	102×250×525 mm	P
	d) Maximum projected area if applicable	0,25×0,525=0,131m ²	P
	e) Cross-sectional area of wires if applicable		N/A
	f) Suitability for indoors use		P
	g) Dimensions of the compartment		N/A

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
	h) Torque setting to be applied to bolts or screws	17-19Nm	P
	i) Maximum mounting height		N/A
3.6 (4)	CONSTRUCTION		
3.6 (4.2)	Components replaceable without difficulty	No replaceable components	N/A
3.6 (4.3)	Wireways smooth and free from sharp edges		P
3.6 (4.4)	Lampholders		N/A
3.6 (4.4.1)	Integral lampholder	No lampholders	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		N/A
	Starter holder in luminaires other than class II	No starter holders	N/A
	Starter holder class II construction		N/A
3.6 (4.6)	Terminal blocks		N/A
	Tails	Terminal block in the luminaire	N/A
	Unsecured blocks		N/A
3.6 (4.7)	Terminals and supply connections		P
3.6 (4.7.1)	Contact to metal parts		P
3.6 (4.7.2)	Test 8 mm live conductor		P

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
	Test 8 mm earth conductor		P
3.6 (4.7.3)	Terminals for supply conductors	Screw terminals	P
3.6 (4.7.3.1)	Welded method and material		N/A
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- mechanical test according to 15.6.2		N/A
	- electrical test according to 15.6.3		N/A
	- heat test according to 15.6.3.2.3 and 15.6.3.2.4		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		N/A
	- adequate rating	No switches	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		N/A
3.6 (4.9.1)	Retainment		N/A
	Method of fixing		N/A
3.6 (4.9.2)	Insulated linings and sleeves:		N/A
	Resistant to a temperature > 20 °C to the wire temperature or		N/A
	a) & c) Insulation resistance and electric strength		N/A
	b) Ageing test. Temperature (°C)		N/A
3.6 (4.10)	Double or reinforced insulation		N/A
3.6 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation	Class I luminaire	N/A
	Safe installation fixed luminaires		N/A
	Capacitors and switches		N/A
	Interference suppression capacitors according to IEC 60384-14		N/A

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
3.6 (4.10.2)	Assembly gaps:		N/A
	- not coincidental		N/A
	- no straight access with test probe		N/A
3.6 (4.10.3)	Retainment of insulation:		N/A
	- fixed		N/A
	- unable to be replaced; luminaire inoperative		N/A
	- sleeves retained in position		N/A
	- lining in lampholder		N/A
3.6 (4.10.4)	Protective impedance device		N/A
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N/A
	Y1 or Y2 capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.1 of IEC 60065		N/A
3.6 (4.11)	Electrical connections and current-carrying parts		P
3.6 (4.11.1)	Contact pressure		P
3.6 (4.11.2)	Screws:		P
	- self-tapping screws	Not used	P
	- thread-cutting screws	Not used	P
3.6 (4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- 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		P
3.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part screw terminal.....:	0,5Nm	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:		P
	- fixed arms; torque (Nm).....:		N/A

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
	- lampholder; torque (Nm)		N/A
	- push-button switches; torque 0,8 Nm.....		N/A
3.6 (4.12.5)	Screwed glands; force (Nm)	3,25 Nm	P
3.6 (4.13)	Mechanical strength		P
3.6 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm) glass cover	0,5 Nm	P
	- other parts; energy (Nm) case.....	0,7 Nm	P
	1) live parts		P
	2) linings		N/A
	3) protection		P
	4) covers		P
3.6 (4.13.2)	Metal parts have adequate mechanical strength		P
3.6 (4.13.3)	Straight test finger		P
3.6 (4.13.4)	Rough service luminaires		N/A
	- 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		P
3.6 (4.14.1)	Mechanical load:		P
	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		N/A
	Mass (kg)		—
	Stress in conductors (N/mm ²)		N/A

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
	Mass (kg) of semi-luminaire		N/A
	Bending moment (Nm) of semi-luminaire		N/A
3.6 (4.14.3)	Adjusting devices:		N/A
	- flexing test; number of cycles	Not adjustable	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		N/A
	- glow-wire test 650°C	Only metal and glass	N/A
	- spacing ≥ 30 mm		N/A
	- screen withstanding test of 13.3.1		N/A
	- screen dimensions		N/A
	- no fiercely burning material		N/A
	- thermal protection		N/A
	- electronic circuits exempted		N/A
3.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N/A
	a) construction		N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A
3.6 (4.16)	Luminaires for mounting on normally flammable surfaces	Install on pipe or console	N/A
	No lamp control gear		N/A
	Provided with adaptor for a track meet the requirements for direct mounting on normally flammable surfaces		N/A
3.6 (4.16.1)	Lamp control gear spacing:		P
	- spacing 35 mm		N/A
	- spacing 10 mm		P
3.6 (4.16.2)	Thermal protection:		P
	- in lamp control gear	110°C	P
	- external		N/A
	- fixed position		N/A

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
3.6 (4.16.3)	Design to satisfy the test of 12.6		N/A
3.6 (4.17)	Drain holes		P
	Clearance at least 5 mm		P
3.6 (4.18)	Resistance to corrosion		P
3.6 (4.18.1)	- rust-resistance		P
3.6 (4.18.2)	- season cracking in copper		P
3.6 (4.18.3)	- corrosion of aluminium	Cast under pressure aluminium case	P
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		N/A
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
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		P
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		P
	Class of risk group assessed according to IEC/TR 62778	RG2	—
	Luminaires with $E_{thr} = 19400$ lux.		P
	a) Fixed luminaires		P
	- distance x m, borderline between RG1 and RG2....:	0,5m	P
	- marking and instruction according 3.2.23		P
	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

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
3.6 (4.25)	Mechanical hazard		P
	No sharp point or edges		P
3.6 (4.26)	Short-circuit protection		N/A
3.6 (4.26.1)	Adequate means of uninsulated accessible SELV parts	No such parts	N/A
3.6 (4.26.2)	Short-circuit test with test chain according 4.26.3		N/A
	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		N/A
	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
3.6 (4.28)	Fixing of thermal sensing control		N/A
	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:		N/A
	Max. temperature on adhesive material ($^{\circ}\text{C}$)		—
	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		P
	Not possible to replace light source		P
	Live part not accessible after parts have been opened by hand or tools		P
3.6 (4.30)	Luminaires with non-user replaceable light source		P
	If protective cover provide protection against electric shock and marked with "caution, electric shock risk" symbol:		N/A
	Minimum two fixing means		P
3.6 (4.31)	Insulation between circuits		P

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
3.6 (4.31.1)	SELV circuits		P
	Used SELV source	LED driver providing SELV in accordance with IEC 61347	P
	Voltage \leq ELV	36 V	P
	Insulating of SELV circuits from LV supply	Reinforced	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		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
	Plugs and socket-outlets does not have protective conductor contact		N/A
3.6 (4.31.2)	FELV circuits		N/A
	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		N/A
	Other circuits insulated from accessible parts according Table X.1		N/A
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		N/A

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
	- conductive parts are connected together		N/A
	- test according 7.2.3		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		N/A
	Comply with IEC 61643-11		N/A
	External to controlgear and connected to earth:		N/A
	- only in fixed luminaires		N/A
	- only connected to protective earth		N/A
3.6.1 (-)	At least IP X3 or X5 respectively. IP		P
	Column-integrated luminaires:		N/A
	- parts below 2,5 m. IP		N/A
	- parts above 2,5 m. IP		N/A
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		P
3.6.3.1 (-)	Static load test		P
	- drag coefficient	1,2	P
	- loaded area (m ²)	0,131 m ²	P
	- used load (N)	313 N	P
	- measured deformation (cm/m)	No visible deformation	P
	- no rotation		P
3.6.4 (-)	Adjustable lampholders		N/A
3.6.5 (-)	Luminaires installed above 5 m, glass covers shall be:		P
	a) glass that fractures into small pieces (test according to 3.6.5.1), or		P
	b) glass having a high impact shock resistance (test according to 3.6.5.2), or	IK08 (5 J)	P
	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		P

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
	- number of particles is more than 40		P
3.6.5.2 (-)	Protection by the use of high impact resistant glass		P
3.6.5.2.1 (-)	Glass covers have high mechanical strength		P
	Test according IEC 62262 with test apparatus according IEC 60068-2-75 with impact energy of 5J on preconditioned sample		P
3.6.5.2.2 (-)	Glass covers not break into large pieces		P
	- test according 3.6.5.1, number of particles is more than 20		P
3.6.6 (-)	Connection compartment of column-integrated luminaire		N/A
	- 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:		N/A
	- corrosion-resistant		N/A
	- opening only possible for an authorized person		N/A
	- impact test 5 Nm		N/A
	- sample show no damage		N/A
3.6.9 (-)	Column-integrated luminaire:		N/A
	- 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 (11.2.1)	Impulse withstand category (Normal category II)	Category II <input checked="" type="checkbox"/> Category III <input type="checkbox"/>	—
	Category III according Annex U		N/A
	Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1		N/A
3.7 (11.2.2)	Creepage distances for frequency up to 30 kHz	See table 3.7 (11.2)	P
	Creepage distances for frequency over 30 kHz:		N/A
	- Controlgear marked with \hat{U}_{OUT} and f_{UDOUT} according IEC 61347-1, clause 7.1, item w		N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347		N/A

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
3.7 (11.2.3)	Clearances for frequency up to 30 kHz	See table 3.7 (11.2)	P
	Clearances distances for frequency over 30 kHz:		N/A
	- Controlgear marked with U_p		N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347		N/A

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 : earth wire – metal case.....:	0,005 Ω	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.		P
3.8 (7.2.4)	Locking of clamping means		P
	Compliance with 4.7.3		P
	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		P
3.8 (7.2.7)	Electrolytic corrosion of the earth terminal		P
3.8 (7.2.8)	Material of earth terminal		P
	Contact surface bare metal		P
3.8 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
3.8 (7.2.11)	Earthing core coloured green-yellow		P
	Length of earth conductor		P
3.8.1 (-)	Attachment prevented from rotation		P

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
3.9 (14)	SCREW TERMINALS		
	Separately approved; component list	PA8 (See Annex 1)	P
	Part of the luminaire		N/A
3.9 (15)	SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS		
	Separately approved; component list		N/A
	Part of the luminaire		N/A
3.10 (5)	EXTERNAL AND INTERNAL WIRING		
3.10 (5.2)	Supply connection and external wiring		P
3.10 (5.2.1)	Means of connection	Terminal block	P
	Outdoor luminaire has not PVC insulated external wiring if not class III or SELV ≤ 25 V a.c./60 V d.c. or protected from outdoor environment		N/A
3.10 (5.2.2)	Type of cable		N/A
	Nominal cross-sectional area (mm ²).....		N/A
	Cables equal to IEC 60227 or IEC 60245		N/A
3.10 (5.2.3)	Type of attachment, X, Y or Z		N/A
3.10 (5.2.5)	Type Z not connected to screws		N/A
3.10 (5.2.6)	Cable entries:		P
	- suitable for introduction		P
	- adequate degree of protection		P
3.10 (5.2.7)	Cable entries through rigid material have rounded edges	Screwed gland	P
3.10 (5.2.8)	Insulating bushings:		N/A
	- suitably fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
3.10 (5.2.9)	Locking of screwed bushings		N/A
3.10 (5.2.10)	Cord anchorage:		P
	- covering protected from abrasion	Screwed gland	P
	- clear how to be effective		P
	- no mechanical or thermal stress		P
	- no tying of cables into knots etc.		P

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
	- insulating material or lining		P
3.10 (5.2.10.1)	Cord anchorage for type X attachment:		N/A
	a) at least one part fixed		N/A
	b) types of cable		N/A
	c) no damaging of the cable		N/A
	d) whole cable can be mounted		N/A
	e) no touching of clamping screws		N/A
	f) metal screw not directly on cable		N/A
	g) replacement without special tool		N/A
	Glands not used as anchorage		N/A
	Labyrinth type anchorages		N/A
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:		P
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N) 60 N		P
	- torque test: torque (Nm) 0,25 Nm.....		P
	- displacement ≤ 2 mm		P
	- no movement of conductors		P
	- no damage of cable or cord		P
	- function independent of electrical connection		P
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		N/A
	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

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
	- IEC 60083		N/A
	- other standard		N/A
3.10 (5.3)	Internal wiring		P
3.10 (5.3.1)	Internal wiring of suitable size and type	Input wiring of LED driver H05RN-F 3×1,0mm ² Output wiring of LED driver H05RN-F 2×1,0mm ²	P
	Through wiring		N/A
	- not delivered/ mounting instruction		N/A
	- factory assembled		N/A
	- socket outlet loaded (A).....:		N/A
	- temperatures:		N/A
	Green-yellow for earth only		P
3.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm ²) 0,5 mm ²:	1,0 mm ²	P
	Insulation thickness (mm) 0,6 mm.....:	0,8 mm	P
	Extra insulation added where necessary	Double insulated cable	P
3.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		N/A
	Cross-sectional area (mm ²).....:		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		P
3.10 (5.3.1.6)	Insulation thickness other than PVC or rubber	Rubber insulated cable	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

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
	Telescopic tubes etc.		N/A
	No twisting over 360°		N/A
3.10 (5.3.3)	Insulating bushings:		N/A
	- suitable fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- cables with protective sheath		N/A
3.10 (5.3.4)	Joints and junctions effectively insulated		P
3.10 (5.3.5)	Strain on internal wiring		N/A
3.10 (5.3.6)	Wire carriers		N/A
3.10 (5.3.7)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		P
3.10 (5.4)	Test to determine suitability of conductors having a reduced cross-sectional area		N/A
	Under test the temperature of the luminaire wiring insulation not exceed the limits stated in Table 12.2		N/A
	No damage to luminaire wiring after test		N/A
3.10.1 (-)	Cord anchorage if applicable		P
	- pull test: 25 times; pull (N)..... :	100 N	P
	- torque test: torque (Nm) :	0,35 Nm	P

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		N/A
	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

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
	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:		N/A
	- basic insulated metal parts not accessible during starter or lamp replacement		N/A
	- basic insulation not accessible other than during starter or lamp replacement		N/A
	- 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:	Insulated SELV parts	N/A
	Ordinary luminaire:		N/A
	- voltage under load (V)		N/A
	- no-load voltage (V)		N/A
	- touch current if applicable (mA)		N/A
	One conductive part insulated if required		N/A
	Other than ordinary luminaire:		N/A
	- nominal voltage (V)		N/A
	Class III luminaire only for connection to SELV		N/A
	Class III luminaire not provided with means for protective earthing		N/A
3.11 (8.2.4)	Portable luminaire has protection independent of supporting surface		N/A
3.11 (8.2.5)	Compliance with the standard test finger or relevant probe		P
3.11 (8.2.6)	Covers reliably secured		P
3.11 (8.2.7)	Luminaire other than below with capacitor > 0,5 μ F not exceed 50 V 1 min after disconnection		P
	Portable luminaire with capacitor > 0,1 μ F (0.25) not exceed 34 V 1 s after disconnection		N/A

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
	Other luminaires with capacitor > 0,1 μ F (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection		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 (12.2)	Selection of lamps and ballasts		—
	Lamp used according Annex B	Built-in LED module	—
	Controlgear if separate and not supplied	Built-in LED driver	—
3.12 (12.3)	Endurance test		
	a) mounting-position suspended horizontally		—
	b) test temperature ($^{\circ}$ C) 35 $^{\circ}$ C		—
	c) total duration (h) 240 h		—
	d) supply voltage (V) 265 V		—
	d) if not equipped with controlgear, constant voltage/current (V) or (A)		—
	e) luminaire ceases to operate	Luminaire kept working capacity	—
3.12 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N/A
	- marking legible		P
	- no cracks, deformation etc.		P
3.12 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
3.12 (12.5)	Thermal test (abnormal operation)	(see Annex 2)	P
3.12 (12.6)	Thermal test (failed lamp control gear condition):		N/A
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 ($^{\circ}$ C): at 1,1 Un		—
	- measured mounting surface temperature ($^{\circ}$ C) at 1,1 Un		N/A
	- calculated mounting surface temperature ($^{\circ}$ C)		N/A

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
	- track-mounted luminaires		N/A
3.12 (12.6.2)	Temperature sensing control		N/A
	- case of abnormal conditions.....:		—
	- thermal link		N/A
	- manual reset cut-out		N/A
	- auto reset cut-out		N/A
	- measured mounting surface temperature (°C)		N/A
	- track-mounted luminaires		N/A
3.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N/A
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:		N/A
	- case of abnormal conditions.....:		—
	- Ballast failure at supply voltage (V)		—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
	Test according to Annex W:		N/A
	- case of abnormal conditions.....:		—
	- measured winding temperature (°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		N/A
	- case of abnormal conditions.....:		—
	- measured winding temperature (°C): at 1,1 Un.....:		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un.....:		—
	- calculated temperature of fixing point/exposed part (°C)		—

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
	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.....:		—
	- 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		N/A
	- thermal link	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	- manual reset cut-out.....:	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	- auto reset cut-out.....:	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	- 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	For outdoor and indoor use	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 AND MOISTURE		
3.13.1 (-)	If IP > IP 20 the order of tests as specified in clause 3.12		P
3.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP	IP 66	—
	- mounting position during test horizontally		—
	- 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		P
	c.1) For luminaires without drain holes – no water entry		N/A
	c.2) For luminaires with drain holes – no hazardous water entry		P

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
	d) no water in watertight or pressure watertight luminaire		N/A
	e) no contact with live parts (IP 2X)		N/A
	e) no entry into enclosure (IP 3X and IP 4X)		N/A
	e) no contact with live parts through drain holes and ventilation slots (IP3X and IP4X)		N/A
	f) no trace of water on part of lamp requiring protection from splashing water		N/A
	g) 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) 2 MΩ		—
	SELV		N/A
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface		N/A
	- between current-carrying parts and metal parts of the luminaire		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts		N/A
	- Insulation bushings as described in Section 5		N/A
	Other than SELV		P
	- between live parts of different polarity		N/A
	- between live parts and mounting surface		N/A
	- between live parts and metal parts 2 MΩ	>310 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		N/A
	- Insulation bushings as described in Section 5		N/A
3.14 (10.2.2)	Electric strength test		P

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test		N/A
	Luminaires with manual ignitors		N/A
	Test voltage (V) 1500 V		P
	SELV		N/A
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface		N/A
	- between current-carrying parts and metal parts of the luminaire		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts		N/A
	- Insulation bushings as described in Section 5		N/A
	Other than SELV		P
	- between live parts of different polarity		N/A
	- between live parts and mounting surface		N/A
	- between live parts and metal parts 1500 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		N/A
	- Insulation bushings as described in Section 5		N/A
3.14 (10.3)	Touch current or protective conductor current (mA):	0,28mA	P

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

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict

3.7 (11.2)	TABLE I: Creepage distances and clearances						P
	Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages						P
	Applicable part of IEC 60598-1 Table 11.1.A*, 11.1.B* and 11.2*						P
	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 1:	B	5,2mm	1,5mm	11.1B	5,2mm	2,5mm	11.1A
Working voltage (V) 250V							—
PTI						< 600 <input checked="" type="checkbox"/> ≥ 600 <input type="checkbox"/>	—
Pulse voltage or U_p if applicable (kV)							—
Supplementary information: between L in terminal block and metal case							
Distance 2:							
Working voltage (V)							—
PTI						< 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/>	—
Pulse voltage or U_p if applicable (kV)							—
Supplementary information:							
Distance 3:							
Working voltage (V)							—
PTI						< 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/>	—
Pulse voltage or U_p if applicable (kV)							—
Supplementary information:							

** Insulation type: B – Basic; S – Supplementary; R – Reinforced. See also IEC 60598-1 Annex M.

3.7 (11.2)	TABLE II: Creepage distances and clearances						N/A
	Minimum distances (mm) for a.c. higher than 30 kHz sinusoidal voltages						
	Applicable part of IEC 61347-1 Table 7 and 8* or IEC 60664-4 Table 1 and 2						
Distances	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 1:							
Working voltage (V)							—
Frequency if applicable (kHz)							—
PTI						< 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/>	—
Peak value of the working voltage \hat{U}_{out} if applicable (kV)							—

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015					
Clause	Requirement + Test	Result - Remark			Verdict
Supplementary information:					
Distance 2:					
Working voltage (V)					—
Frequency if applicable (kHz)					—
PTI		< 600 <input type="checkbox"/>	≥ 600 <input type="checkbox"/>		—
Peak value of the working voltage \hat{U}_{out} if applicable (kV)					—
Supplementary information:					
Distance 3:					
Working voltage (V)					—
Frequency if applicable (kHz)					—
PTI		< 600 <input type="checkbox"/>	≥ 600 <input type="checkbox"/>		—
Peak value of the working voltage \hat{U}_{out} if applicable (kV)					—
Supplementary information:					

** Insulation type: B – Basic; S – Supplementary; R – Reinforced.

3.15 (13.2.1)	TABLE: Ball Pressure Test of Thermoplastics				P
Allowed impression diameter (mm)	2 mm				—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)		
Terminal with screw-type clamping unit PA8	Heavy Power Co., Ltd.	125°C	1,1mm		
Supplementary information:					

3.15 (13.3.1)	TABLE: Needle-flame test (IEC 60695-11-5)				P
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Terminal with screw-type clamping unit PA8	Heavy Power Co., Ltd.	10s	No	No	P
Supplementary information:					

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015				
Clause	Requirement + Test	Result - Remark		Verdict
3.15 (13.3.2)	TABLE: Glow-wire test (IEC 60695-2-11)			P
Glow wire temperature		650°C		—
Object/ Part No./ Material	Manufacturer/ trademark	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Terminal with screw-type clamping unit PA8	Heavy Power Co., Ltd.	No	No	P
Supplementary information:				

3.15 (13.4)	TABLE: Proof tracking test (IEC 60112)			P	
Test voltage PTI		175 V		—	
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens		Verdict	
Terminal with screw-type clamping unit PA8	Heavy Power Co., Ltd.	Withstand	Withstand	Withstand	P
Supplementary information:					

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 1 TABLE: Critical components information						P
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
LED (24 pieces)	B	Cree	XP-G3 type 3535	3V, 6W	EN 62471, EN 60598-1	Tested with luminaire
LED driver	B	Mean Well	ELG-100-36A-3Y	In: 100-240V, 50/60Hz, 1,1A, Out: 36V, 100W IP65, t _c -90°C	EN 61347-1 EN 61347-2-13	ENEC05
Circuit board of LED module	C	EcoCity	—	1,5mm ² , 36V, coating Lead Free Hasl	EN 60598-1	Tested with luminaire
Case	C	EcoCity	—	Cast under pressure aluminium with powder coating	EN 60598-1	Tested with luminaire
Glass	C	EcoCity	—	4 mm, strained glass	EN 60598-1	Tested with luminaire
Terminal with screw-type clamping unit	A	Heavy Power Co., Ltd.	PA8	16A, 450V, T110	EN 60998-1 EN 60998-2-1	VDE
Description:						
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						

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015

Clause	Requirement + Test	Result - Remark	Verdict
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ANNEX 2	TABLE: Thermal tests of Section 12	P
	Type reference.....: Eco-Pro Street Quasar S SiO 80 C	—
	Lamp used: LED module as part of the luminaire	—
	Lamp control gear used.....: ELG-100-36A-3Y	—
	Mounting position of luminaire.....: Suspended horizontally	—
	Supply wattage (W): 77,3 W	—
	Supply current (A).....: 0,347 A	—
	Temperatures in test 1 - 4 below are corrected for ta (°C): 22,5°C	—
	- abnormal operating mode: Separately certified LED driver with protection of short circuit, over current, over voltage and over temperature	—
1.12 (12.4)	- test 1: rated voltage: 230 V	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current: 243,8 V	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage.....: —	—
	Through wiring or looping-in wiring loaded by a current of A during the test: —	—
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current.....: —	—

Temperature measurements (°C)

Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Case of LED driver at the point t_c	22,5	61	—	—	90	—	—
Calbe inside luminaire	22,5	—	43	—	90	—	—
Case (radiator)	22,5	—	40*	—	—	—	—
Glass	22,5	—	45*	—	—	—	—

Supplementary information: * measurements for information

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 3	Screw terminals (part of the luminaire)		N/A
(14)	SCREW TERMINALS		N/A
(14.2)	Type of terminal		—
	Rated current (A)		—
(14.3.2.1)	One or more conductors		
(14.3.2.2)	Special preparation		
(14.3.2.3)	Terminal size		
	Cross-sectional area (mm ²)		—
(14.3.3)	Conductor space (mm)		
(14.4)	Mechanical tests		
(14.4.1)	Minimum distance		
(14.4.2)	Cannot slip out		
(14.4.3)	Special preparation		
(14.4.4)	Nominal diameter of thread (metric ISO thread)	M	
	External wiring		
	No soft metal		
(14.4.5)	Corrosion		
(14.4.6)	Nominal diameter of thread (mm)		
	Torque (Nm)		
(14.4.7)	Between metal surfaces		
	Lug terminal		
	Mantle terminal		
	Pull test; pull (N)		
(14.4.8)	Without undue damage		

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 4	Screwless terminals (part of the luminaire)	N/A
(15)	SCREWLESS TERMINALS	N/A
(15.2)	Type of terminal.....:	—
	Rated current (A).....:	—
(15.3.1)	Material	
(15.3.2)	Clamping	
(15.3.3)	Stop	
(15.3.4)	Unprepared conductors	
(15.3.5)	Pressure on insulating material	
(15.3.6)	Clear connection method	
(15.3.7)	Clamping independently	
(15.3.8)	Fixed in position	
(15.3.10)	Conductor size	
	Type of conductor	
(15.5)	Terminals and connections for internal wiring	
(15.5.1)	Mechanical tests	
(15.5.1.1.1)	Pull test spring-type terminals (4 N, 4 samples).....:	
(15.5.1.1.2)	Pull test pin or tab terminals (4 N, 4 samples).....:	
	Insertion force not exceeding 50 N	
(15.5.1.2)	Permanent connections: pull-off test (20 N)	
(15.5.2)	Electrical tests	
	Voltage drop (mV) after 1 h (4 samples).....:	
	Voltage drop of two inseparable joints	
	Number of cycles:	—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:	
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:	
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:	
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:	
(15.6)	Terminals and connections for external wiring	
(15.6.1)	Conductors	

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015											
Clause	Requirement + Test									Result - Remark	Verdict
	Terminal size and rating										
15.6.2	Mechanical tests										
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N)										
(15.6.2.2)	Pull test pin or tab terminals (4 samples); pull (N)										
(15.6.3)	Electrical tests										
	Tests according 15.6.3.1 + 15.6.3.2 in IEC 60598-1										
(15.6.3.1) (15.6.3.2)	TABLE: Contact resistance test / Heating tests										
	Voltage drop (mV) after 1 h									—	
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Voltage drop of two inseparable joints										
	Voltage drop after 10th alt. 25th cycle										
	Max. allowed voltage drop (mV)									—	
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Voltage drop after 50th alt. 100th cycle										
	Max. allowed voltage drop (mV)									—	
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Continued ageing: voltage drop after 10th alt. 25th cycle										
	Max. allowed voltage drop (mV)									—	
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Continued ageing: voltage drop after 50th alt. 100th cycle										
	Max. allowed voltage drop (mV)									—	
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
Supplementary information:											

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 5 Testing luminaire in accordance with EN 62471

1. Source Profile

The source emission profile (single LED), measured with using the Bentham PSL profiler and calculated from 50% emission points Source: 1,1×1,0 mm. Average angular subtend from a distance of 200 mm – 5,2 mrad (small source) (See Fig. 1)

Overall source size (LED module) is 161×112 mm. Average angular subtend from a distance of 200 mm – >100 mrad (See Fig.2)

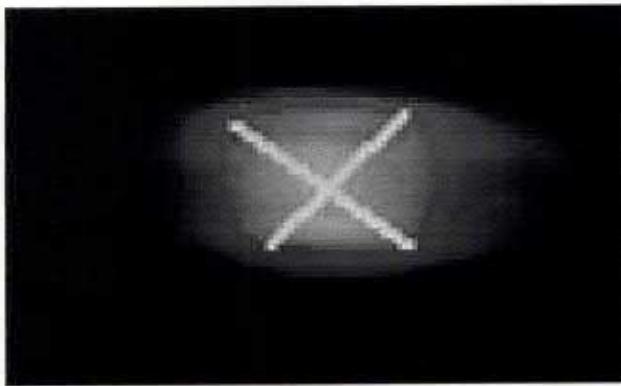


Fig. 1

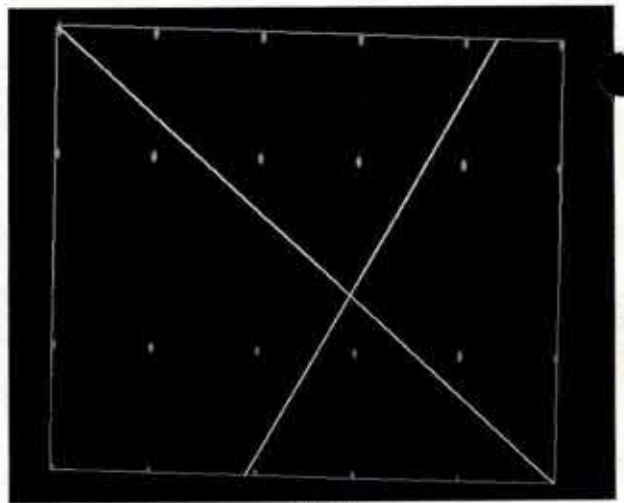


Fig. 2

2. Irradiance Results

Measurement distance: 200 mm
Spectral Range: 200 - 1400 nm

Hazard	Measured value	Resulting risk group	Risk group limit value	Time to exposure limit (s)
Actinic UV ($mW m^{-2}$)	5,76E-02	Exempt	1	> 30000
Near UVA ($W m^{-2}$)	4,69E-02	Exempt	10	> 30000
Blue Light Small Source ($W m^{-2}$)	3,47E-00	Group 2	400	28,8
IR Eye ($W m^{-2}$)	n/a	n/a	n/a	n/a
Thermal Skin ($W m^{-2}$)	n/a	n/a	n/a	n/a

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict

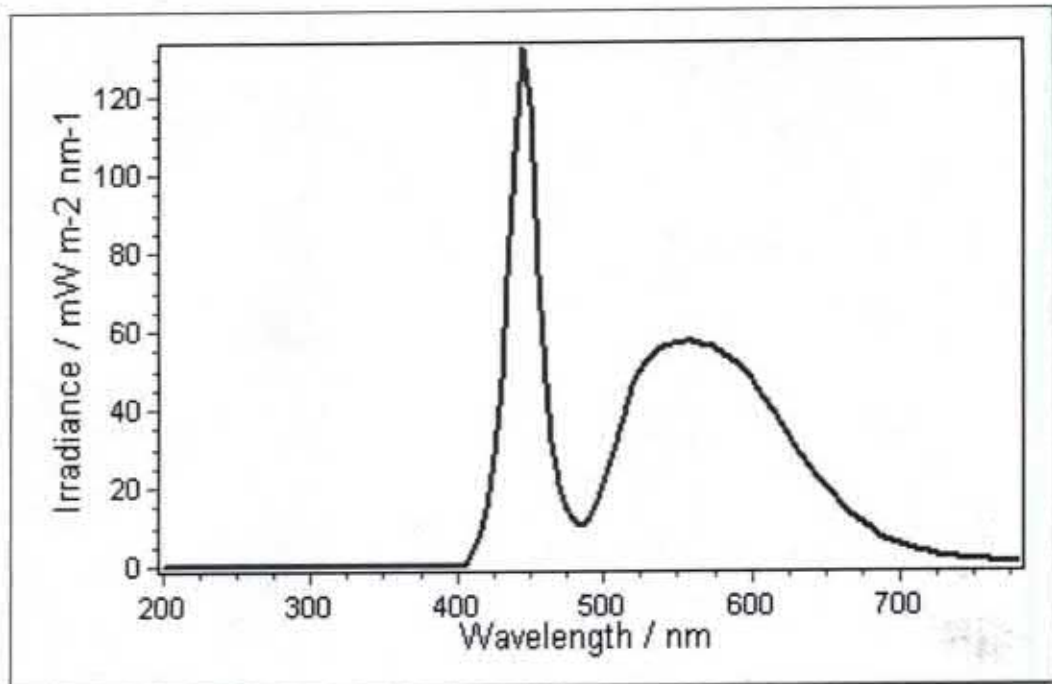


Fig.3

3. Radiance Results

Measurement distance: 200 mm
 Spectral Range: 200 - 1400 nm
 Luminance in 11 mrad: 8740000 cd m^{-2}

Hazard	Measured value ($\text{W sr}^{-1} \text{m}^{-2}$)	Risk group limit value ($\text{W sr}^{-1} \text{m}^{-2}$)	Risk group tested	Pass/Fail
Blue light hazard 100mrad FOV	n/a	n/a	Exempt	n/a
Blue light hazard 11mrad FOV	n/a	n/a	Group 1	n/a
Blue light hazard 1.7mrad FOV	n/a	n/a	Group 2	n/a
Retinal Thermal 11mrad FOV	6,98E+04	5,43E+06	Exempt	Pass
Retinal Thermal 1.7mrad FOV	n/a	n/a	Group 2	n/a
Retinal Thermal Weak Visual 35mrad FOV	n/a	n/a	Exempt	n/a
Retinal Thermal Weak Visual 11mrad FOV	n/a	n/a	Group 1	n/a

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015

Clause	Requirement + Test	Result - Remark	Verdict
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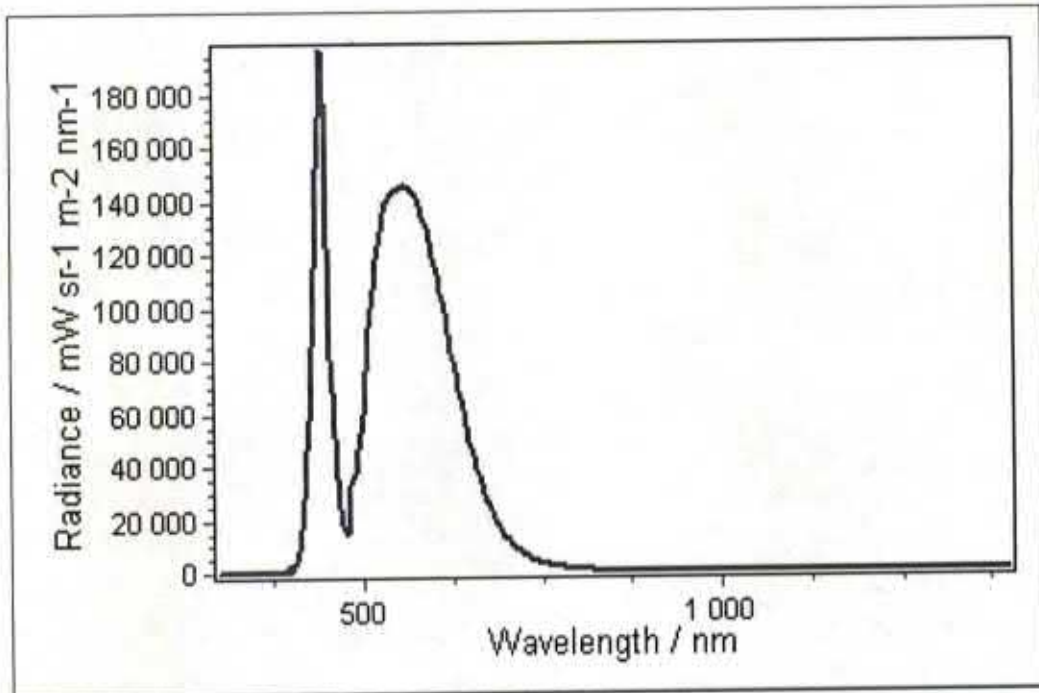


Fig.4

4. Resulting IEC62471 Classification and Labelling

Hazard	Risk Group	Labelling
Actinic UV	Exempt	No Labelling Required
Near UV	Exempt	No Labelling Required
Blue Light Small Source	Group 2	Labelling Required**
Retinal Thermal	Exempt	No Labelling Required

****CAUTION. Possibly hazardous optical radiation emitted from this product. Do not stare at operating lamp. May be harmful to the eye**



EN 60598-2-3:2003/A1:2011, EN 60598-1:2015

Clause	Requirement + Test	Result - Remark	Verdict
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ANNEX 6 Fotos, manual



Foto 1

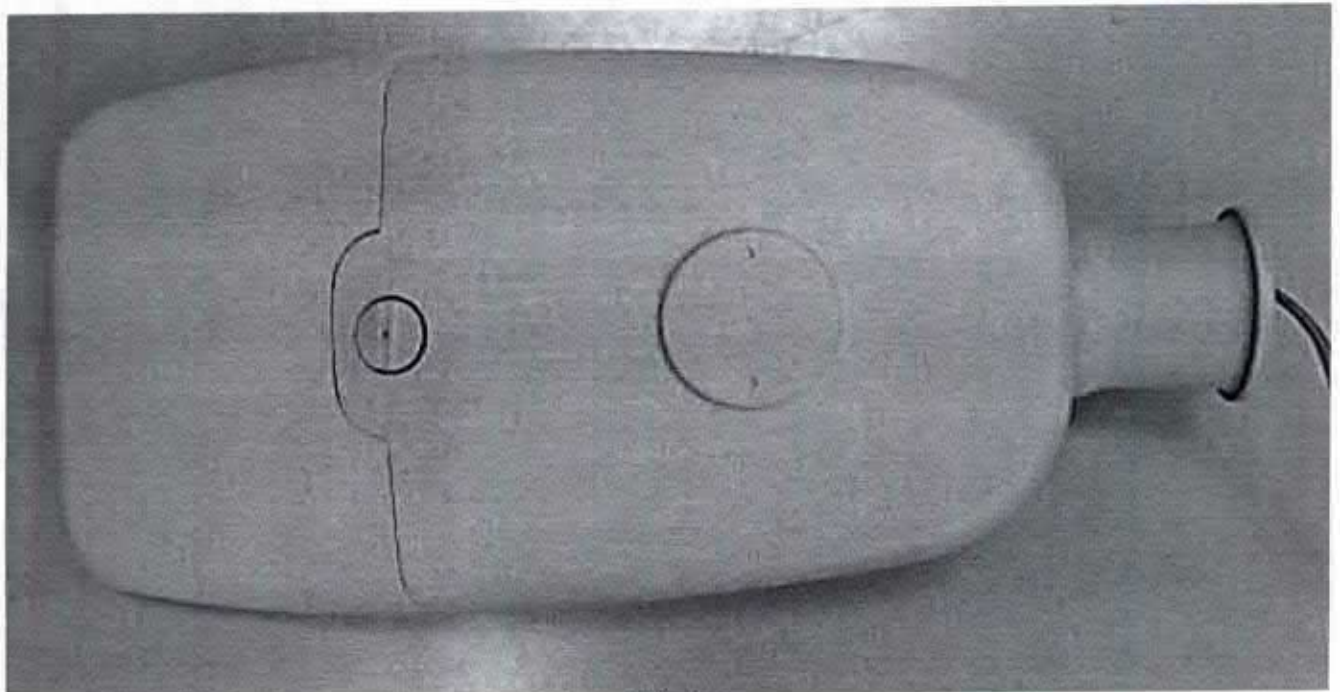


Foto 2

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict



Foto 3

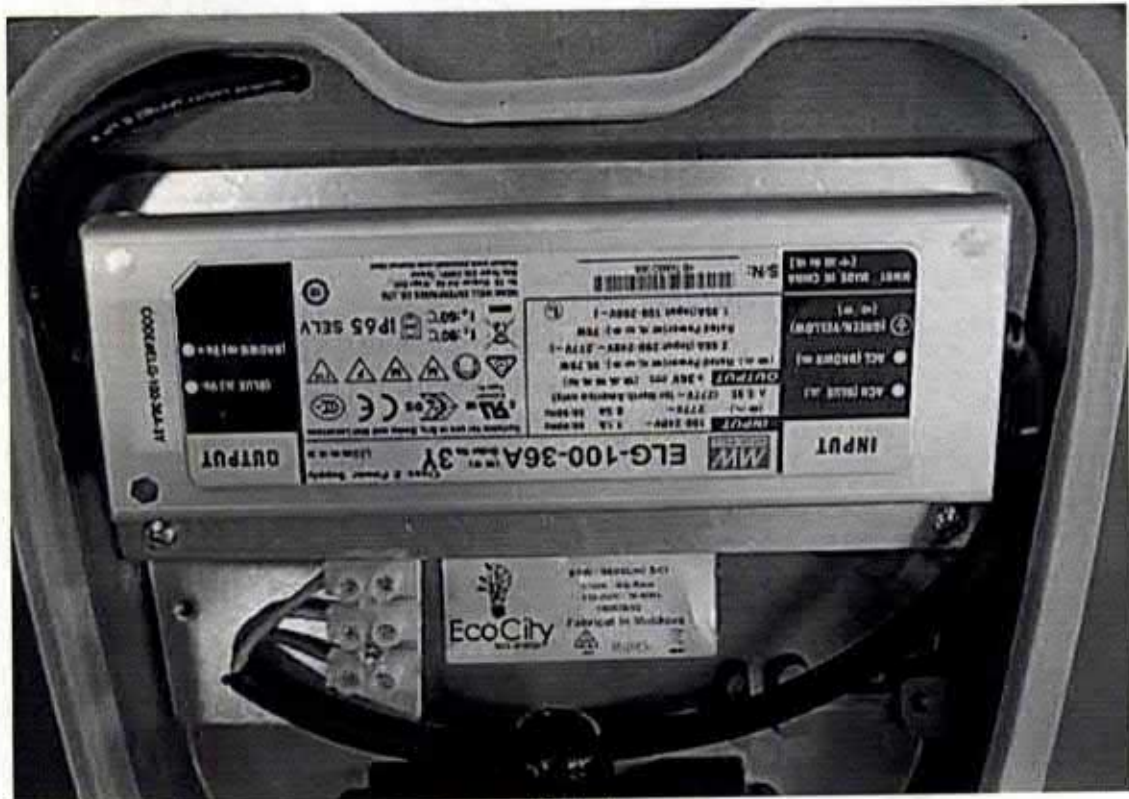


Foto 4

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict

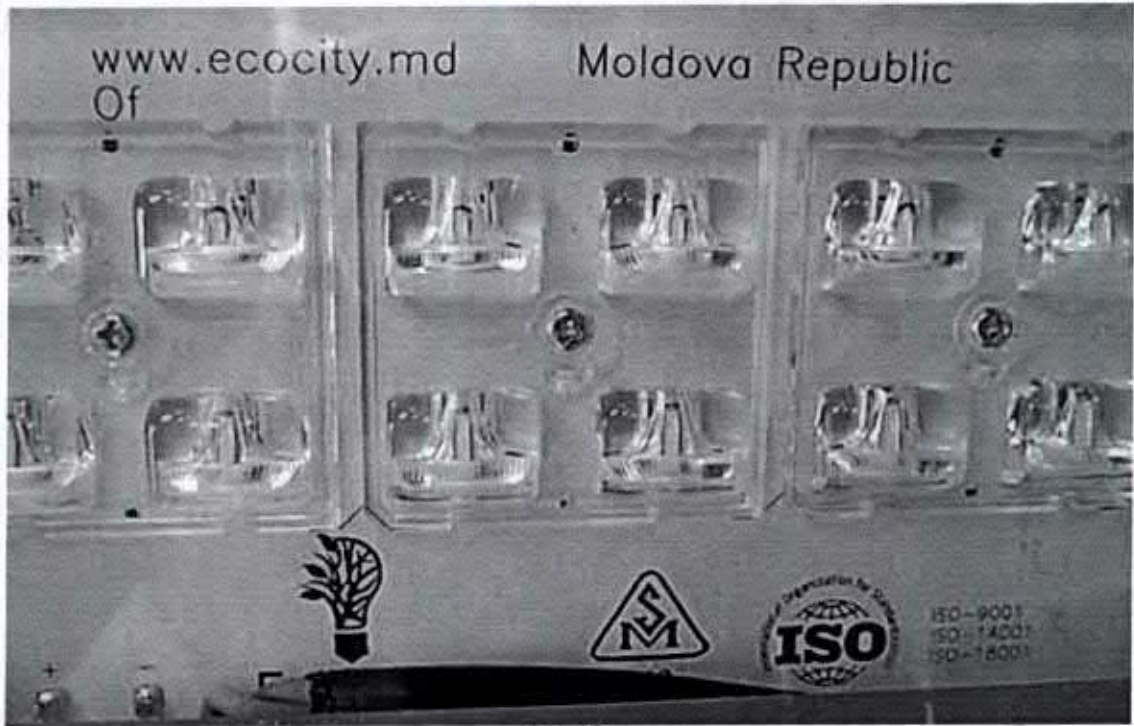


Foto 5



Foto 6

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict

Passport and Instruction Manual
Led lamp ECO-PRO
STREET QUASAR S

Foto 7

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict

1. General description:

1.1. Eco-pro street Quasar S is designed for mounting on walls or special lighting supports/pillars, because power supply is built-in and hermetically sealed. This type of led light is intended to be used for outdoor lighting including lighting highways, main streets, streets of all categories, territories of micro districts, squares, car parking areas, factory territories, railway platforms, building premises, as well as for indoor lighting of industrial buildings, warehouses, etc.

1.2. This led lamp can work only of 180-295 V mains voltage, 50-60 Hz frequency.

1.3. Eco-pro street Quasar S has first degree protection from an electric shock.

1.4. Eco-pro street Quasar S is designed for console mounting on standard lighting support (spigot) with a diameter of no more than 48-60mm on wall, pillar, etc.

1.5. Nominal climatic factors values are the following:

- Operating temperature range from -45C to +50C;

- Temperature limits are settled between -50C and +60C;

1.6. Lamp case protection grade – IP66. Eco-pro street Quasar S is hermetically sealed and protected against dust and massive water flows, which can cause a lamp damage by getting inside the lamp case.

1.7. The most important light-forming element is a high efficiency light-emitting diode, produced by CREE/NICHIA companies.

1.8. Eco-pro street Quasar S is equipped with high efficiency power supply, produced by MEANWELL company.

1.9. This led lamp has the following conventional designation (Eco-Pro Street Quasar S XX —X), where the meaning of letters and numbers is the next:

XX- letters, meaning the type of secondary optics (lenses) used in the lamp construction;

--- two-digit or three-digit number, meaning the lamp power indicators.

X- letter, meaning the lamp color temperature.

For the example: Eco-Pro Street Quasar S WD 50N

WD- letters, meaning the type of secondary optics (lenses) used in the lamp construction (detailed information on the luminous intensity distribution curve of each lens is sent on individual request);

50- two-digit or three-digit number, meaning the lamp power indicators. In this case - 100W.

N- letter, meaning the lamp color temperature. C – cool white (5000K - 6500K), N – neutral white (4000K - 5000K), H – warm white (3000K - 4000K).

Foto 8

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict

2. Technical Characteristics

Characteristics	Eco-Pro Street Quasar S XX 30X	Eco-Pro Street Quasar S XX 40X	Eco-Pro Street Quasar S XX 50X	Eco-Pro Street Quasar S XX 60X	Eco-Pro Street Quasar S XX 80X
Ingress Protection	IP66	IP66	IP66	IP66	IP66
Impact Protection	IK08	IK08	IK08	IK08	IK08
Overall dimensions, HxWxL, mm	102*250*525	102*250*525	102*250*525	102*250*525	102*250*525
Net weight, kg	5,4	5,4	5,4	5,4	5,4
Power consumption, W	30	40	50	60	80
Lumen flux, Lm	3540±15%	4600±15%	5750±15%	6780±15%	8960±15%
Surge protection device	4kV	4kV	4kV	4kV	4kV
Color rendering index, Ra	>70	>70	>70	>70	>70
Color temperature, K	3000-6500	3000-6500	3000-6500	3000-6500	3000-6500
Service time, not less (hours)	50 000	50 000	50 000	50 000	50 000
Wire cross-section, mm ²	3 x 0,75	3 x 0,75	3 x 0,75	3 x 0,75	3 x 0,75

3. Full Set includes

Eco-Pro Street Quasar S – 1 pcs.

Passport and Instruction Manual – 1 pcs each.

Fastening details – 1set.

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict

4. Lamp Features

- The fixture is made of corrosion resistant die-cast aluminum. Polyester powder coated painting after chemical washing treatment.
- Glass: IK09 degree of protection against external mechanical impacts.
- Gasket: made up from heat-resistant rubber, through which ip66 grade is achieved.
- Secure connection: If the power supply compartment is opened, the electrical power outage occurs.
- Power supply meets all the requirements of modern safety standards. It also can be equipped with dimming system, surge protection device, etc.
- Universal mounting hole.



5. Exploitation and security guide:

5.1. Exploitation of this led lamp need to be hold on with accordance to "Consumer rules for Installation of Electrical Equipment", in this case - Passport and Instruction Manual. Before the Installation make sure that all mains voltage parameters are observed (220V AC network).

ATTENTION! INSTALLATION AND REMOVAL OF THIS LED LAMP IS STRICTLY PROHIBITED WHILE POWER IS TURNED ON! PLEASE MAKE SURE TO TURN THE POWER OFF BEFORE LED LAMP INSTALLATION OR REMOVAL.

5.2. Proper grounding is crucial for the electrical system, because it helps to prevent any possibility of electrical shock. There is a socket in the terminal block of the led lamp case with special graphical symbol which helps to identify the existence of the earth grounding.

5.3. The exploitation of the led lamp with damaged wire isolation or connection places is strictly prohibited.

5.4. Installation and removal of LED lamp has to be done by professional staff.

5.5. To ensure the connection security of the led lamp with a spigot, mounting stainless steel bolts have to be tightened with a force of not less than 17 Nm and not more than 19 Nm.

5.6. Usage of any toxic materials in lamp composition is strictly prohibited.

Foto 10

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict

6. Preparation for led lamp installation and beginning of the working process

ATTENTION! PLEASE MAKE SURE TO TURN THE POWER OFF BEFORE THE LED LAMP INSTALLATION!

Unpack the lamp and read the Instruction Manual.

6.1. Led lamp installation process.

Led lamp mounting is designed for mounting on spigot with pipe diameter 48-60mm. Take out network and earth grounding wires from spigot. Strip the insulation from wires at 7mm length under the clips in the terminal block. Turn the mounting screws on the pipe while getting to the stop point. Put the pipe on the spigot. Connect network and earth grounding wires to the terminal box. Wires, emerging from pipe, do not need to create a force load on the terminal box with their weight. Another clips need to be in set for higher spigots, which keep weight inside pipe and spigot. Then the lamp need to be based into a correct angle and fixed with bolts. Find the required angle of rotation of the lamp by vertical and fix it. The lamp installation is made strictly 0gr. - 90gr. relative to the horizon line.

7. Led lamp additional technical service requirements

7.1. Additional technical service is not required.

8. Warranty

8.1. Led lamp warranty is 60 months, beginning from the sale date. In case if Eco-pro street Quasar led lamp is not working during the warranty period (60 month), seller is obligated to repair the lamp or to change the lamp if buyer was following all Sale Agreements, which are described in this installation Manual and lamp Passport.

Please, contact the manufacturer by the following address: Moldova, Chisinau, str. Mircea cel Batrin, 11. Please write a reclamation, describing all problems, and give it to the manufacturer along with the lamp itself

8.2. Warranty is not available in next cases:

- Visible mechanical damages on the lamp case;
- Absence or violation of protective labels and seals;
- Exposure of chemically active substances on the lamp case;
- Exposure of abrasive materials on the lamp case;
- Reparation process was made by any person, excluding manufacturer or the manufacturer service center.
- Buyer did not follow the conditions of storage, transportation or usage.

EN 60598-2-3:2003/A1:2011, EN 60598-1:2015			
Clause	Requirement + Test	Result - Remark	Verdict

9. Package, transportation and storage data

9.1. Eco-Pro Street Quasar package CMB is 0,065 m³. Every lamp has its individual package - corrugated cardboard box.

9.2. Transportation is allowed by any type of covered transport, which protect product from mechanical damages and direct impact of oil products, corrosive environments and atmospheric precipitation.

9.3. The lamp storage is allowed only on shelves in closed dry premises in conditions that exclude the impact of oil products and corrosive environments, at a distance of at least one meter from heating and heating appliances. Possible storage temperature is -50 to +60°C at a relative humidity of air no more than 85%.

10. Lamp recycling

10.1. There are no expensive or toxic materials in lamp composition that's why there are no special recycling suggestions. Recycling is carried out in the usual way.

Signature  Chief of the Production and Technical Department

Signature of the head of the technical control department

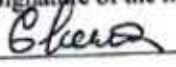
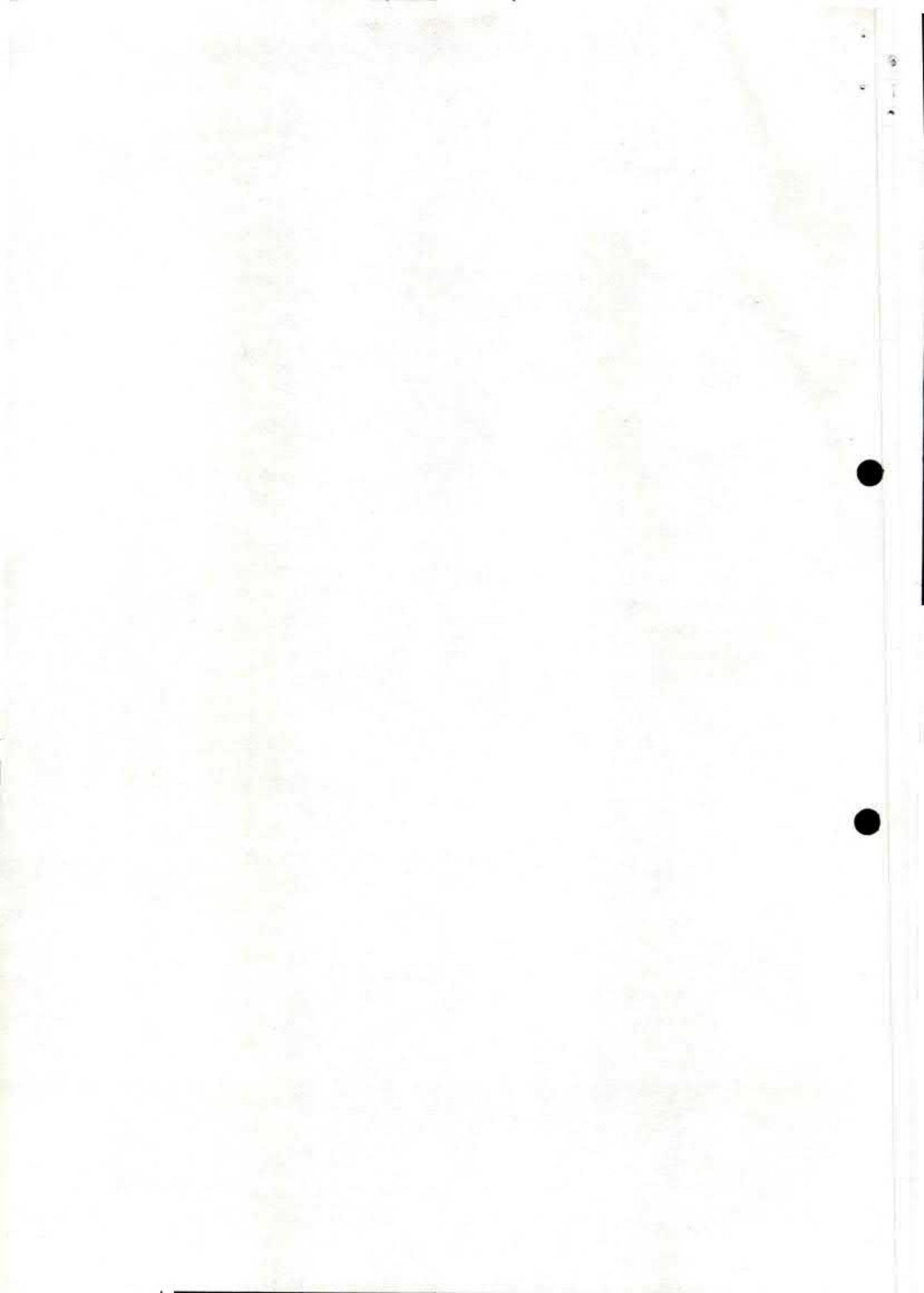
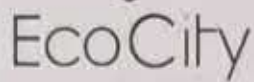


Foto 12

ИЦ БелГИСС
Аттестат аккредитации
№ ВУ/112 02.1.0.0085





EcoCity

**CERTIFICAT
DE CALITATE SI GARANTIE**

Tip produs: Pro Street Quasar S 90W
Pro Street Quasar S 70W
Pro Street Quasar S 50W
Pro Street Quasar S 35W
Pro Street Quasar S 25W
Pro Street Quasar S 20W.

Data: "07" octombrie 2019

Prezentul certificat atesta calitatea produsului livrat si conformitatea acestuia cu standardele internationale corespunzatoare clasei in care se incadreaza.

Produsul beneficiaza de garantie, suport tehnic si service gratuit pe o perioada de 72 luni de la data instalarii lui, durata de viata a sursei de alimentare 100 000 de ore. In perioada de garantie cumparatorul are dreptul in mod gratuit la repararea produsului si inlocuirea pieselor sau subsansamblelor defecte din vina producatorului.

Prezentul produs are in componenta subsansamble electronice si mecanice care necesita o manipulare atenta pentru a se evita patrunderea de lichid in interior sau expunerea la surse de caldura. Temperatura ambianta de functionare trebuie sa se incadreze intre -30 pina +45°C.

Pentru a beneficia de garantie, cumparatorul are urmatoarele obligatii:

- Sa respecte conditiile enumerate mai sus si sa foloseasca produsul conform instructiunilor de utilizare.
- Sa pastreze produsul in bune conditii
- La aparitia unei situatii anormale in functionarea echipamentului sa anunte agentul de service care il deserveste, dupa ce verifica daca sunt indeplinite conditiile de utilizare; este interzisa interventia asupra produsului a persoanelor neautorizate.
- Sa pastreze cu grija prezentul certificat de garantie

Nerespectarea obligatiilor de mai sus atrage pierderea garantiei.

De la garantie sunt excluse:

- partile de natura consumabila
- defectele cauzate de suprasarcini, intreruperi sau conectarea incorecta a alimentarii electrice
- defectele datorate conectarii gresite a accesoriilor optionale



Harta proiectelor realizate pentru Iluminatul Stradal în Republica Moldova și România



REPUBLICA MOLDOVA:

Mun. Chișinău (Treceri pietonale - 370 buc., Durlăști)
Mun. Chișinău (Com. Bubuieci, Com. Vatra)
Mun. Bălți (Or. Bălți - Piața Vasile Alecsandri, S. Răuțel, S. Sadovoe)
Raionul Dondușeni (Or. Dondușeni, S. Moșana)
Raionul Briceni (S. Lipcani)
Raionul Soroca (S. Rudi, S. Șaptelici)
Raionul Fălești (Or. Fălești)
Raionul Orhei (Or. Orhei, S. Ivancea, S. Brănești, S. Furceni)
Raionul Telenești (S. Verejeni)
Raionul Șoldănești (S. Șalcia)
Raionul Călărăși (Or. Călărăși, S. Pitușca, S. Sadova)
Raionul Strășeni (S. Romanăști)
Raionul Dubăsari (S. Holercani, S. Coșnița)
Raionul Criuleni (S. Slobodzia Dușca)
Raionul Anenii Noi (S. Speia, S. Țițăreni)
Raionul Cantemir (S. Tartaul, S. Lărguța, S. Cociulia)
Raionul Ștefan Vodă (S. Palanca)
Raionul Briceni (S. Beleavenți)
Raionul Hîncești (S. Leușeni)
Raionul Drochia (Drochia, S. Salvirii Vechi, S. Mindic, S. Fintinița, S. Cotova)
Raionul Ialoveni (S. Zimbreni)
Raionul Edineț (S. Hăncăuți)

ROMÂNIA:

Județul Vâlcea Comuna Perișani
Județul Constanța

Оператор:
"EcoCity SRL"

bd. Mircea cel Batrin 11, et.3

+373 (22) 022 000
info@ecocity.md

Дата:
02.10.2019



Уличное освещение Комрат

Оглавление

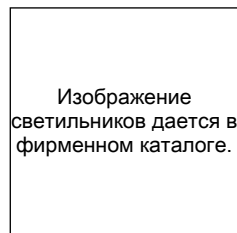
Уличное освещение Комрат

Уличное освещение Комрат

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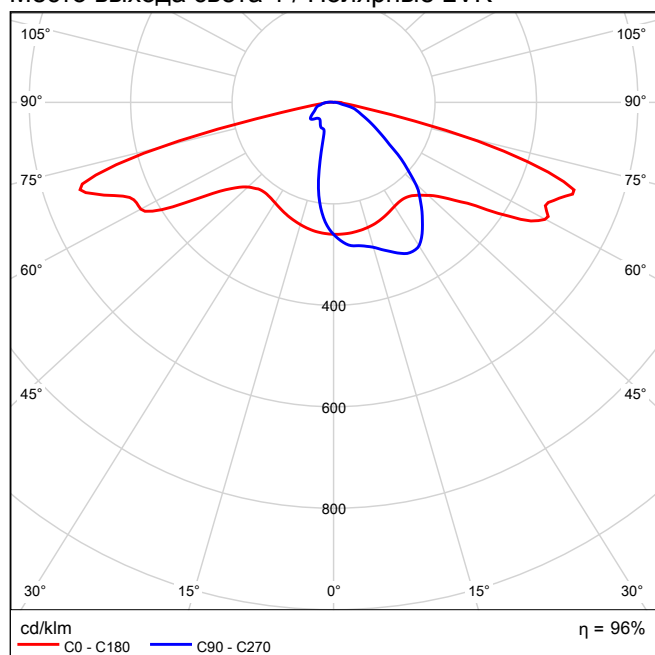
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ECOCITY SRL PRO-STREET QUASAR S 20 1xLED

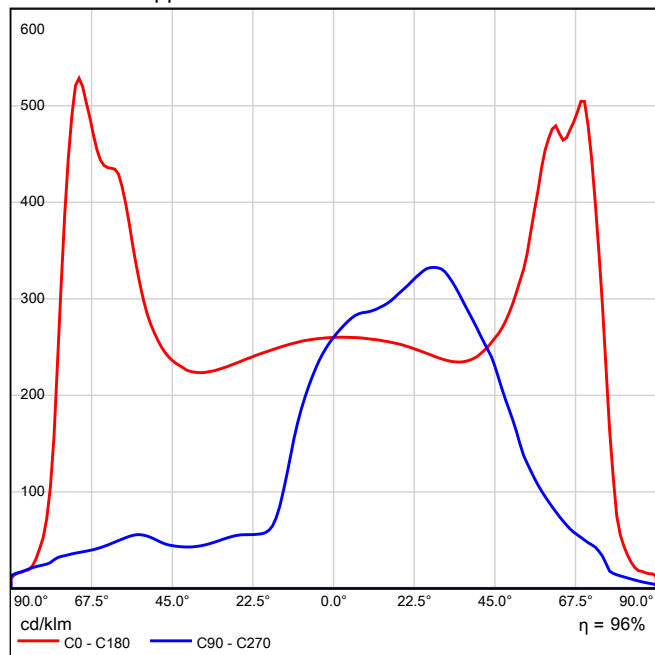


Коэффициент полезного действия: 95.90%
Световой поток ламп: 2740 lm
Световой поток от светильников: 2628 lm
Мощность: 20.0 W
Светоотдача: 131.4 lm/W

Место выхода света 1 / Полярные LVK

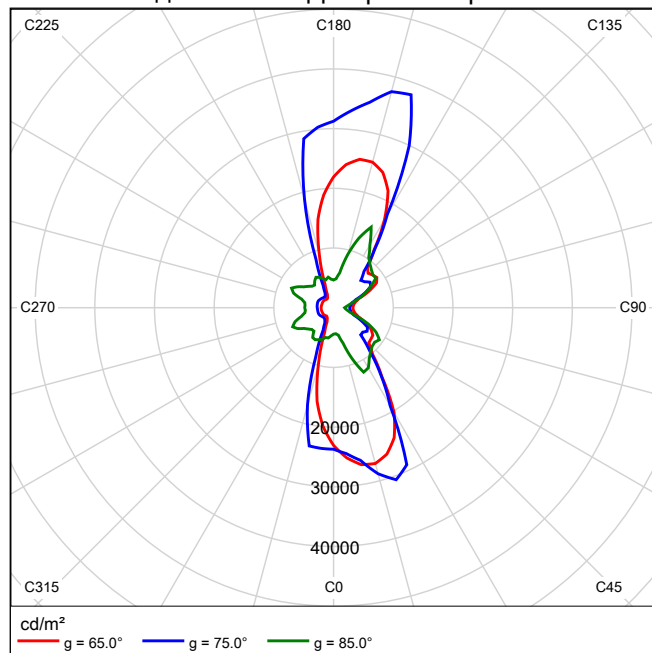


Место выхода света 1 / Линейные LVK



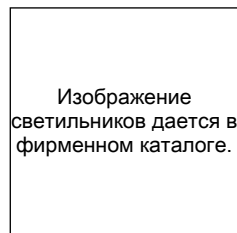
Невозможно создать коническую диаграмму, так как светораспределение несимметричное.

Место выхода света 1 / Диаграмма яркости



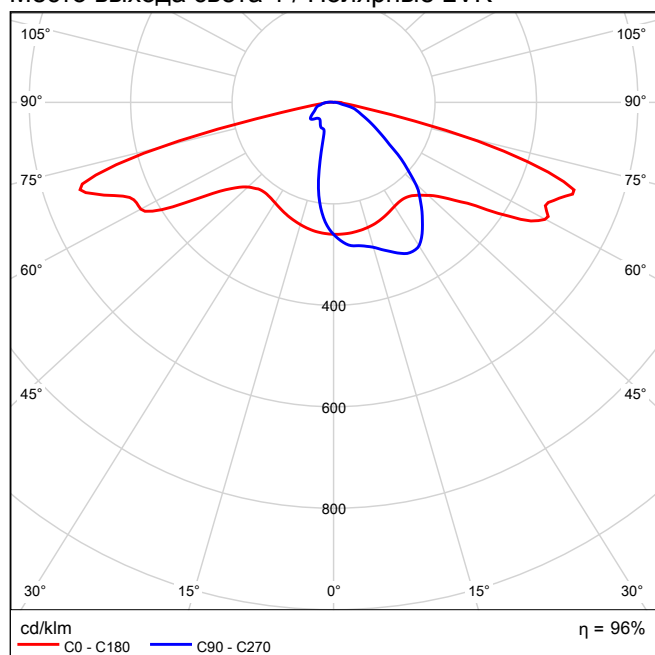
Невозможно создать UGR-диаграмму, так как светораспределение несимметричное.

ECOCITY SRL PRO-STREET QUASAR S 25 1xLED

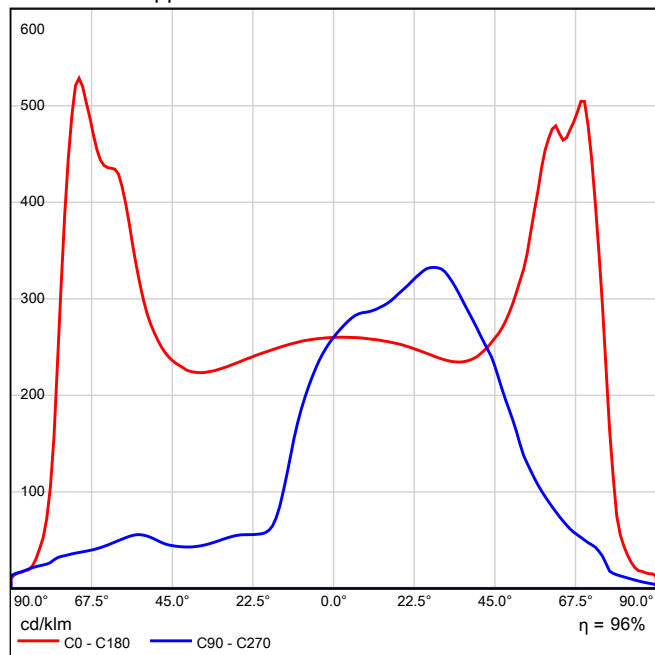


Коэффициент полезного действия: 95.90%
Световой поток ламп: 3425 lm
Световой поток от светильников: 3284 lm
Мощность: 25.0 W
Светоотдача: 131.4 lm/W

Место выхода света 1 / Полярные LVK

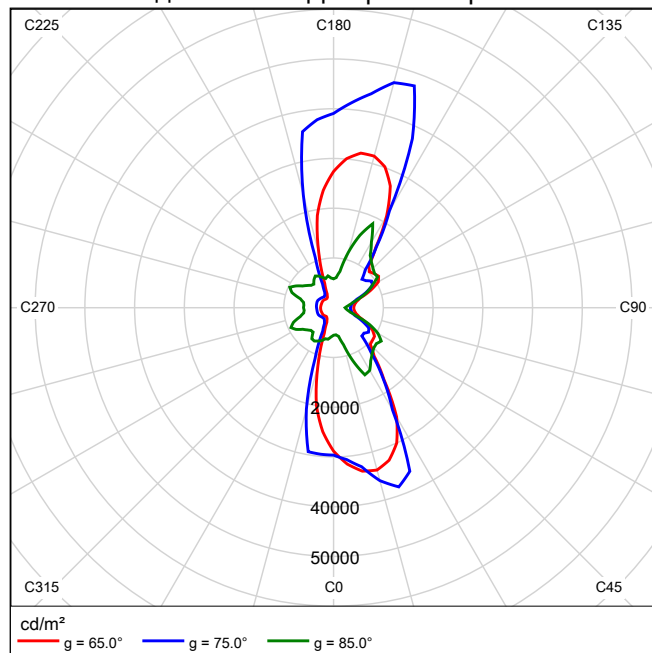


Место выхода света 1 / Линейные LVK



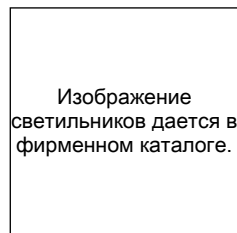
Невозможно создать коническую диаграмму, так как светораспределение несимметричное.

Место выхода света 1 / Диаграмма яркости



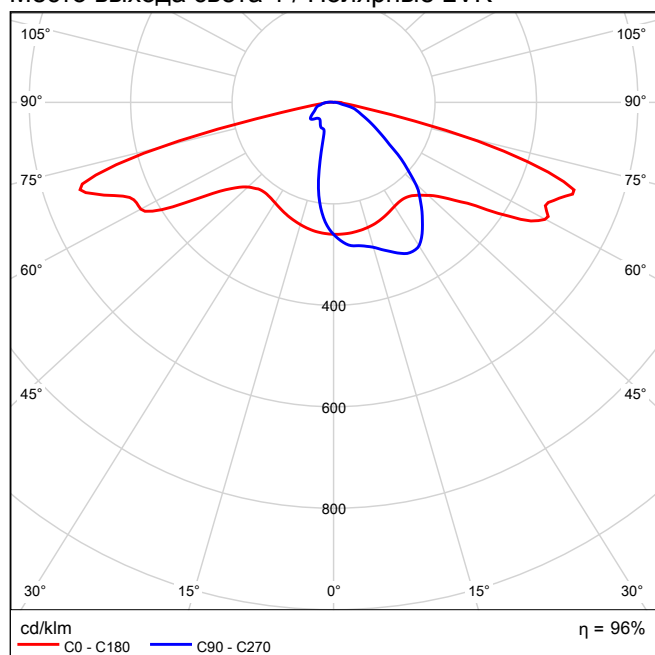
Невозможно создать UGR-диаграмму, так как светораспределение несимметричное.

ECOCITY SRL PRO-STREET QUASAR S 50 1xLED

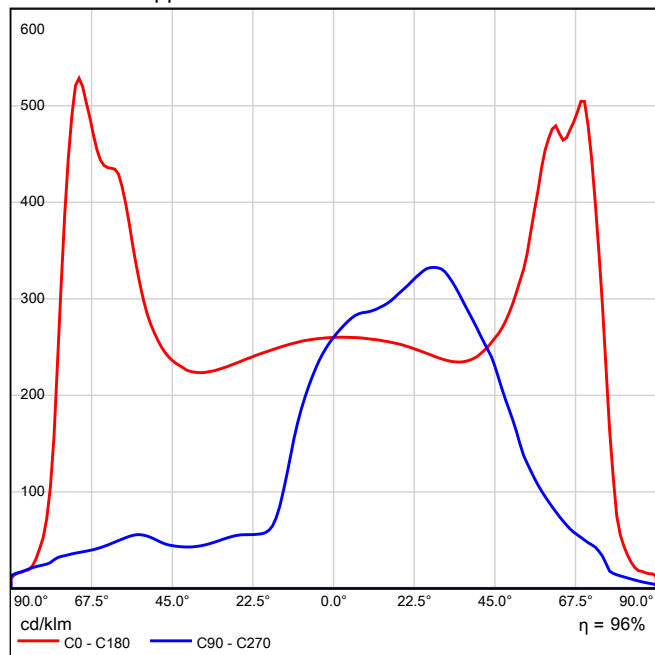


Коэффициент полезного действия: 95.90%
Световой поток ламп: 6850 lm
Световой поток от светильников: 6569 lm
Мощность: 50.0 W
Светоотдача: 131.4 lm/W

Место выхода света 1 / Полярные LVK

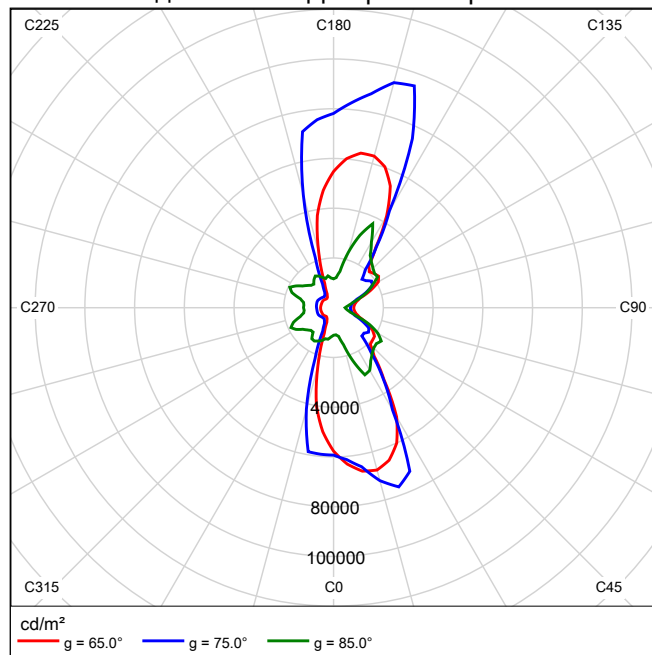


Место выхода света 1 / Линейные LVK



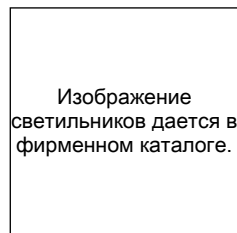
Невозможно создать коническую диаграмму, так как светораспределение несимметричное.

Место выхода света 1 / Диаграмма яркости



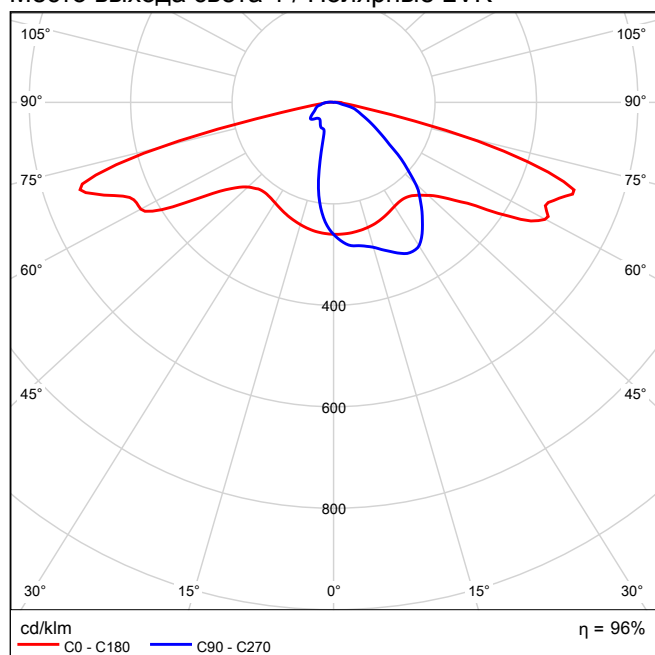
Невозможно создать UGR-диаграмму, так как светораспределение несимметричное.

ECOCITY SRL PRO-STREET QUASAR S 70 1xLED

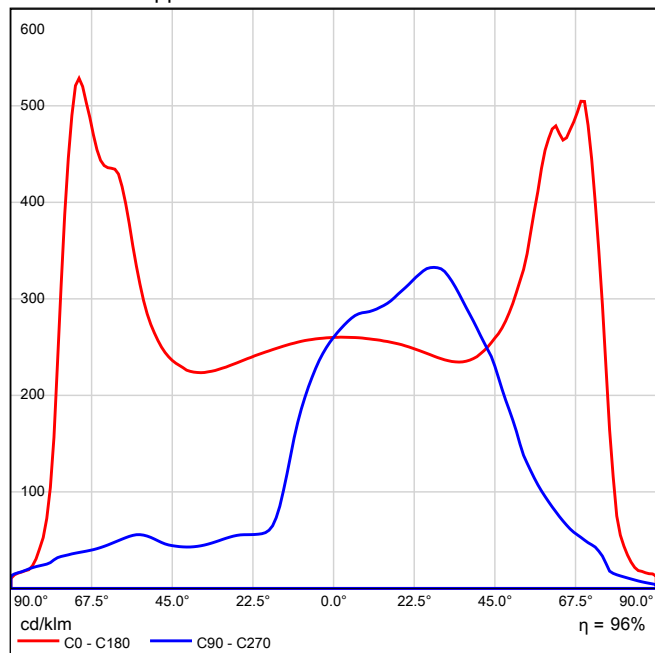


Коэффициент полезного действия: 95.90%
Световой поток ламп: 9590 lm
Световой поток от светильников: 9196 lm
Мощность: 70.0 W
Светоотдача: 131.4 lm/W

Место выхода света 1 / Полярные LVK

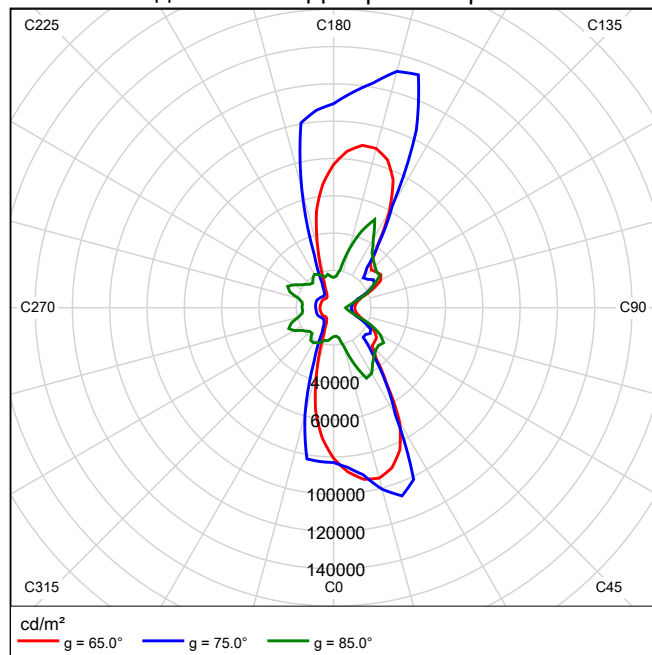


Место выхода света 1 / Линейные LVK



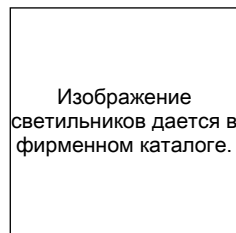
Невозможно создать коническую диаграмму, так как светораспределение несимметричное.

Место выхода света 1 / Диаграмма яркости



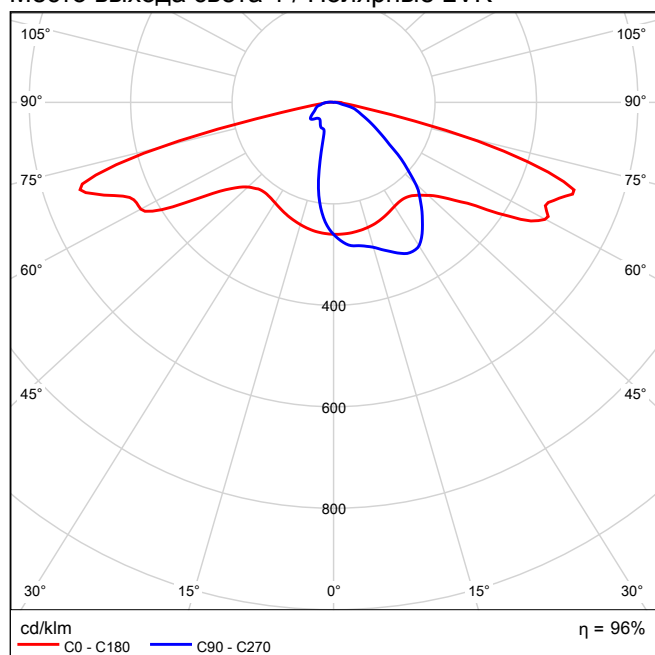
Невозможно создать UGR-диаграмму, так как светораспределение несимметричное.

ECOCITY SRL PRO-STREET QUASAR S 90 1xLED

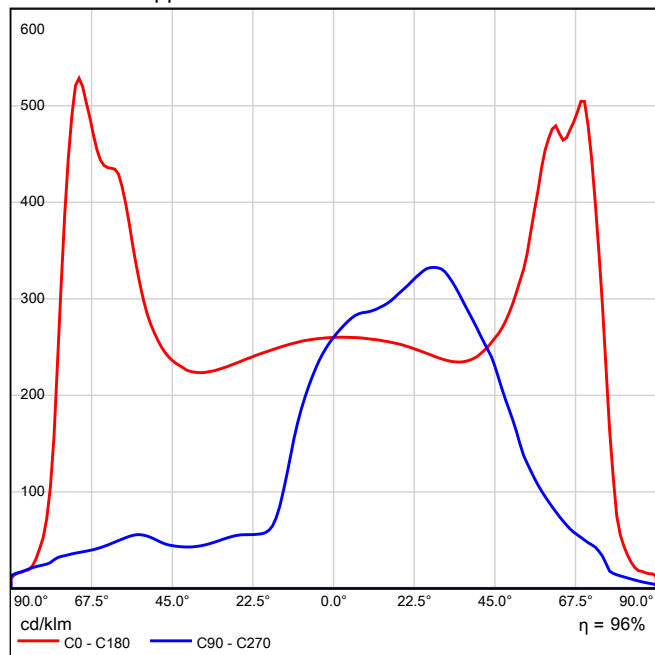


Коэффициент полезного действия: 95.90%
Световой поток ламп: 12400 lm
Световой поток от светильников: 11891 lm
Мощность: 90.0 W
Светоотдача: 132.1 lm/W

Место выхода света 1 / Полярные LVK

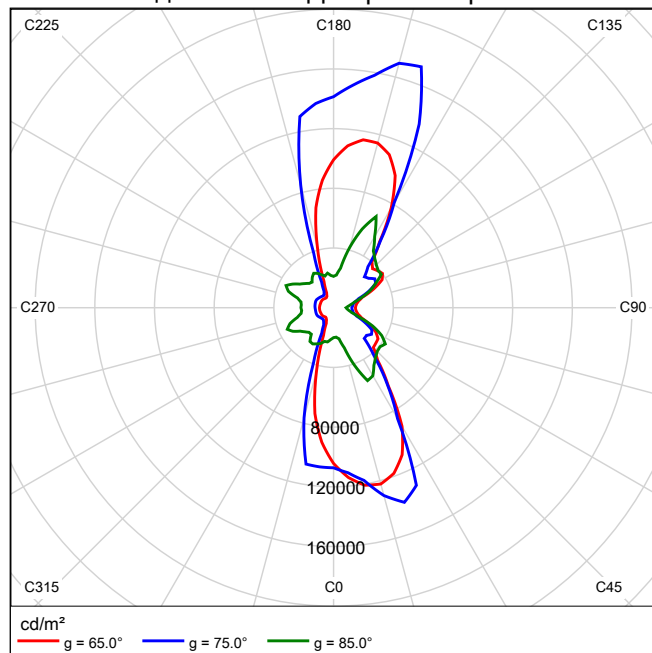


Место выхода света 1 / Линейные LVK



Невозможно создать коническую диаграмму, так как светораспределение несимметричное.

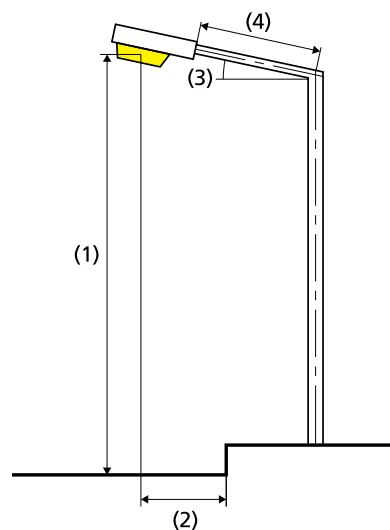
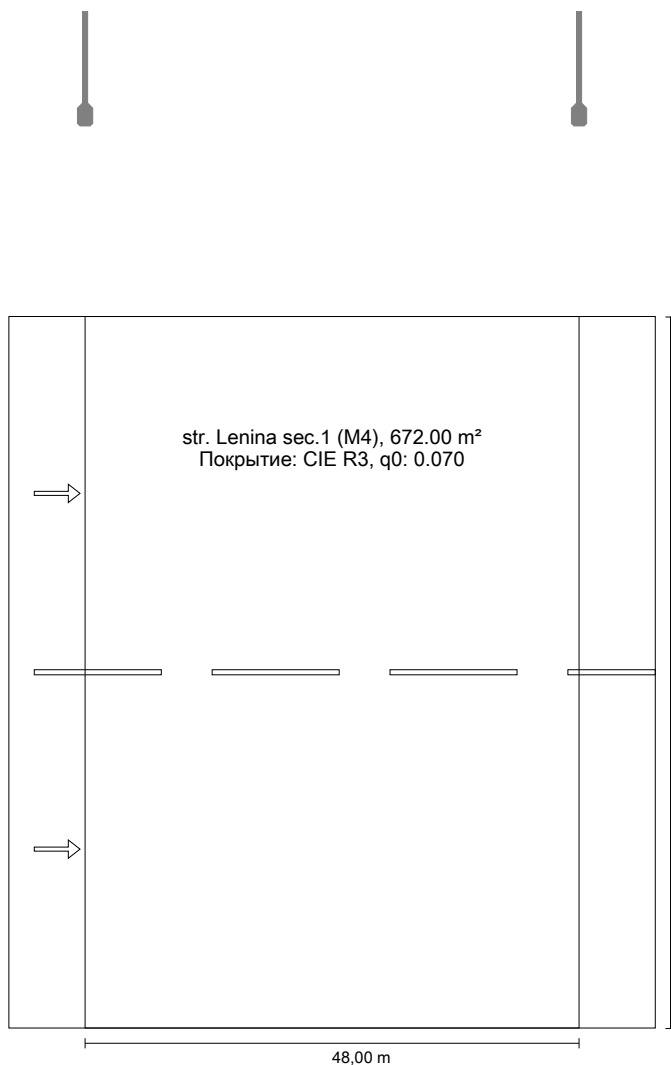
Место выхода света 1 / Диаграмма яркости



Невозможно создать UGR-диаграмму, так как светораспределение несимметричное.

SIT 1 по EN 13201:2015

ECOCITY SRL PRO-STREET QUASAR S 90



Лампа:	1xLED
Световой поток (светильник):	11891.15 lm
Световой поток (лампа):	12400.00 lm
Рабочие часы	
4000 h:	100.0 %, 90.0 W
W/км:	3780.0
Расположение:	двухсторонне напротив
Расстояние между мачтами:	48.000 m
Наклон консоли (3):	5.0°
Длина консоли (4):	2.000 m
Высота световых точек (1):	8.800 m
Свес световой точки (2):	-4.000 m

ULR:	0.01
ULOR:	0.01
Наибольшие значения силы света	
при 70°:	629 cd/klm
при 80°:	278 cd/klm
при 90°:	41.8 cd/klm
Класс интенсивности света:	/

В во всех направлениях, которые образуют указанный угол с нижней вертикалью в установленных и готовых к работе светильниках.

Компоновка отвечает классу индекса ослепления D.0

Результаты для полей оценки
Коэффициент эксплуатации: 0.85

str. Lenina sec.1 (M4)

Lcp [cd/m ²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%] ≤ 15	EIR ≥ 0.30
✓ 0.82	✓ 0.60	✓ 0.72	✓ 15	✓ 1.05

Результаты для показателей энергоэффективности

Индикатор плотности мощности (Dp) 0.021 W/lxm²

Интенсивность потребления энергии

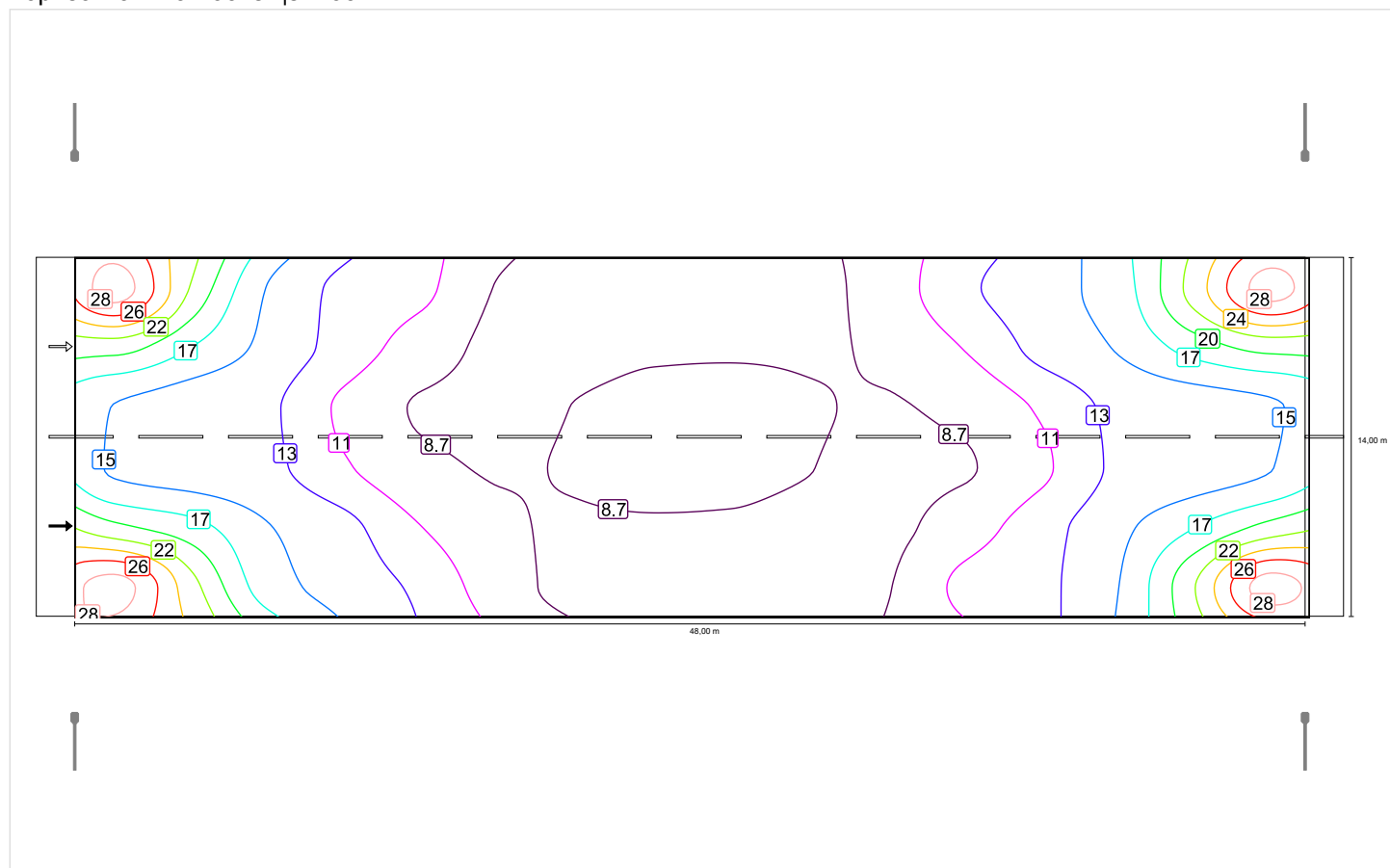
Расположение: PRO-STREET QUASAR S 90 (720.0 кВт-ч/год) 1.1 кВт-ч/м² год

str. Lenina sec.1 (M4)

Коэффициент эксплуатации: 0.85
 Растр: 16 x 6 Точки

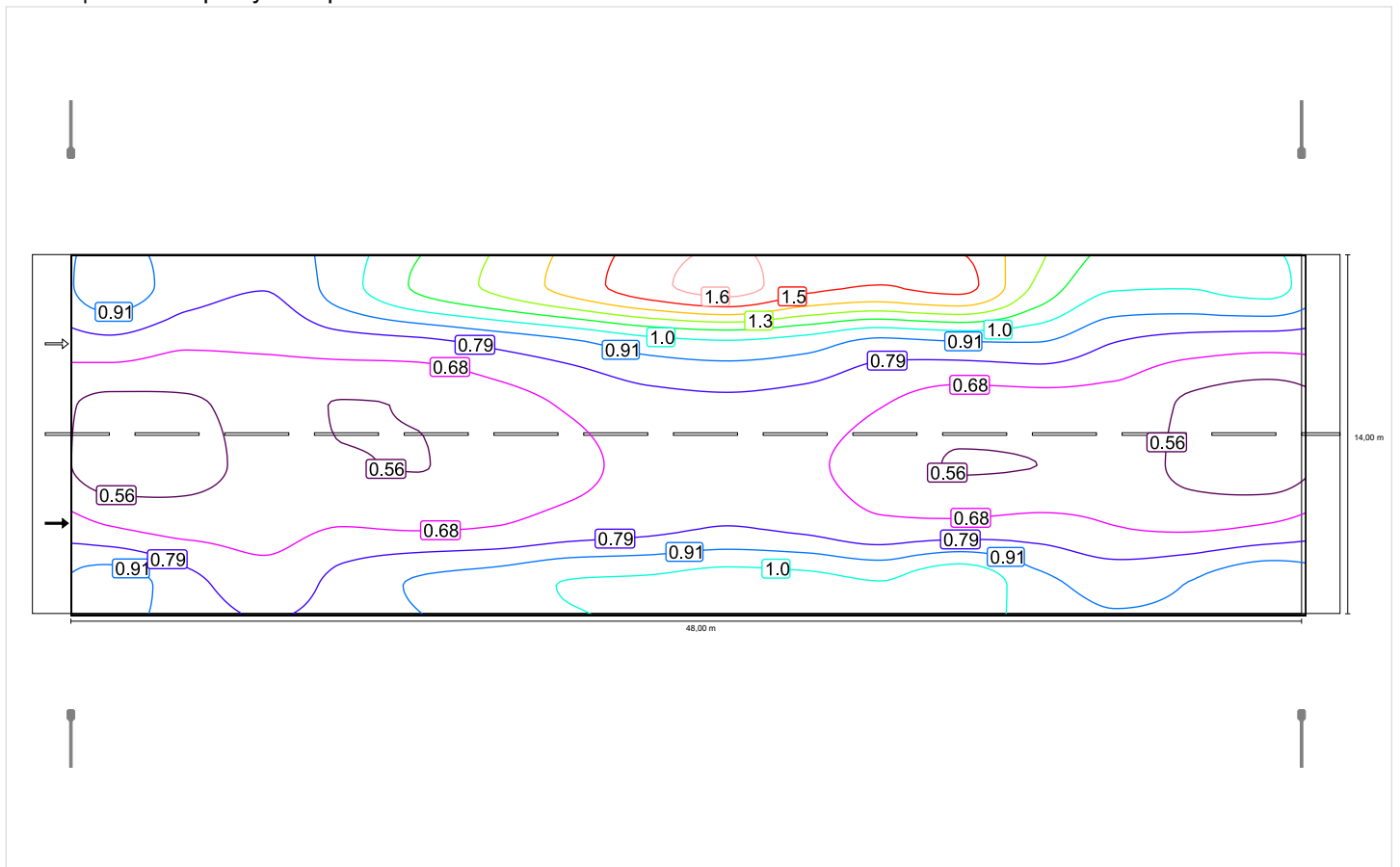
Lcp [cd/m ²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%] ≤ 15	EIR ≥ 0.30
✓ 0.82	✓ 0.60	✓ 0.72	✓ 15	✓ 1.05

Горизонтальная освещенность

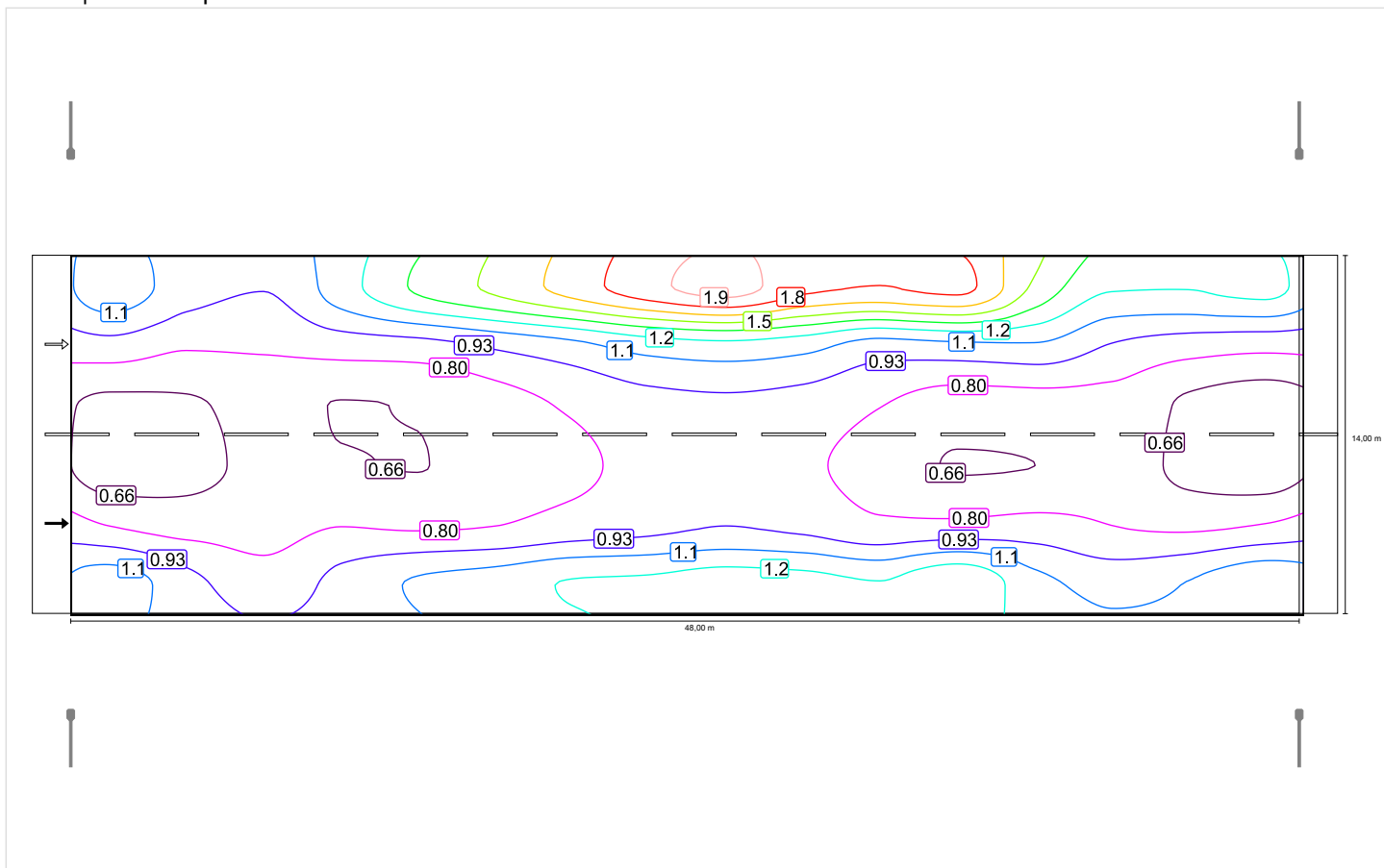


Наблюдатель 1

Освещенность при сухой проезжей части

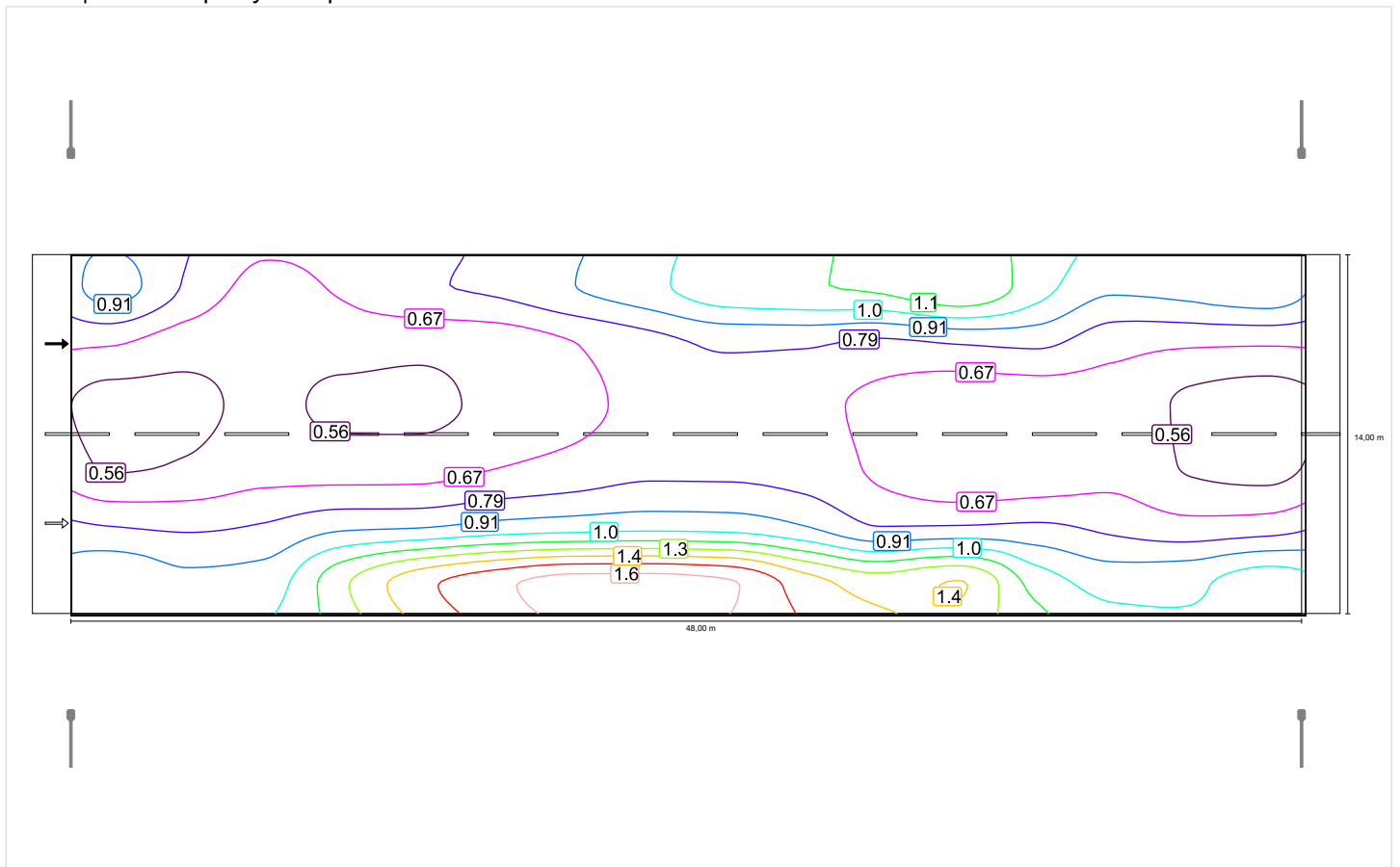


Освещенность при новой лампе

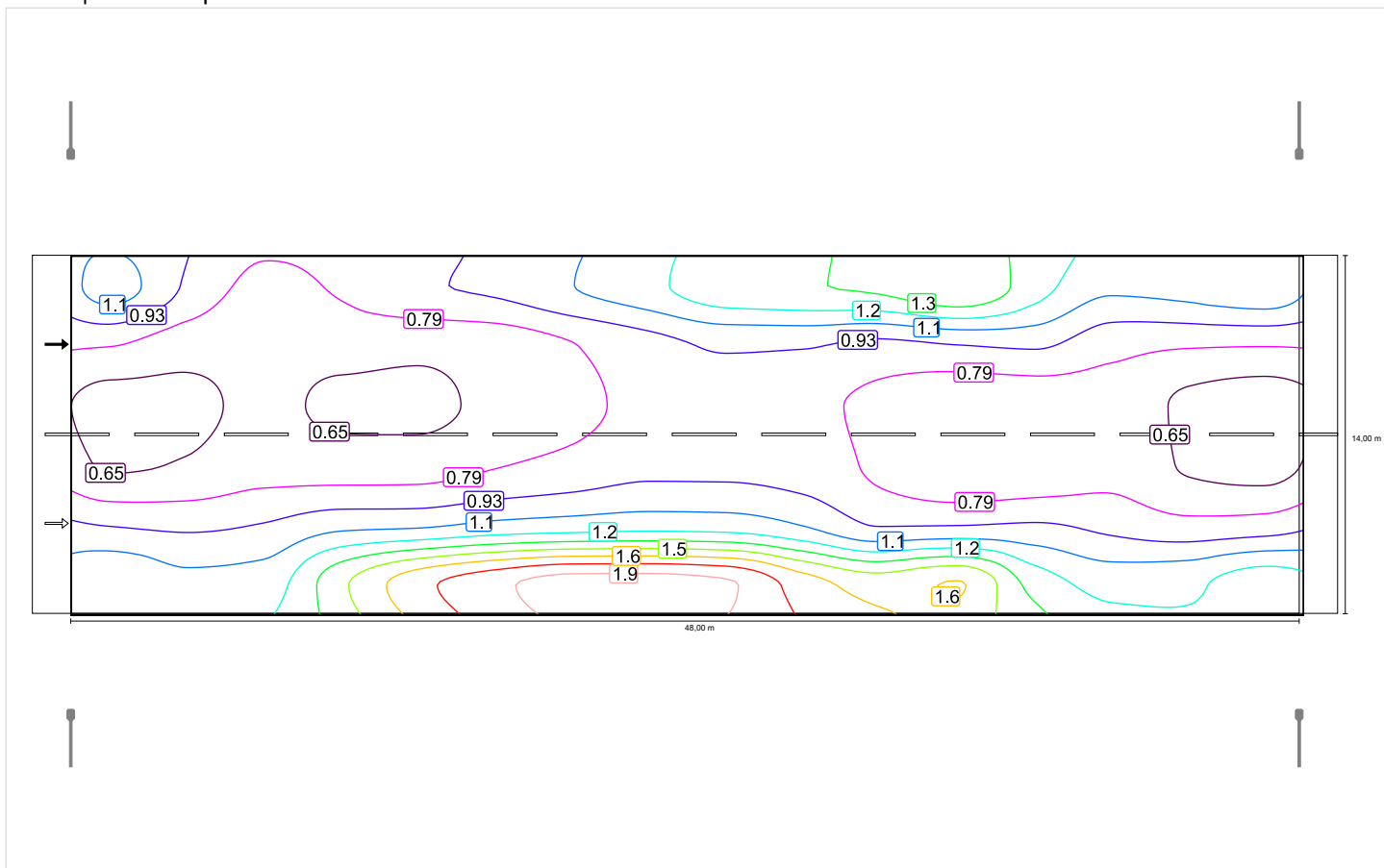


Наблюдатель 2

Освещенность при сухой проезжей части

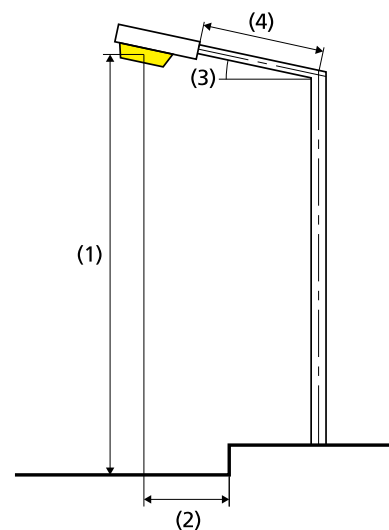
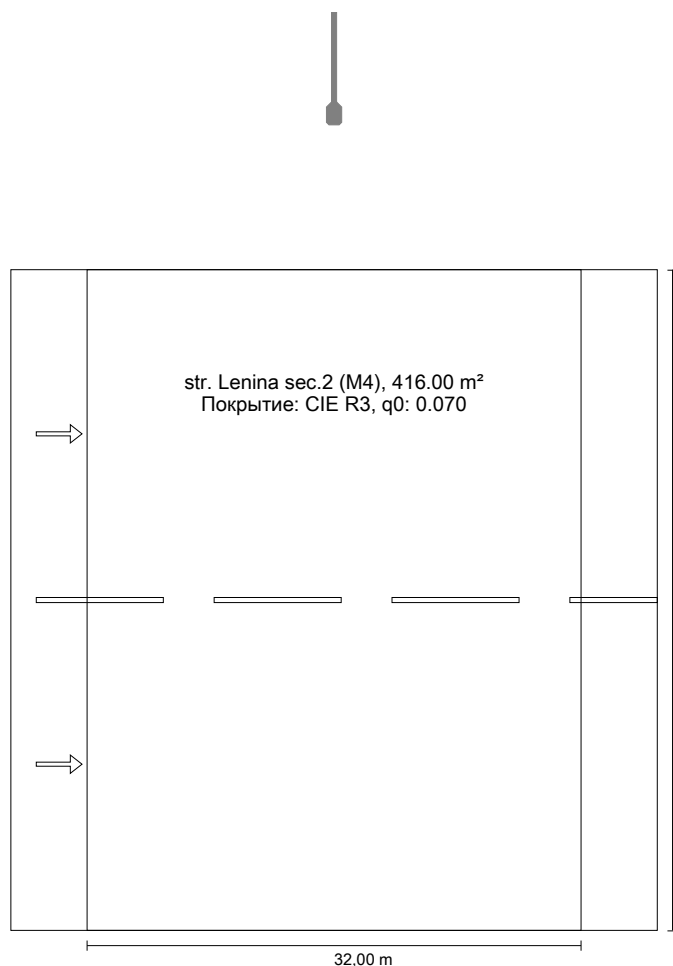


Освещенность при новой лампе



SIT 2 по EN 13201:2015

ECOCITY SRL PRO-STREET QUASAR S 90



Лампа:	1xLED
Световой поток (светильник):	11891.15 lm
Световой поток (лампа):	12400.00 lm
Рабочие часы	
4000 h:	100.0 %, 90.0 W
W/км:	5580.0
Расположение:	двухсторонне со смещением
Расстояние между мачтами:	32.000 m
Наклон консоли (3):	15.0°
Длина консоли (4):	2.000 m
Высота световых точек (1):	8.800 m
Свес световой точки (2):	-3.100 m

ULR: 0.02

ULOR: 0.01

Наибольшие значения силы света

при 70°: 629 cd/klm

при 80°: 512 cd/klm

при 90°: 84.8 cd/klm

Класс интенсивности света: /

В во всех направлениях, которые образуют указанный угол с нижней вертикалью в инсталлированных и готовых к работе светильниках.

Компоновка отвечает классу индекса ослепления D.0

Результаты для полей оценки

Коэффициент эксплуатации: 0.85

str. Lenina sec.2 (M4)

Lcp [cd/m ²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%] ≤ 15	EIR ≥ 0.30
✓ 1.60	✓ 0.74	✓ 0.85	✓ 13	✓ 0.71

Результаты для показателей энергоэффективности

Индикатор плотности мощности (Dp)

0.018 W/lx·m²

Интенсивность потребления энергии

Расположение: PRO-STREET QUASAR S 90 (720.0 кВт-ч/год) 1.7 кВт-ч/м² год

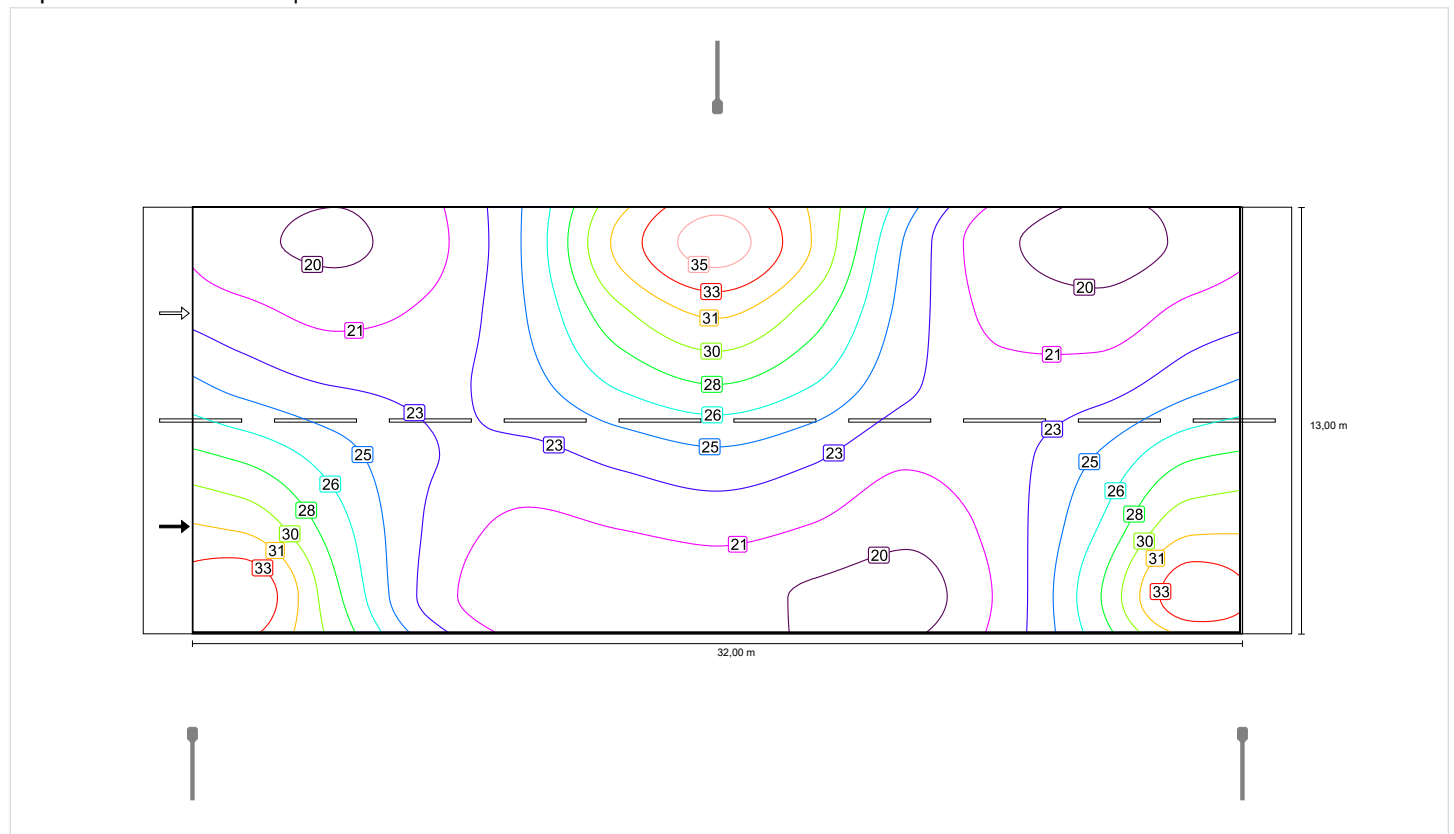
str. Lenina sec.2 (M4)

Коэффициент эксплуатации: 0.85

Растр: 11 x 6 Точки

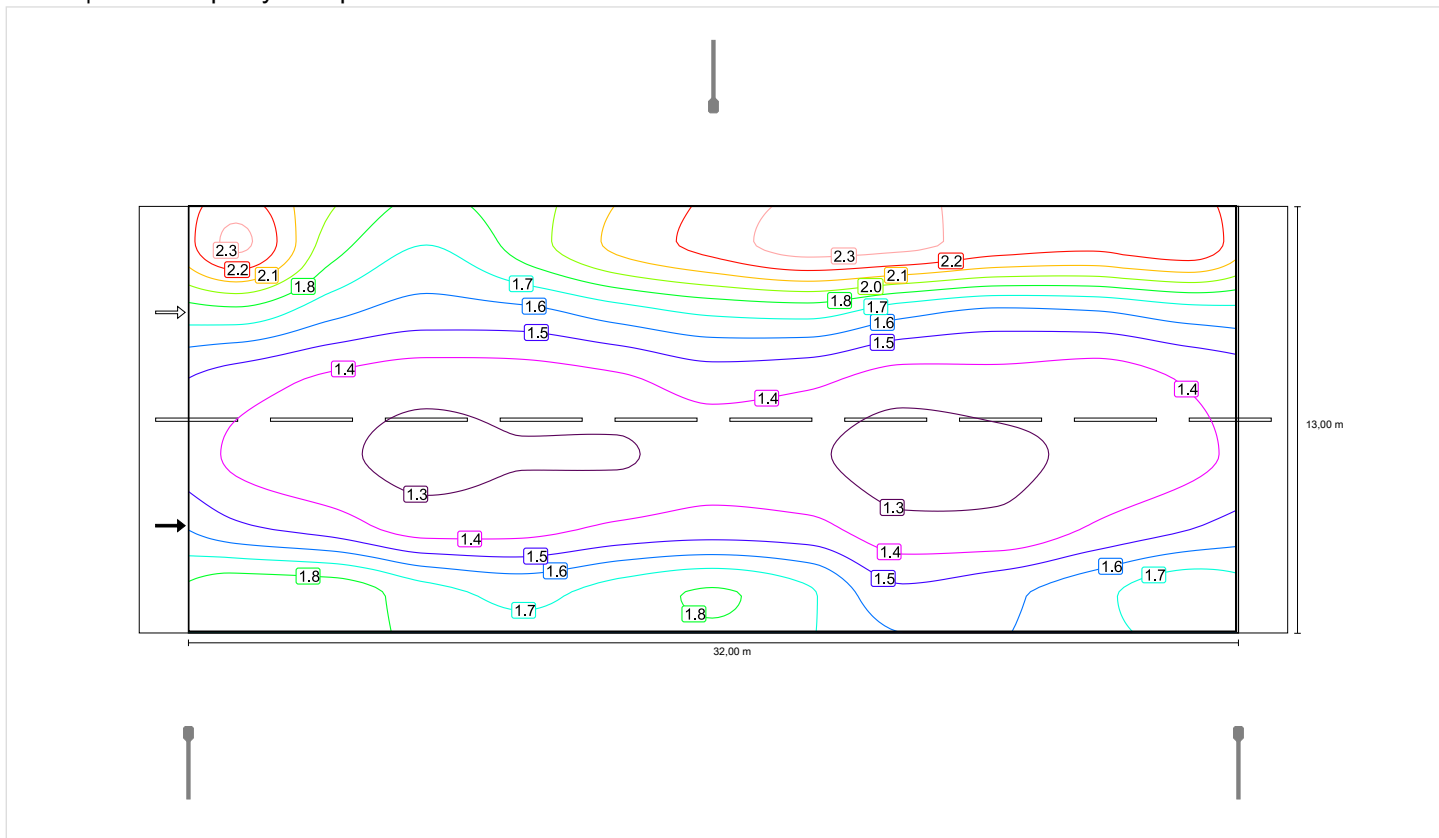
L_{cp} [cd/m ²] ≥ 0.75	U_o ≥ 0.40	U_i ≥ 0.60	TI [%] ≤ 15	EIR ≥ 0.30
✓ 1.60	✓ 0.74	✓ 0.85	✓ 13	✓ 0.71

Горизонтальная освещенность

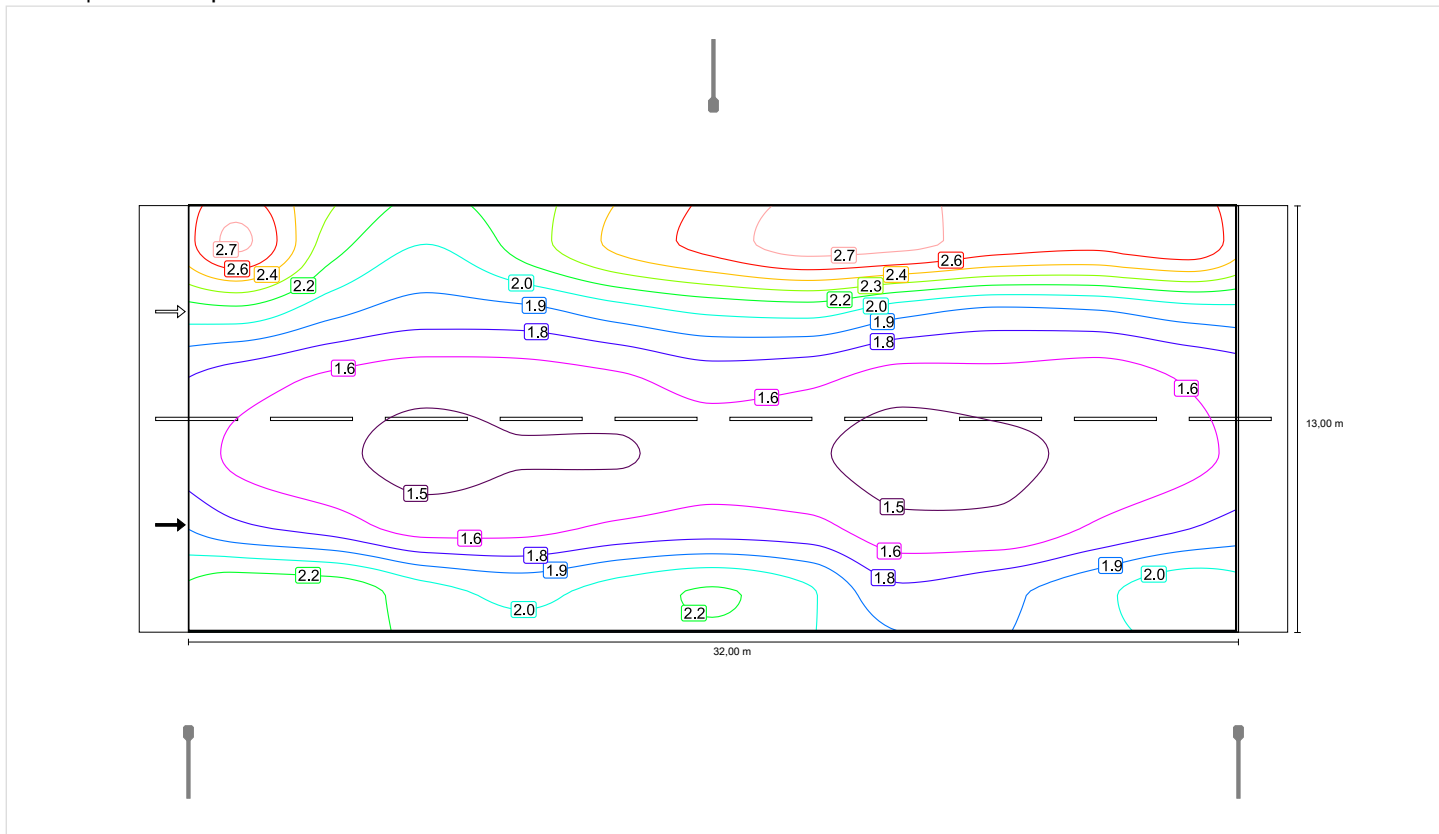


Наблюдатель 1

Освещенность при сухой проезжей части

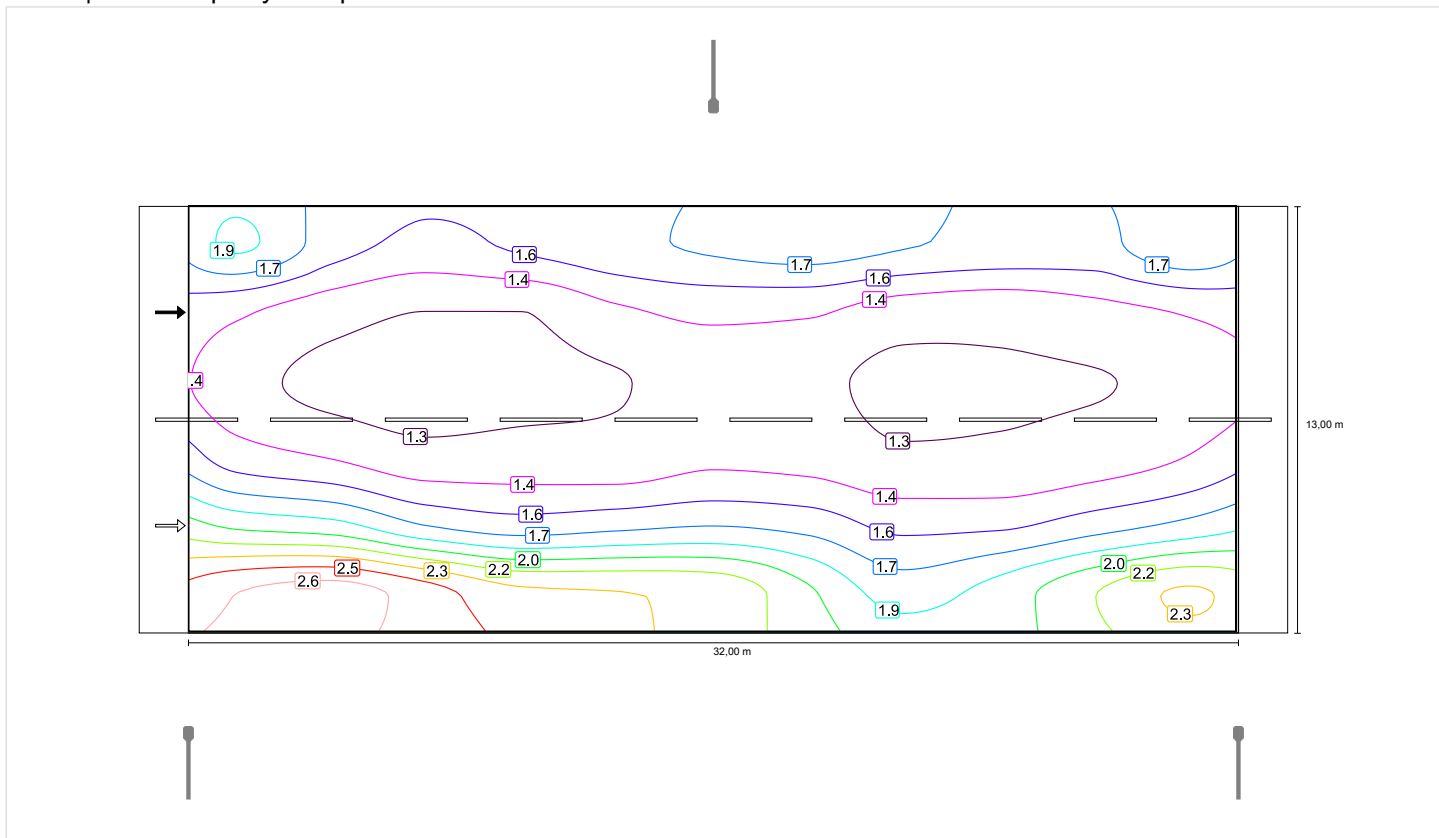


Освещенность при новой лампе

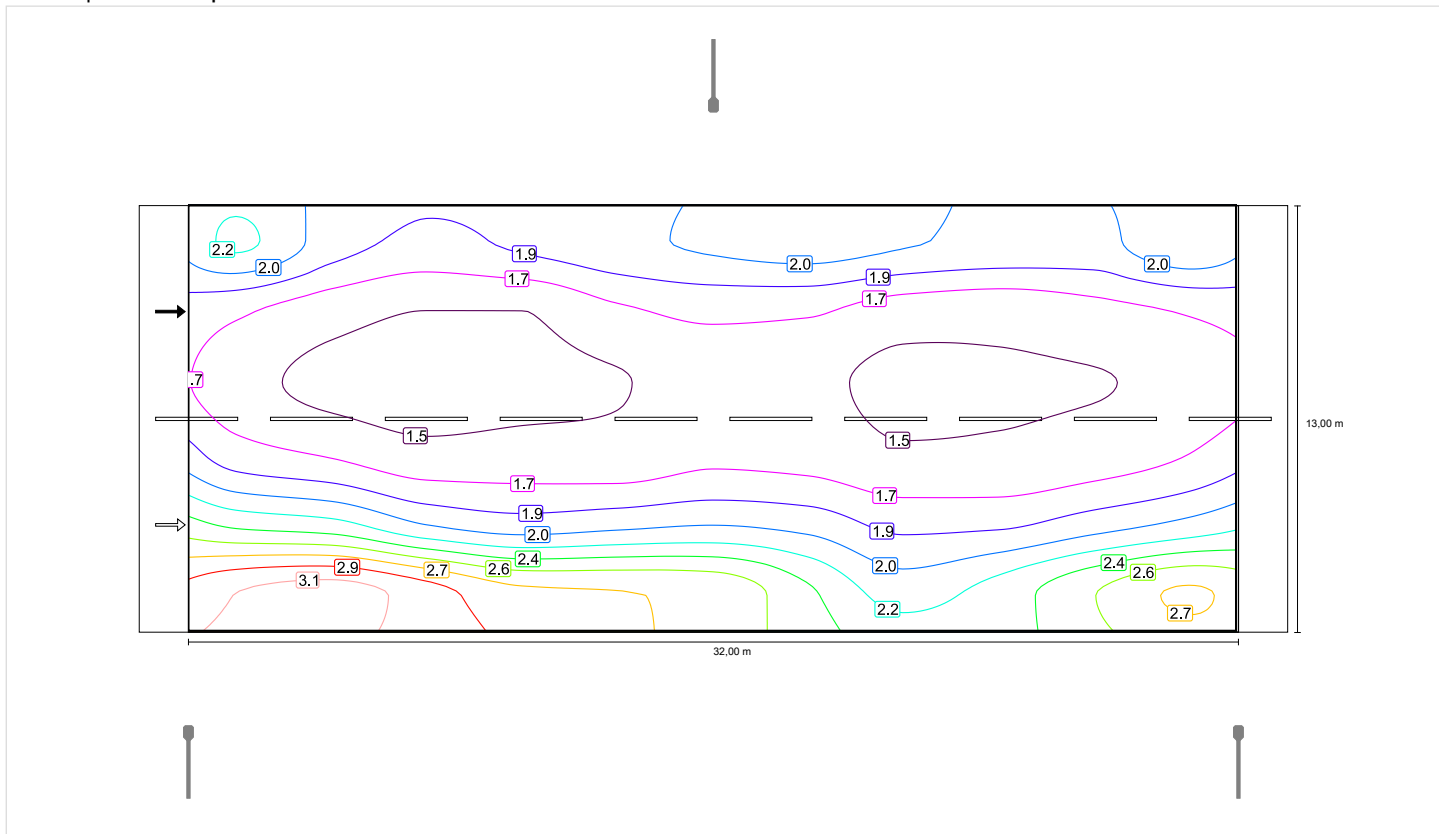


Наблюдатель 2

Освещенность при сухой проезжей части

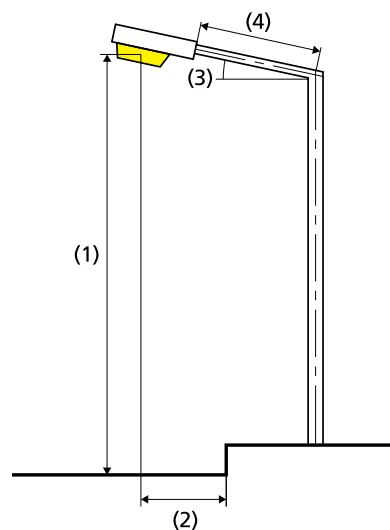
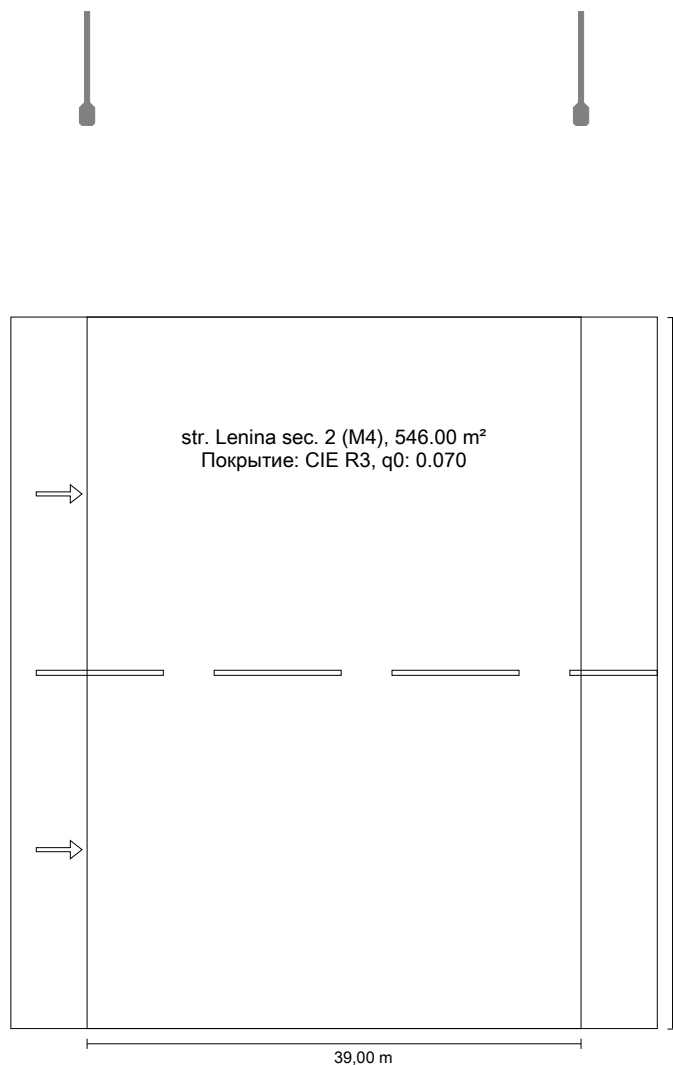


Освещенность при новой лампе



SIT 3 по EN 13201:2015

ECOCITY SRL PRO-STREET QUASAR S 90



Лампа:	1xLED
Световой поток (светильник):	11891.15 lm
Световой поток (лампа):	12400.00 lm
Рабочие часы	
4000 h:	100.0 %, 90.0 W
W/км:	4680.0
Расположение:	двухсторонне напротив
Расстояние между мачтами:	39.000 m
Наклон консоли (3):	10.0°
Длина консоли (4):	2.000 m
Высота световых точек (1):	8.800 m
Свес световой точки (2):	-4.020 m

ULR:	0.01
ULOR:	0.01
Наибольшие значения силы света	
при 70°:	629 cd/klm
при 80°:	410 cd/klm
при 90°:	58.1 cd/klm
Класс интенсивности света:	/

В во всех направлениях, которые образуют указанный угол с нижней вертикалью в установленных и готовых к работе светильниках.

Компоновка отвечает классу индекса ослепления D.0

Результаты для полей оценки
Коэффициент эксплуатации: 0.85

str. Lenina sec. 2 (M4)

Lcp [cd/m ²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%] ≤ 15	EIR ≥ 0.30
✓ 1.08	✓ 0.72	✓ 0.83	✓ 14	✓ 0.96

Результаты для показателей энергоэффективности

Индикатор плотности мощности (Dp) 0.020 W/lx·m²

Интенсивность потребления энергии

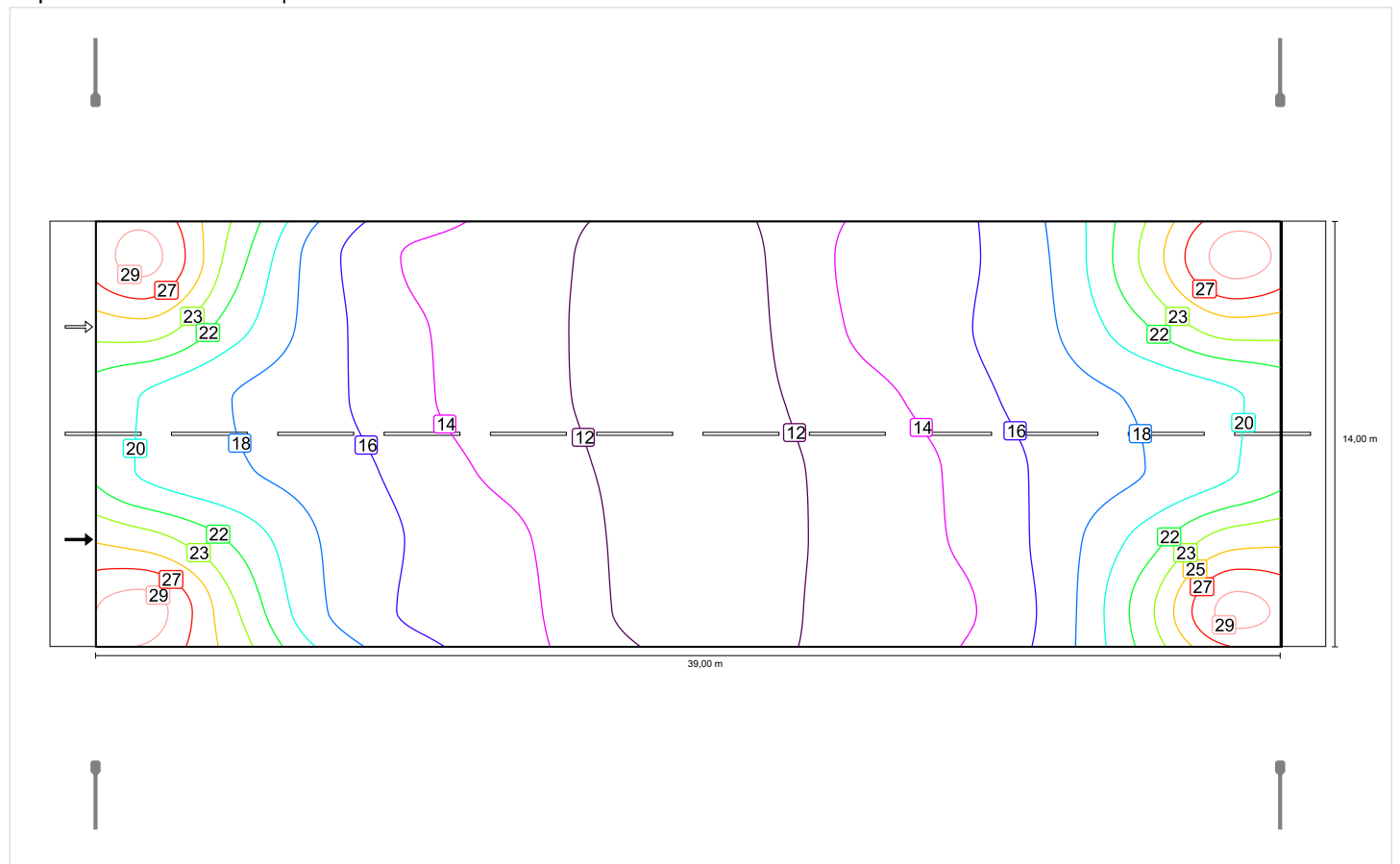
Расположение: PRO-STREET QUASAR S 90 (720.0 кВт-ч/год) 1.3 кВт-ч/м² год

str. Lenina sec. 2 (M4)

Коэффициент эксплуатации: 0.85
Растр: 13 x 6 Точки

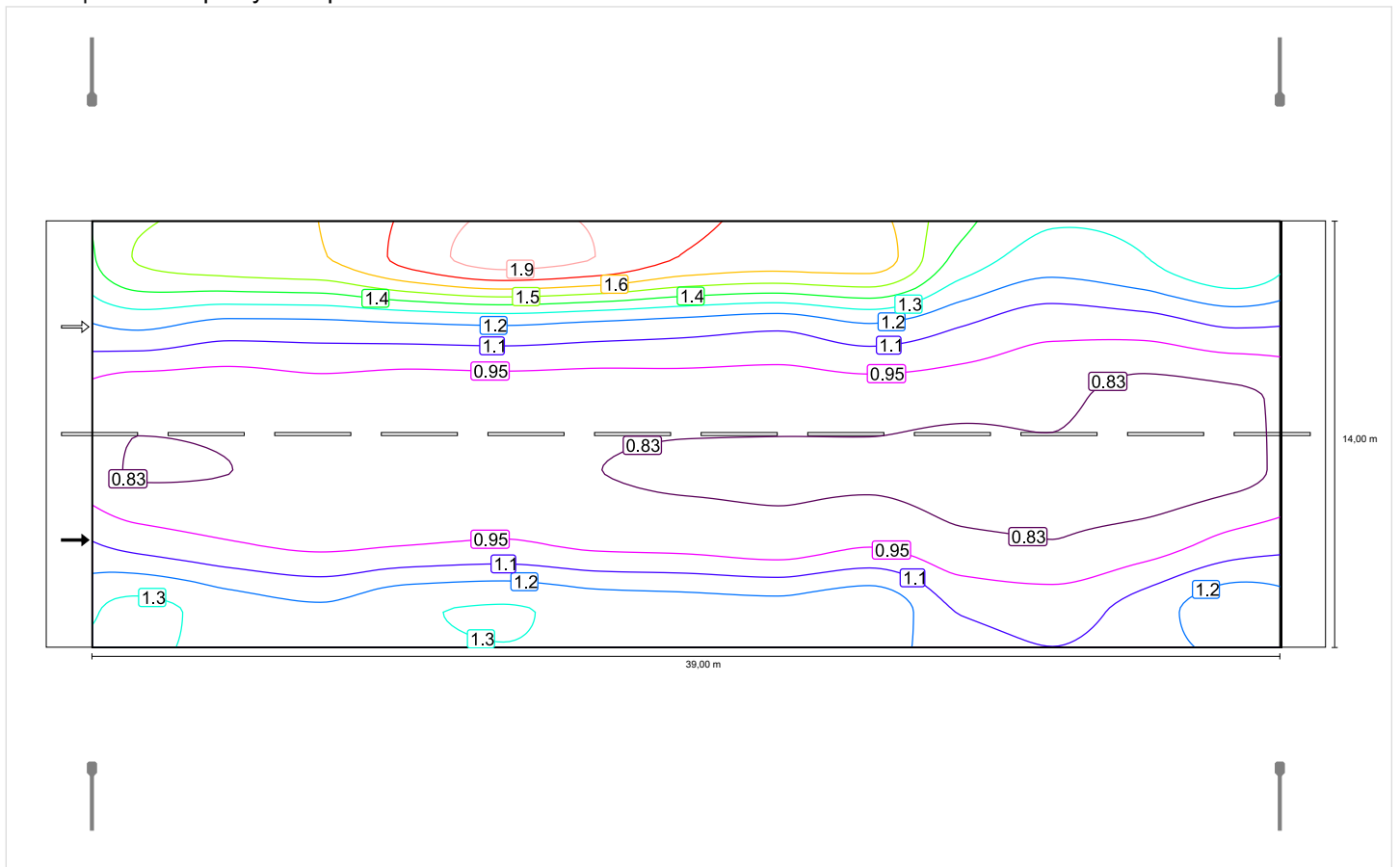
L_{cp} [cd/m ²] ≥ 0.75	U_o ≥ 0.40	UI ≥ 0.60	TI [%] ≤ 15	EIR ≥ 0.30
✓ 1.08	✓ 0.72	✓ 0.83	✓ 14	✓ 0.96

Горизонтальная освещенность

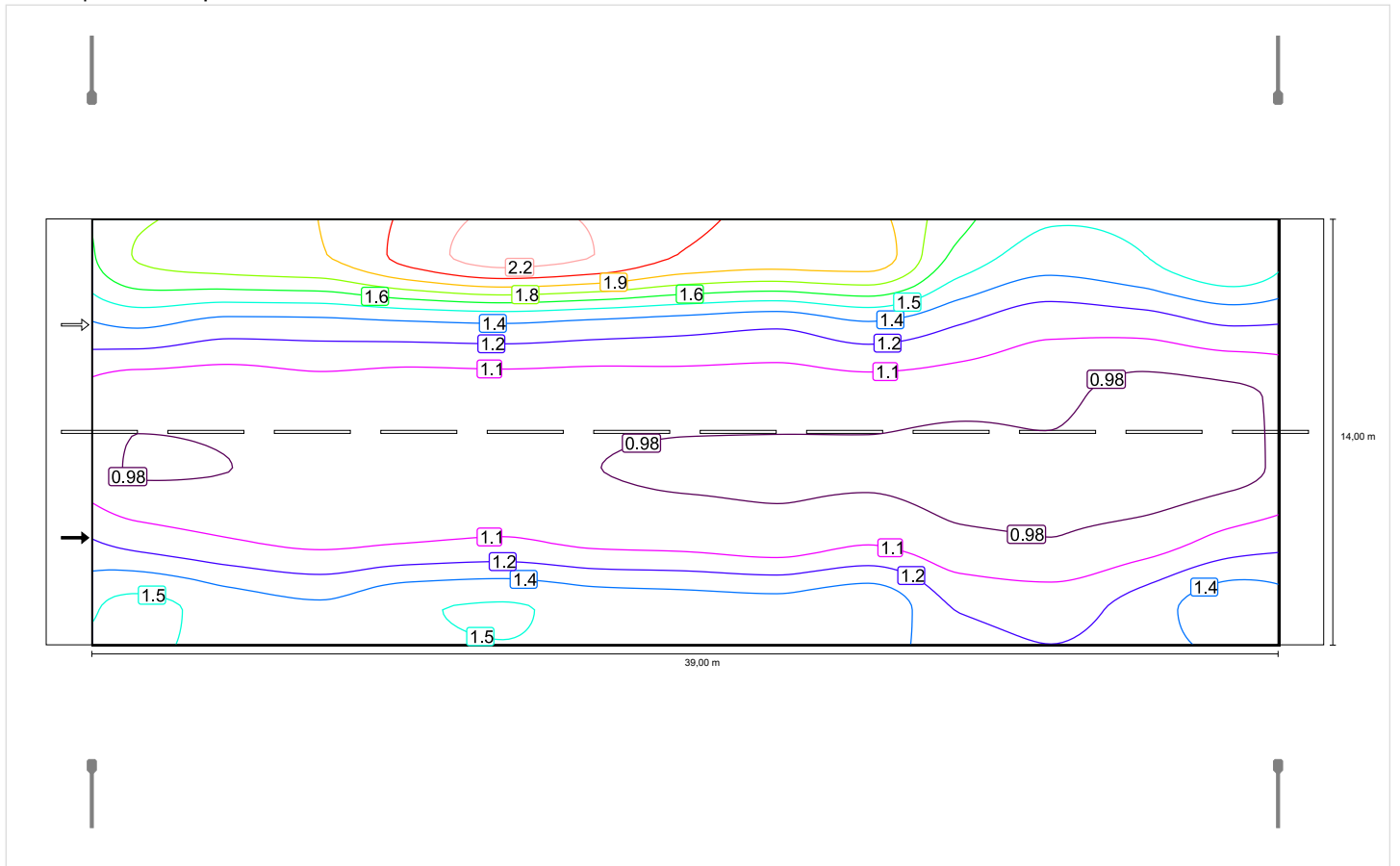


Наблюдатель 1

Освещенность при сухой проезжей части

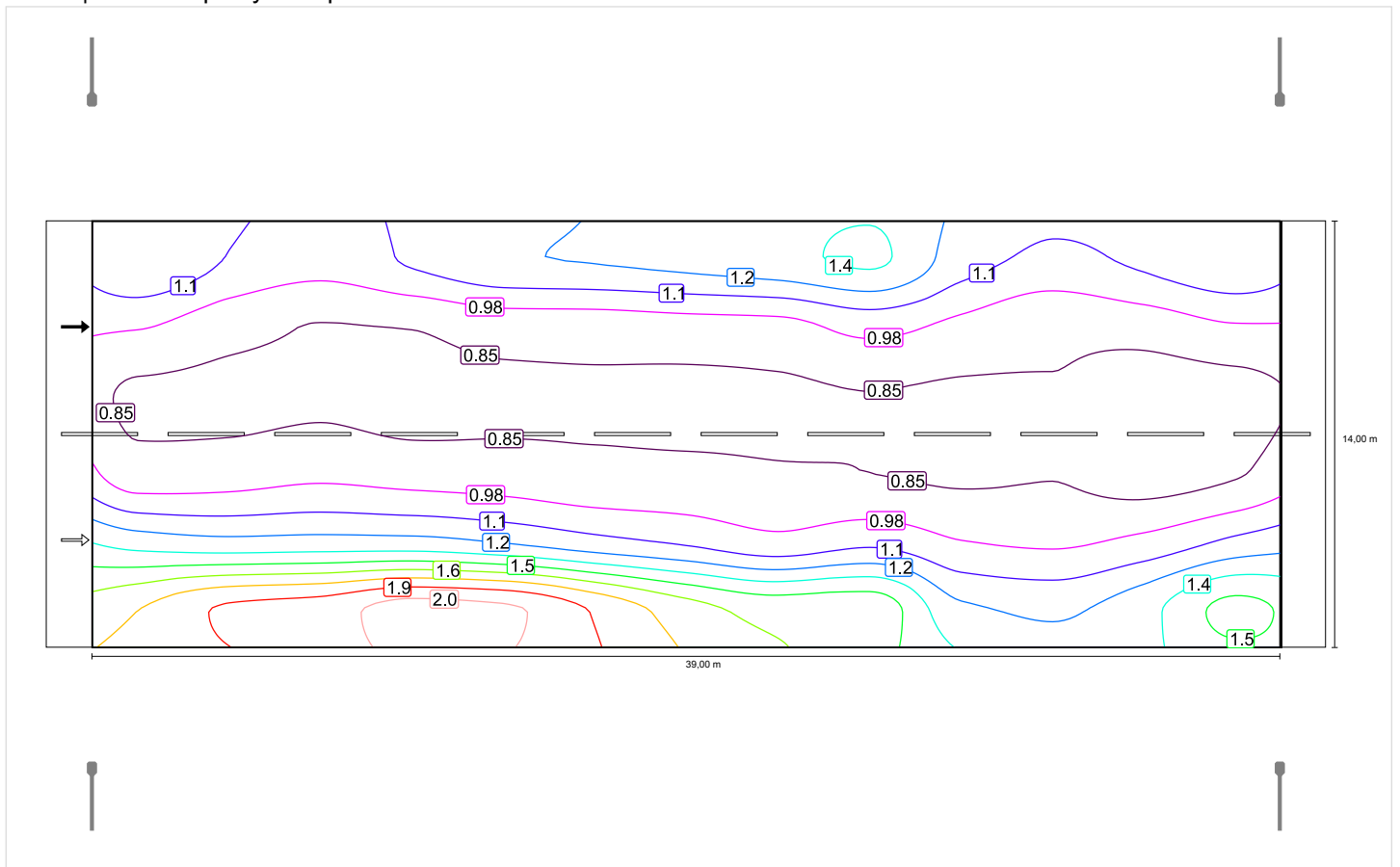


Освещенность при новой лампе

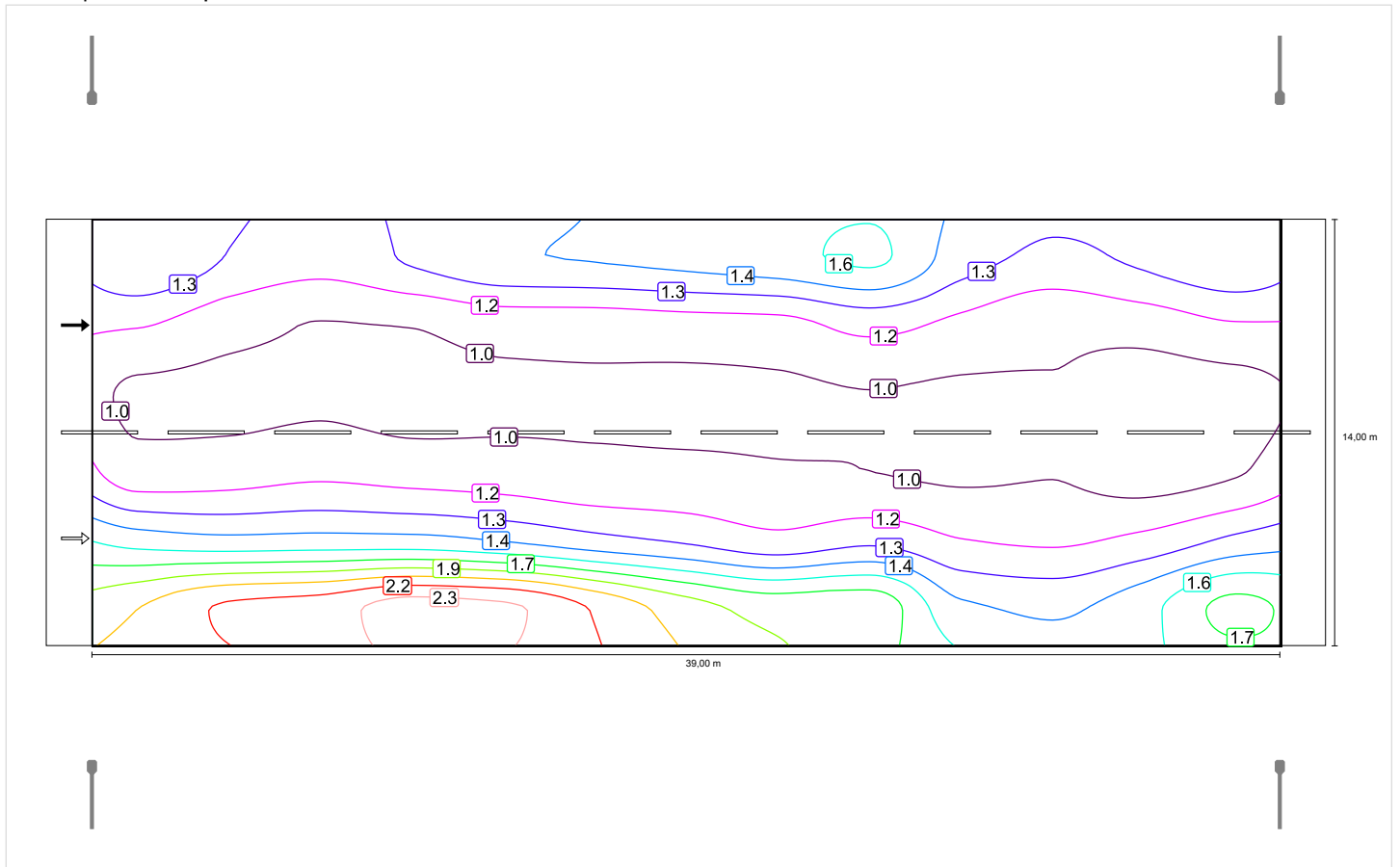


Наблюдатель 2

Освещенность при сухой проезжей части

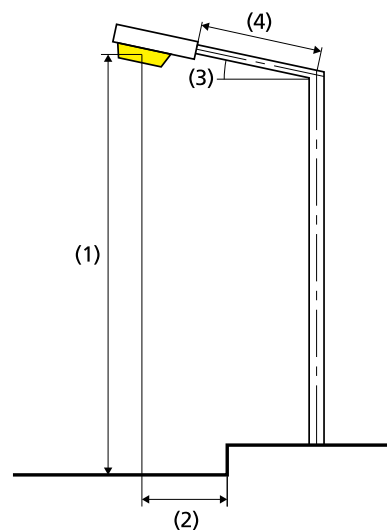
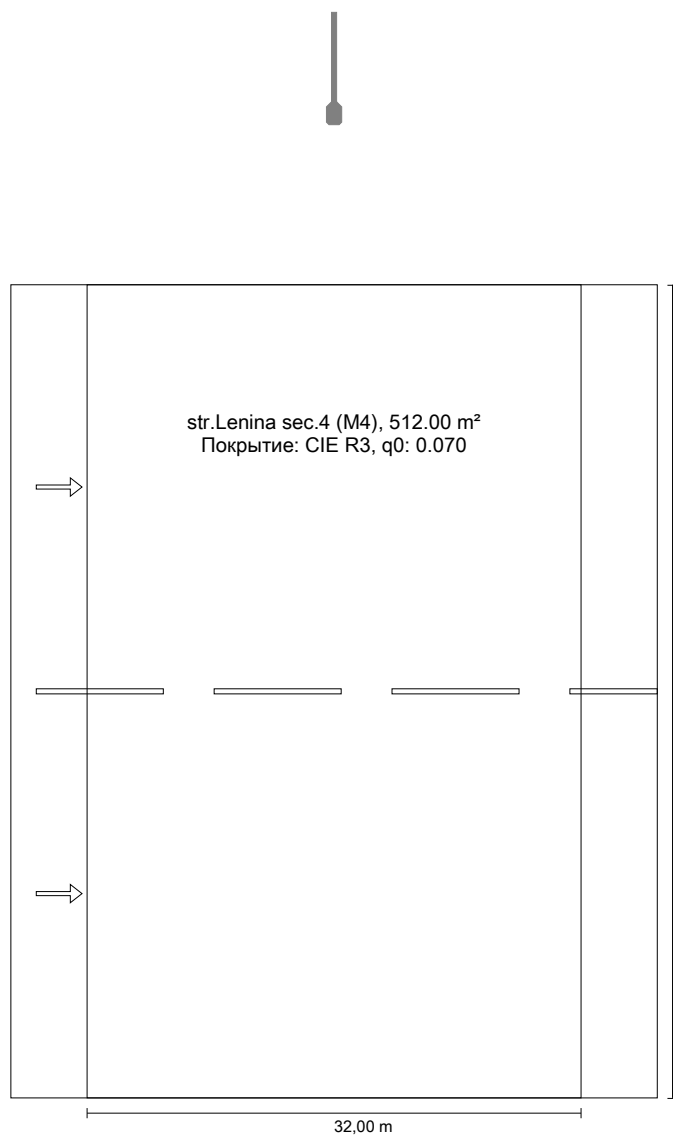


Освещенность при новой лампе



SIT 4 по EN 13201:2015

ECOCITY SRL PRO-STREET QUASAR S 90



Лампа:	1xLED
Световой поток (светильник):	11891.15 lm
Световой поток (лампа):	12400.00 lm
Рабочие часы	
4000 h:	100.0 %, 90.0 W
W/км:	5580.0
Расположение:	двухсторонне со смещением
Расстояние между мачтами:	32.000 m
Наклон консоли (3):	15.0°
Длина консоли (4):	2.000 m
Высота световых точек (1):	8.800 m
Свес световой точки (2):	-3.400 m

ULR: 0.02

ULOR: 0.01

Наибольшие значения силы света

при 70°: 629 cd/klm

при 80°: 512 cd/klm

при 90°: 84.8 cd/klm

Класс интенсивности света: /

В во всех направлениях, которые образуют указанный угол с нижней вертикалью в инсталлированных и готовых к работе светильниках.

Компоновка отвечает классу индекса ослепления D.0

Результаты для полей оценки
Коэффициент эксплуатации: 0.85

str.Lenina sec.4 (M4)

Lcp [cd/m ²] ≥ 0.75	Uo ≥ 0.40	UI ≥ 0.60	TI [%] ≤ 15	EIR ≥ 0.30
✓ 1.39	✓ 0.71	✓ 0.85	✓ 13	✓ 0.79

Результаты для показателей энергоэффективности

Индикатор плотности мощности (Dp) 0.017 W/lx^m

Интенсивность потребления энергии

Расположение: PRO-STREET QUASAR S 90 (720.0 кВт-ч/год) 1.4 кВт-ч/м² год

SIT 4: Альтернатива 4 / str.Lenina sec.4 (M4) / Изолинии

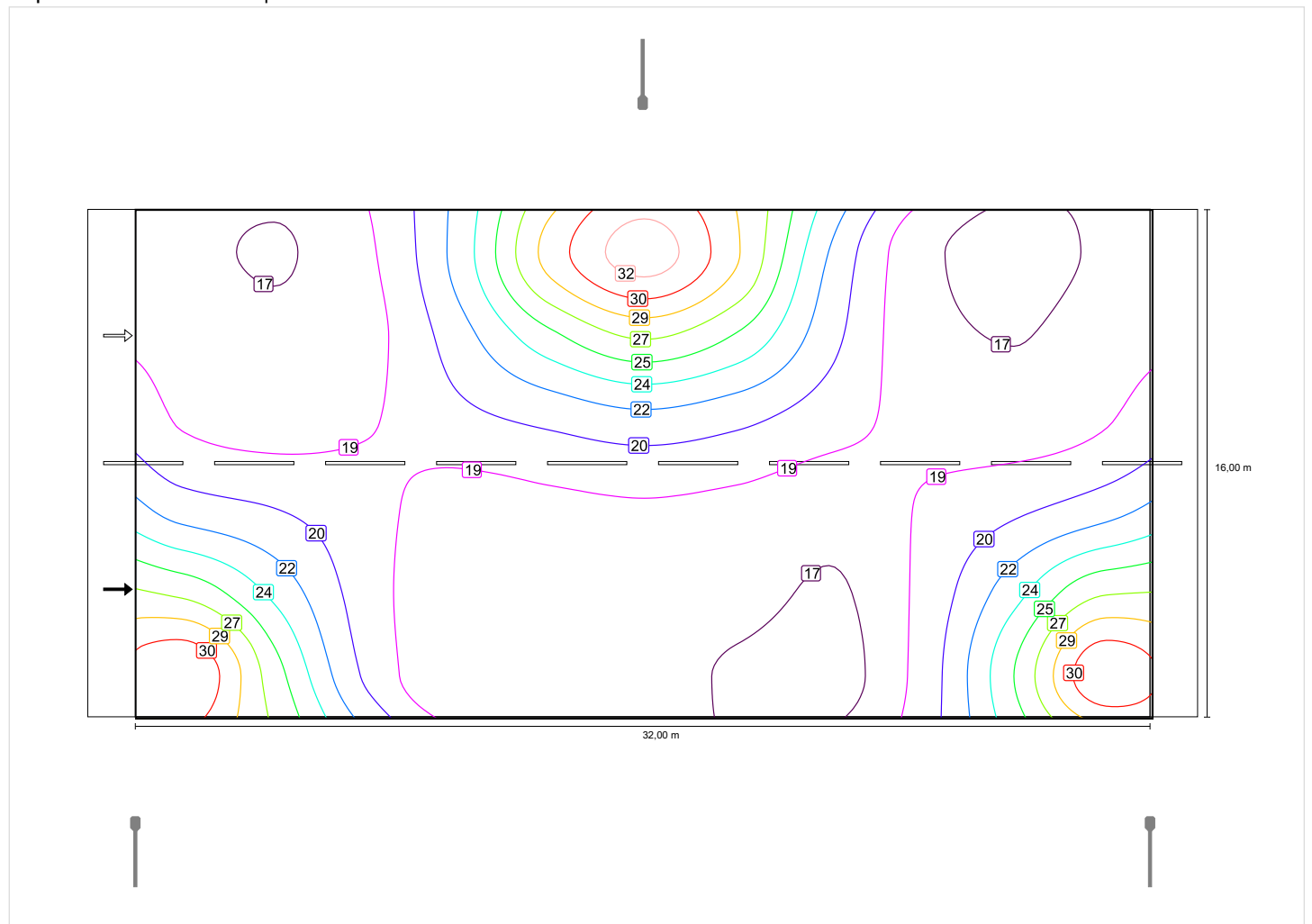
str.Lenina sec.4 (M4)

Коэффициент эксплуатации: 0.85

Растр: 11 x 6 Точки

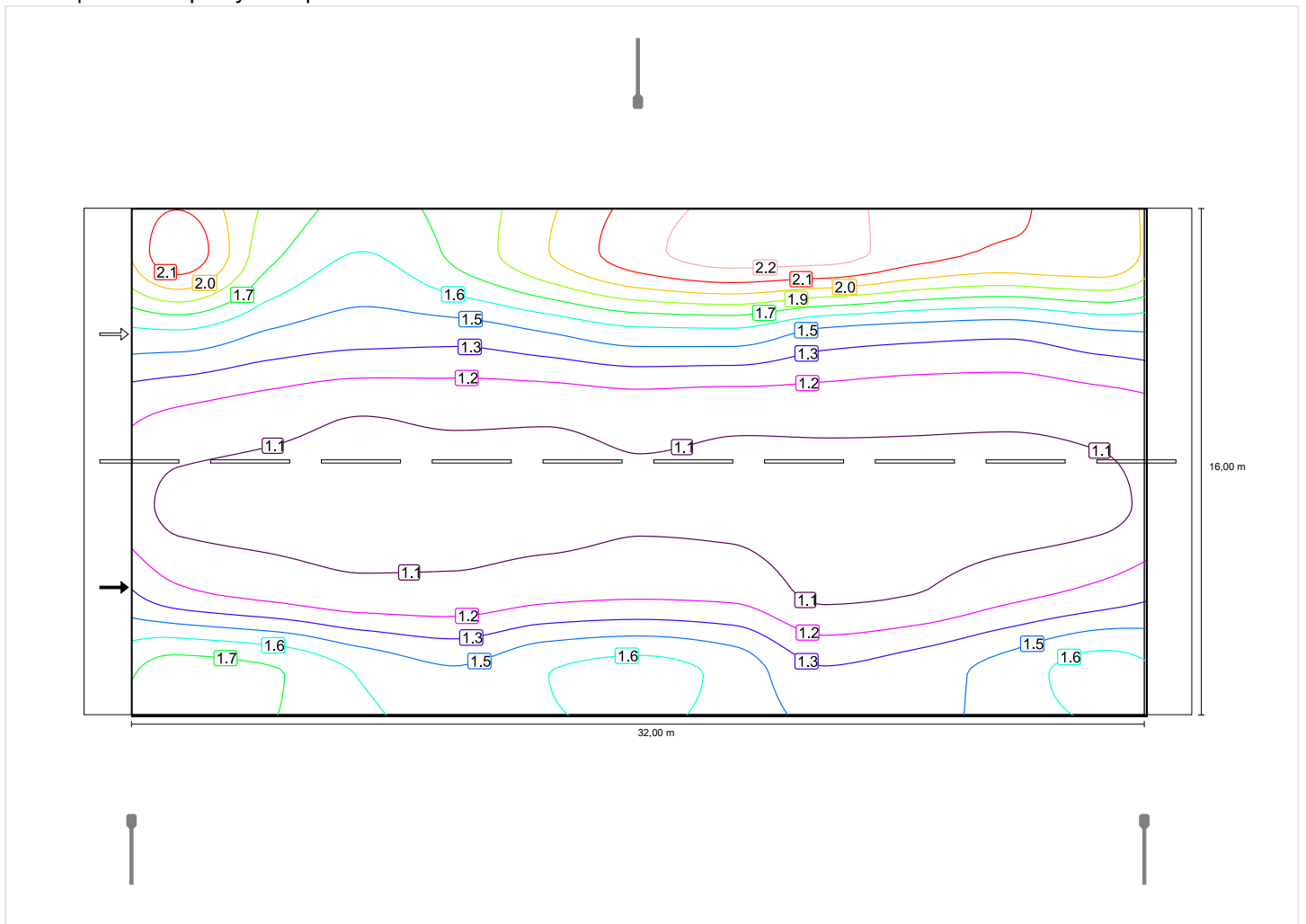
L_{cp} [cd/m ²] ≥ 0.75	U_o ≥ 0.40	UI ≥ 0.60	TI [%] ≤ 15	EIR ≥ 0.30
✓ 1.39	✓ 0.71	✓ 0.85	✓ 13	✓ 0.79

Горизонтальная освещенность

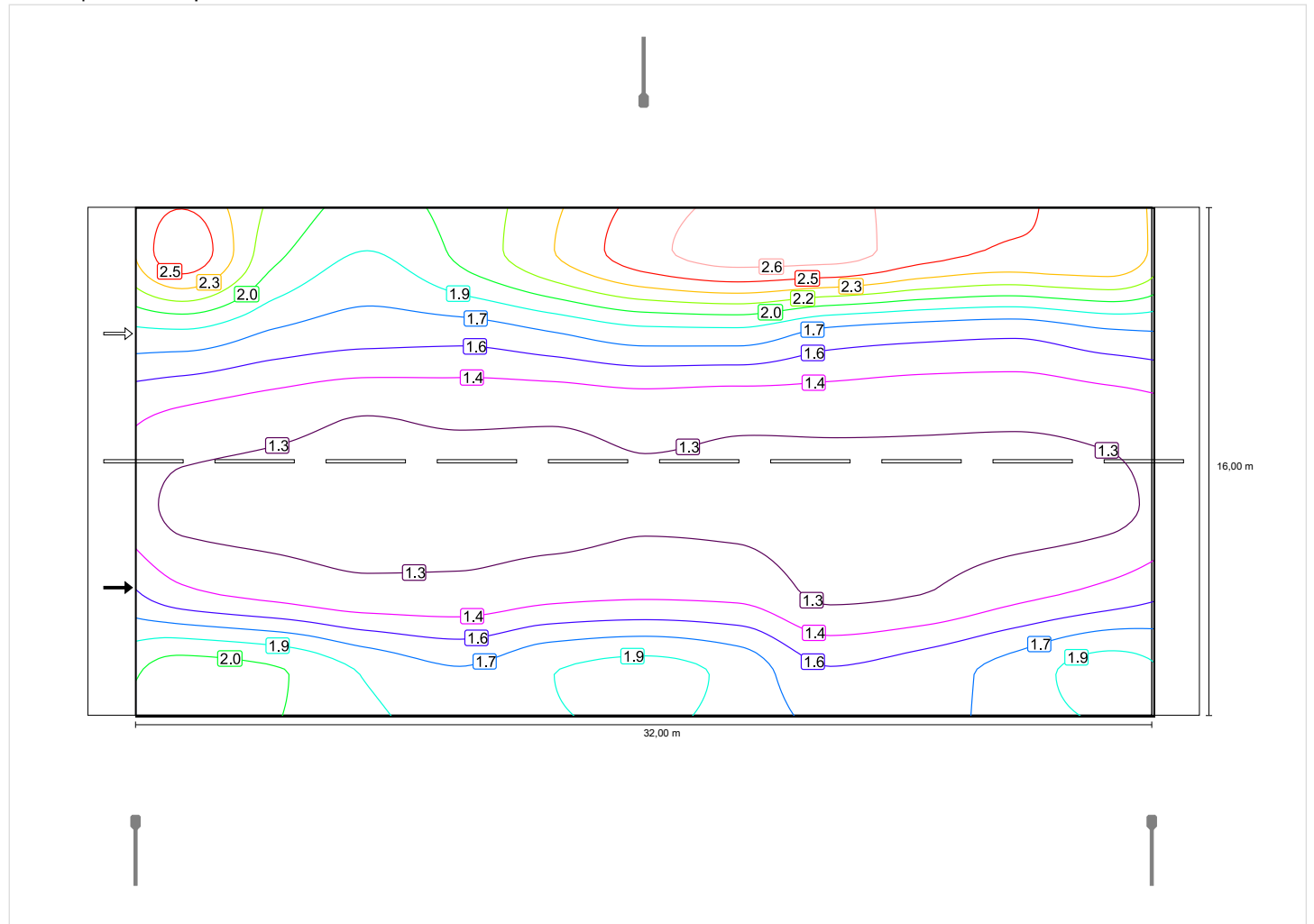


Наблюдатель 1

Освещенность при сухой проезжей части

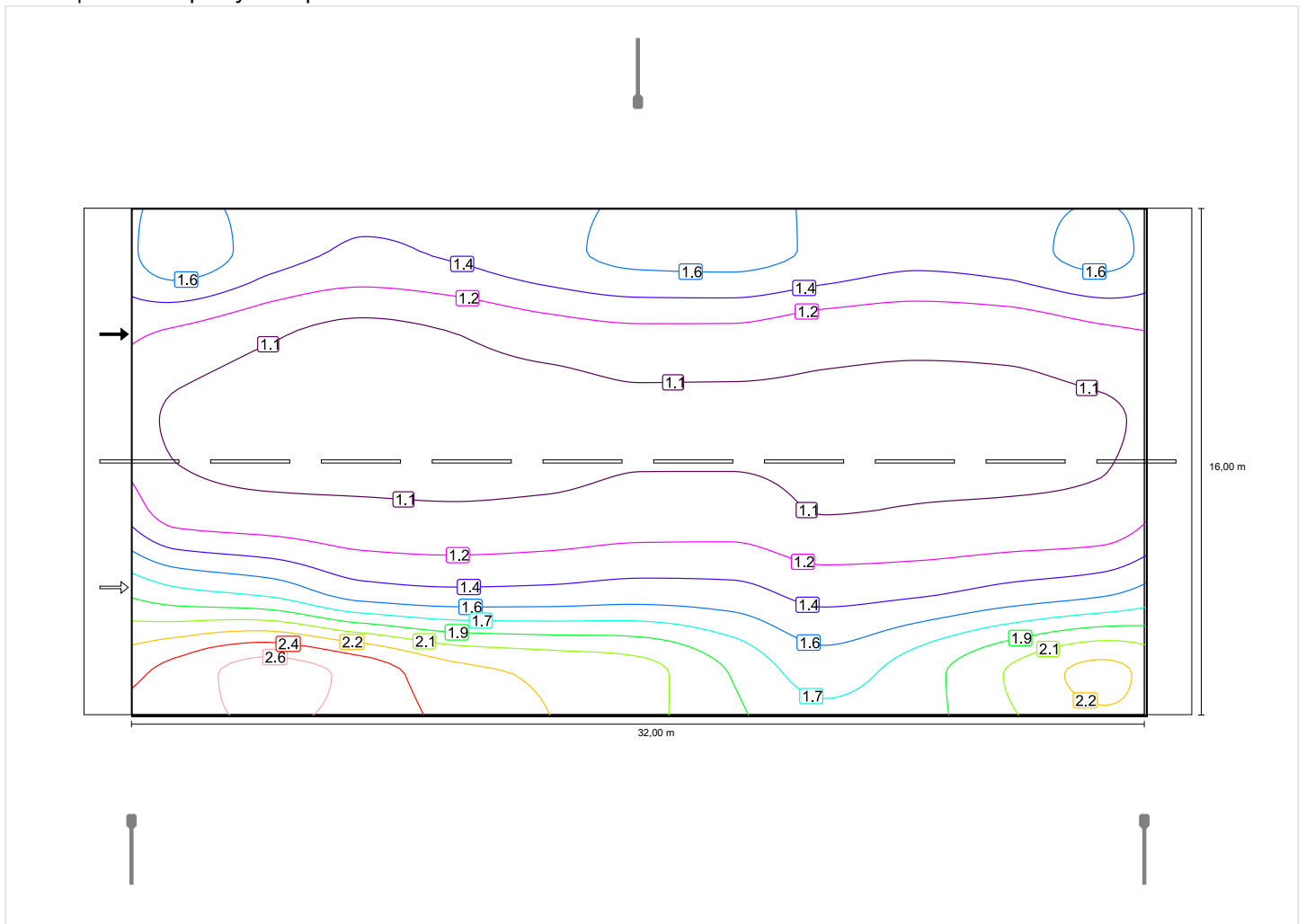


Освещенность при новой лампе

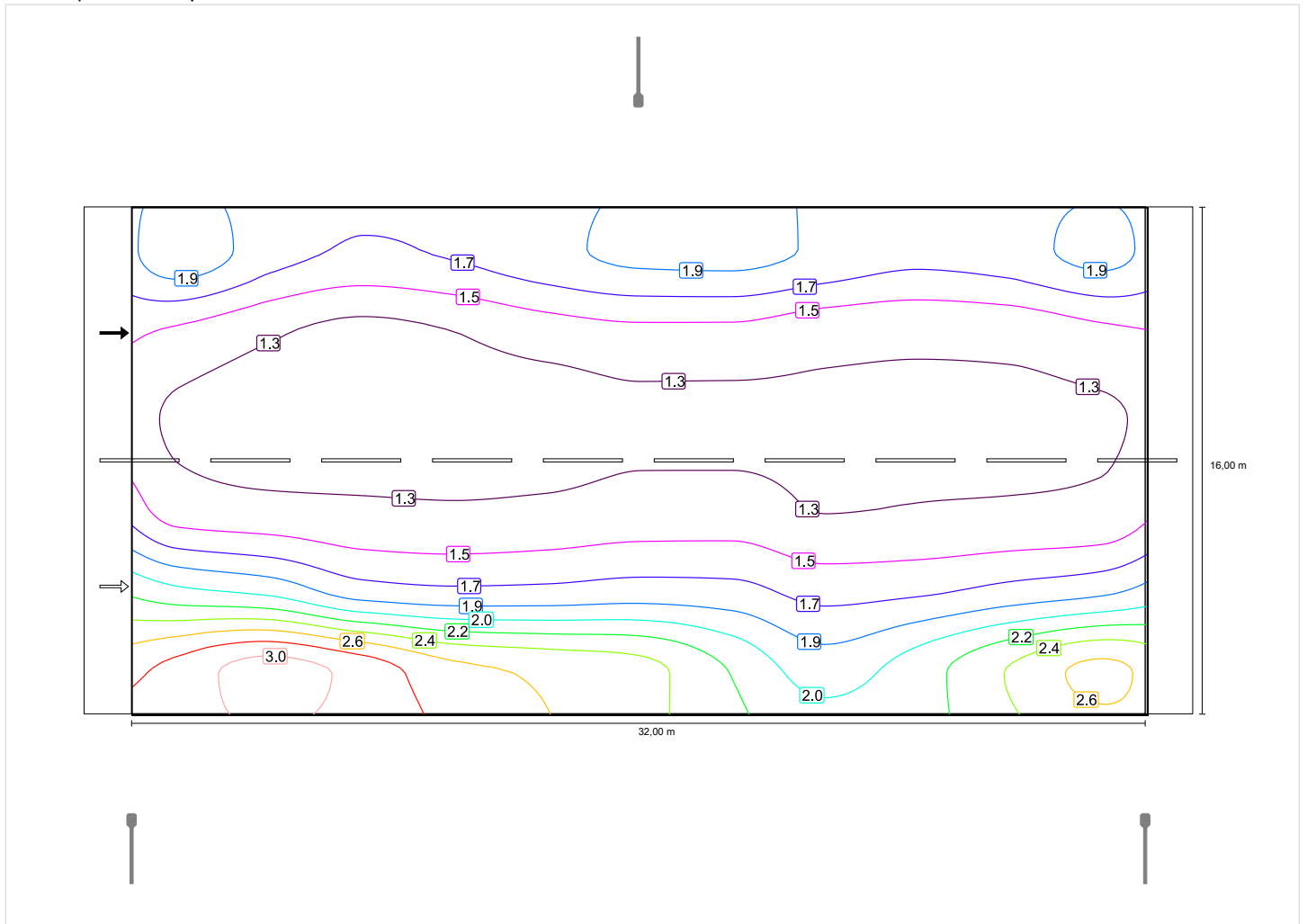


Наблюдатель 2

Освещенность при сухой проезжей части

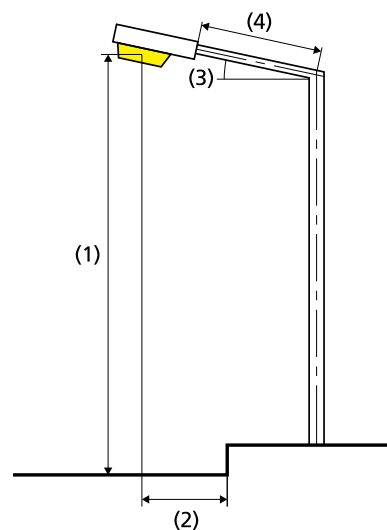
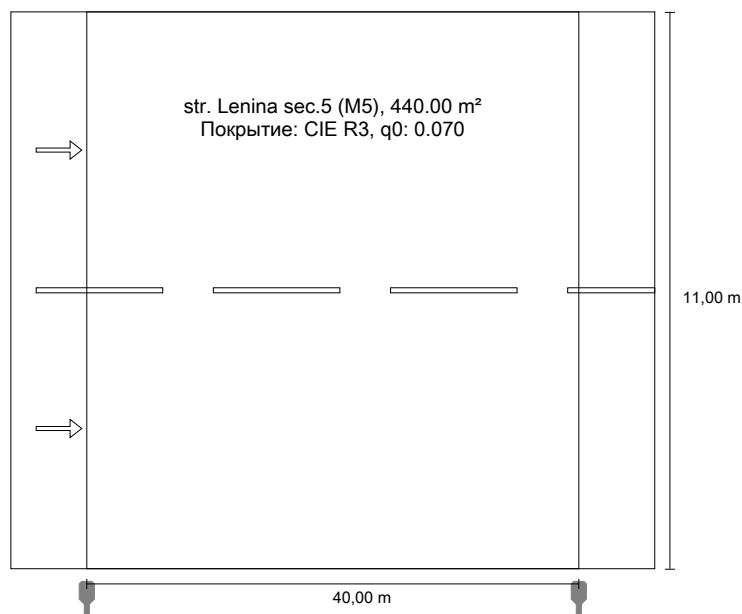


Освещенность при новой лампе



SIT 5 по EN 13201:2015

ECOCITY SRL PRO-STREET QUASAR S 70


Результаты для полей оценки
 Коэффициент эксплуатации: 0.85

str. Lenina sec.5 (M5)

L_{cp} [cd/m ²] ≥ 0.50	U_0 ≥ 0.35	UI ≥ 0.40	TI [%] ≤ 15	EIR ≥ 0.30
✓ 0.61	✓ 0.45	✓ 0.75	✓ 14	✓ 0.47

Результаты для показателей энергоэффективности

Индикатор плотности мощности (Dp)	0.018 W/lx ²
Интенсивность потребления энергии	
Расположение: PRO-STREET QUASAR S 70 (280.0 кВт-ч/год)	0.6 кВт-ч/м ² год

Лампа:	определяется пользователем
Световой поток (светильник):	9196.46 lm
Световой поток (лампа):	9590.00 lm
Рабочие часы	
4000 h:	100.0 %, 70.0 W
W/км:	1750.0
Расположение:	односторонне внизу
Расстояние между мачтами:	40.000 m
Наклон консоли (3):	10.0°
Длина консоли (4):	0.500 m
Высота световых точек (1):	11.000 m
Свес световой точки (2):	-0.500 m

ULR:	0.01
ULOR:	0.01
Наибольшие значения силы света	
при 70°:	629 cd/klm
при 80°:	410 cd/klm
при 90°:	58.1 cd/klm
Класс интенсивности света:	/

В во всех направлениях, которые образуют указанный угол с нижней вертикалью в инсталлированных и готовых к работе светильниках.

Компоновка отвечает классу индекса ослепления D.0

SIT 5: Альтернатива 5 / str. Lenina sec.5 (M5) / Изолинии

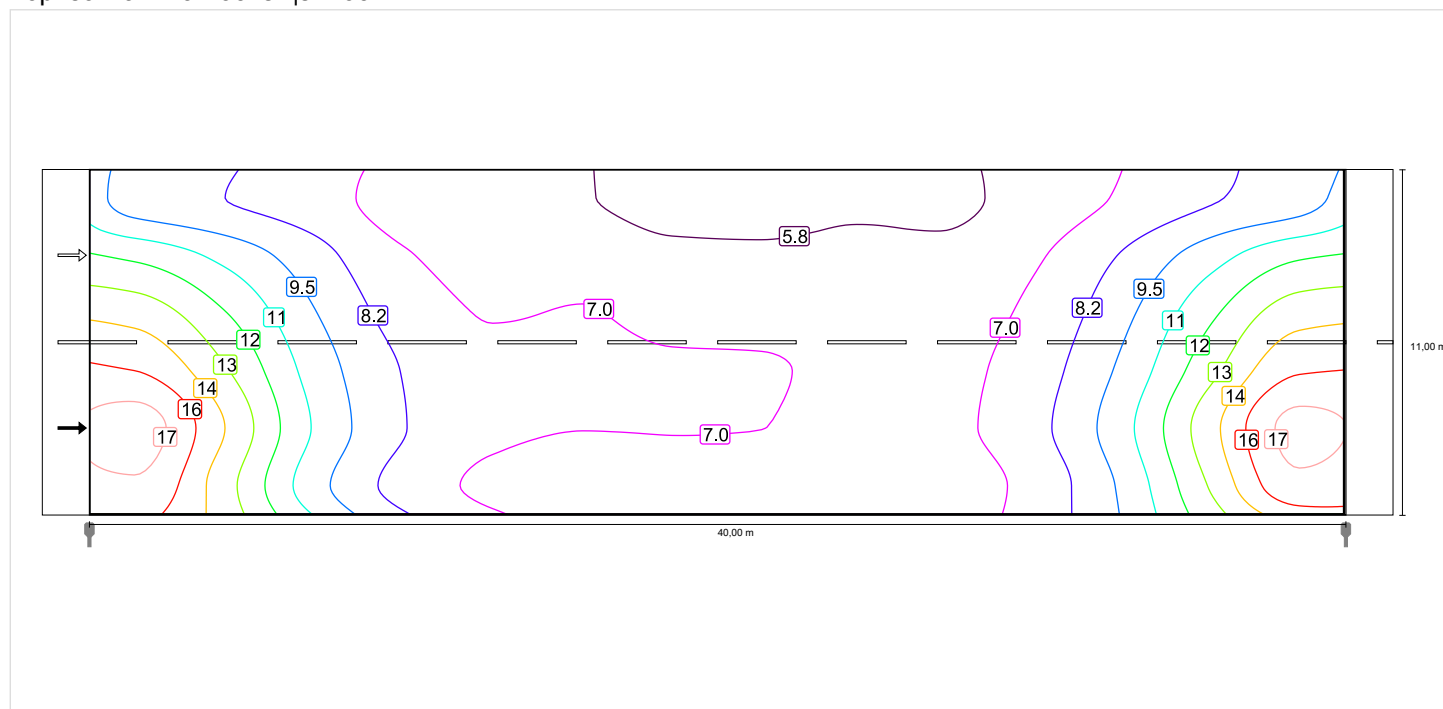
str. Lenina sec.5 (M5)

Коэффициент эксплуатации: 0.85

Растр: 14 x 6 Точки

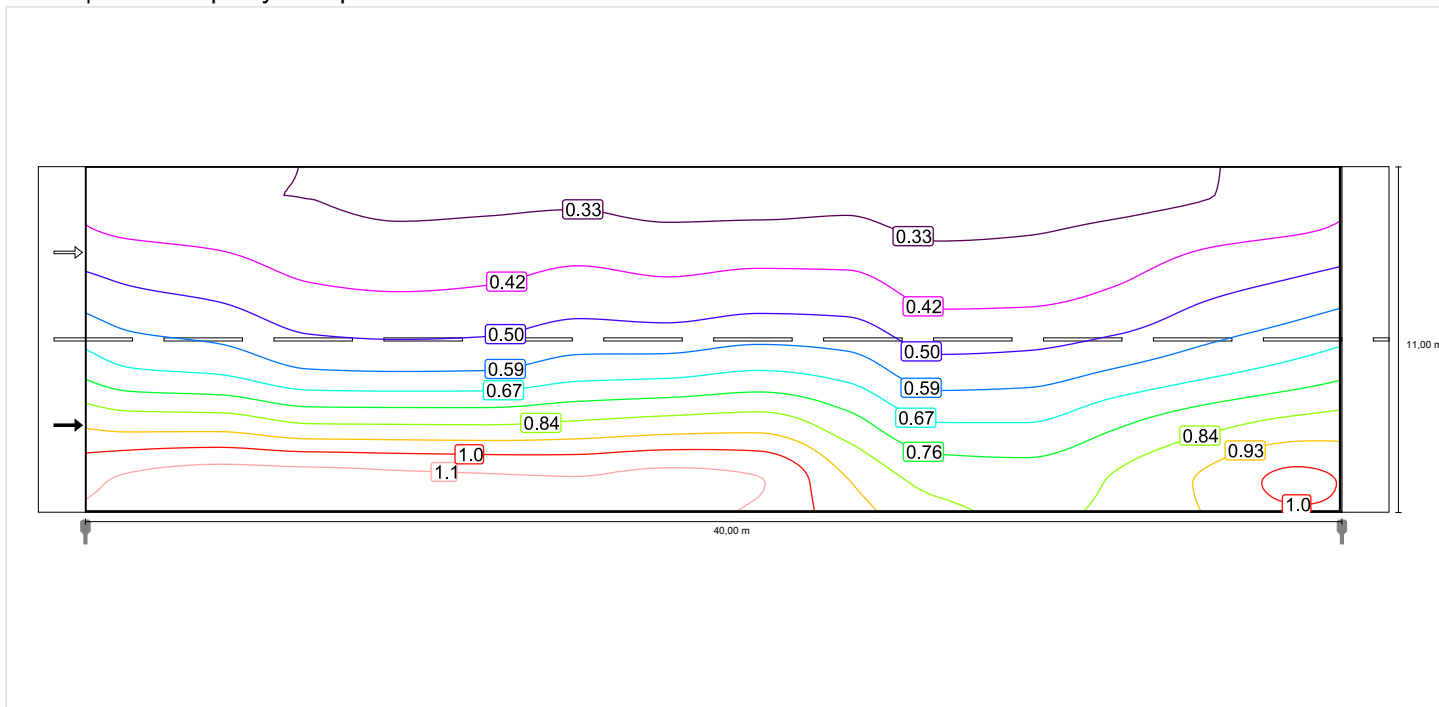
L_{cp} [cd/m ²] ≥ 0.50	U_0 ≥ 0.35	UI ≥ 0.40	TI [%] ≤ 15	EIR ≥ 0.30
✓ 0.61	✓ 0.45	✓ 0.75	✓ 14	✓ 0.47

Горизонтальная освещенность

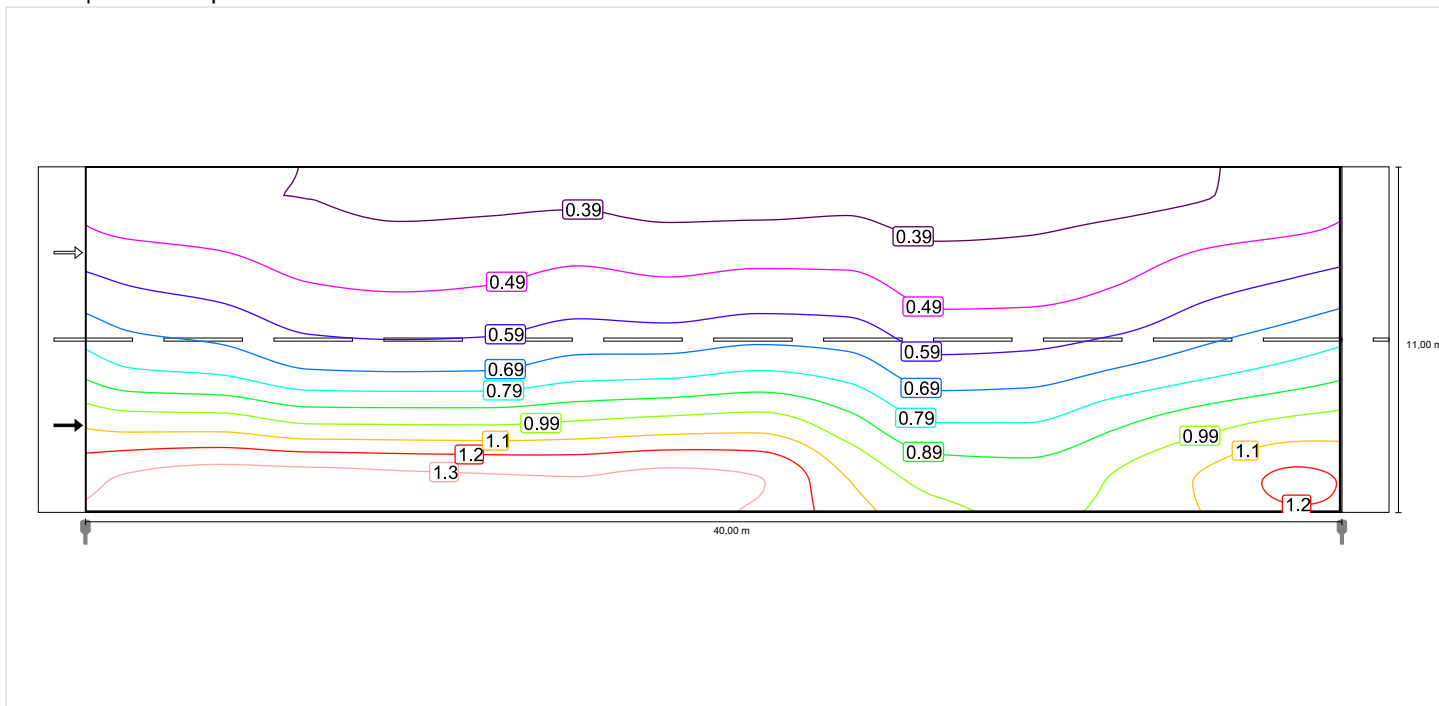


Наблюдатель 1

Освещенность при сухой проезжей части

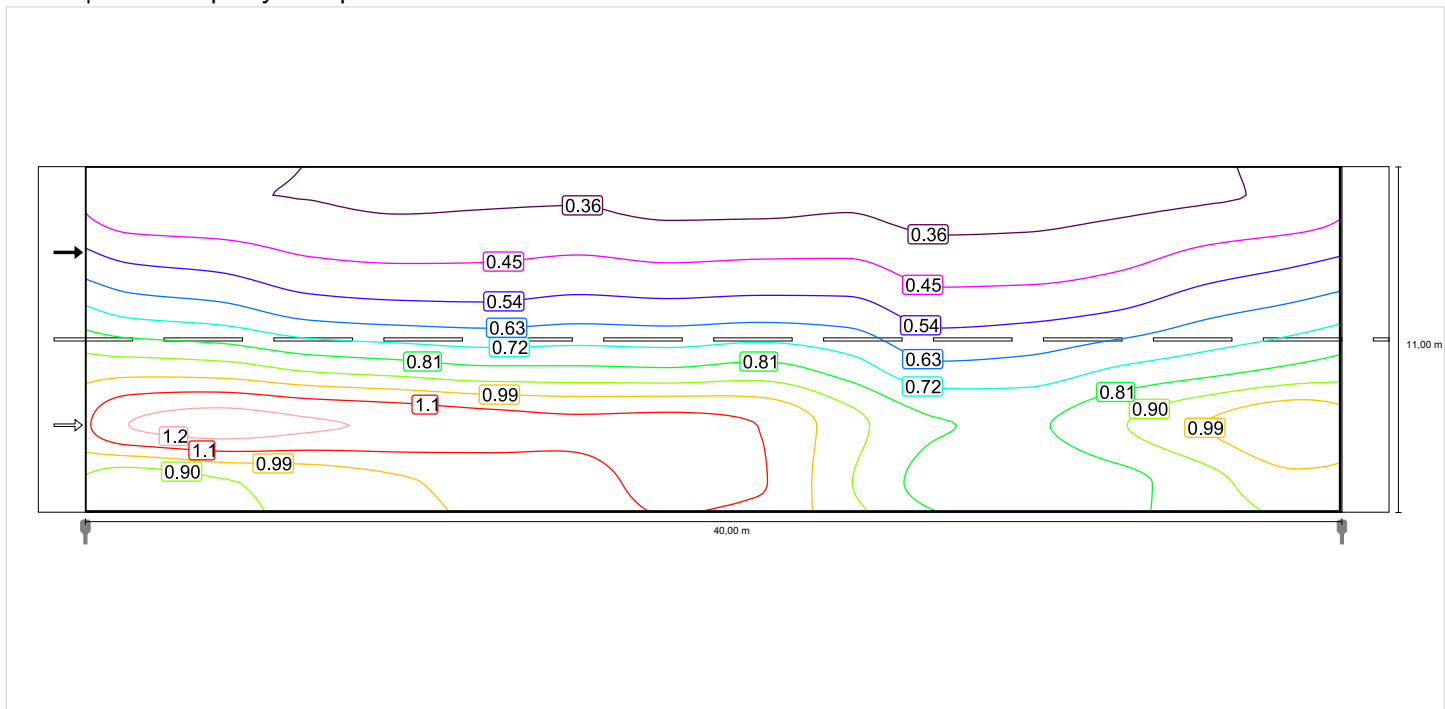


Освещенность при новой лампе

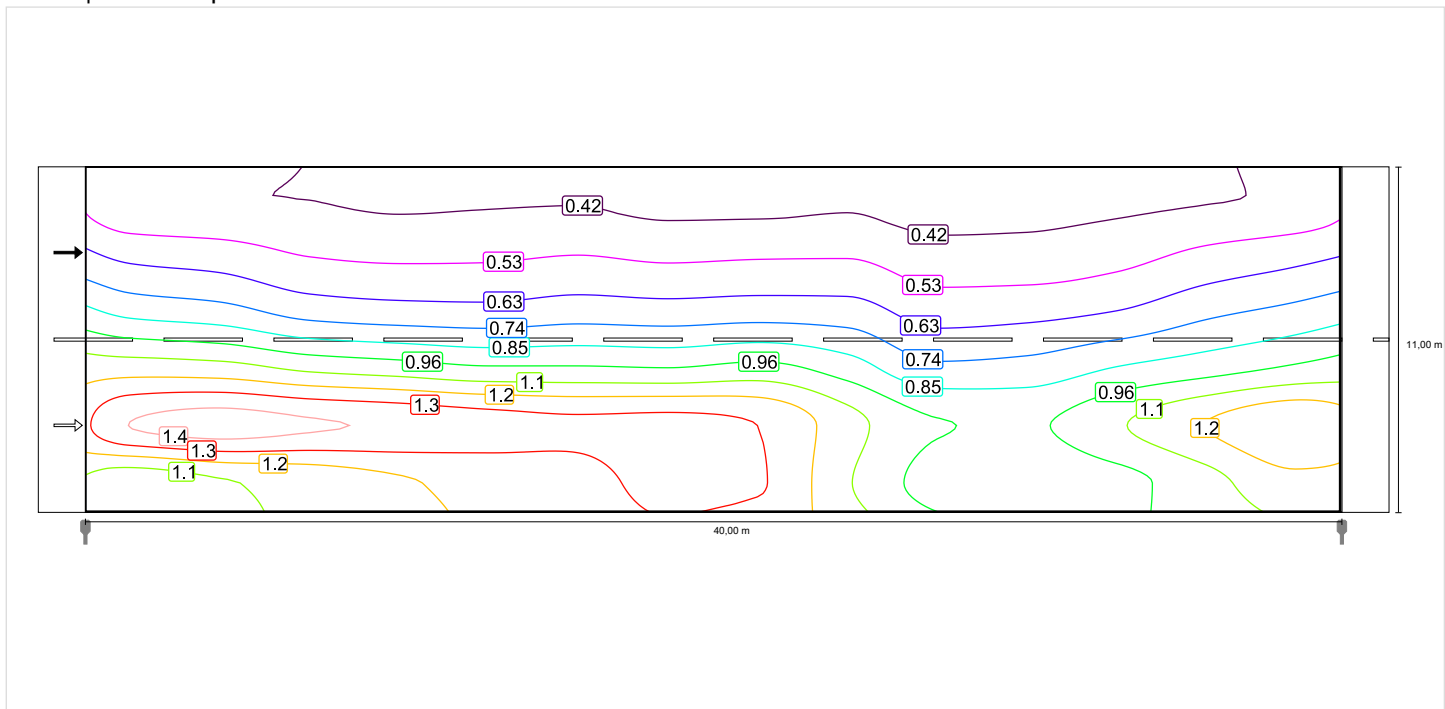


Наблюдатель 2

Освещенность при сухой проезжей части

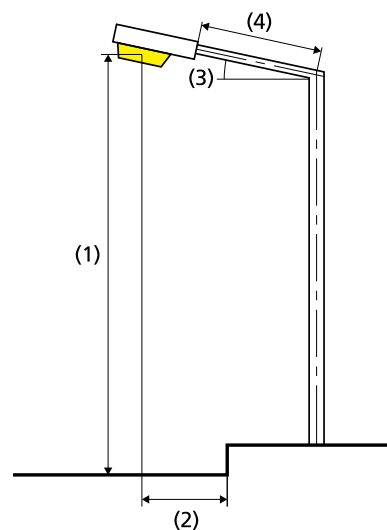
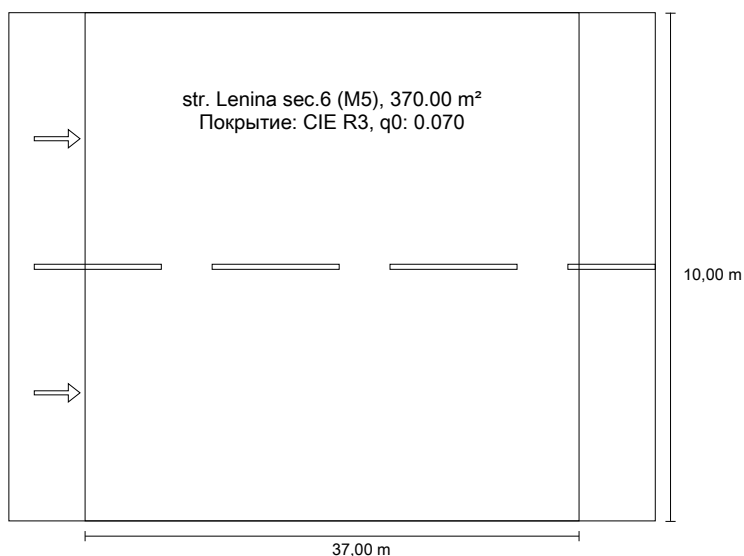


Освещенность при новой лампе



SIT 6 по EN 13201:2015

ECOCITY SRL PRO-STREET QUASAR S 70


Результаты для полей оценки
 Коэффициент эксплуатации: 0.85

str. Lenina sec.6 (M5)

Lcp [cd/m ²] ≥ 0.50	Uo ≥ 0.35	UI ≥ 0.40	TI [%] ≤ 15	EIR ≥ 0.30
✓ 0.53	✓ 0.46	✓ 0.76	✓ 14	✓ 0.61

Результаты для показателей энергоэффективности

Индикатор плотности мощности (Dp)	0.022 W/lx·m ²
Интенсивность потребления энергии	
Расположение: PRO-STREET QUASAR S 70 (280.0 кВт·ч/год)	0.8 кВт·ч/m ² год

Лампа:	1xLED
Световой поток (светильник):	9196.46 lm
Световой поток (лампа):	9590.00 lm
Рабочие часы	
4000 h:	100.0 %, 70.0 W
W/км:	1890.0
Расположение:	односторонне вниз
Расстояние между мачтами:	37.000 m
Наклон консоли (3):	15.0°
Длина консоли (4):	0.500 m
Высота световых точек (1):	11.000 m
Свес световой точки (2):	-3.000 m

ULR:	0.02
ULOR:	0.01
Наибольшие значения силы света	
при 70°:	629 cd/klm
при 80°:	512 cd/klm
при 90°:	84.8 cd/klm
Класс интенсивности света:	/

В во всех направлениях, которые образуют указанный угол с нижней вертикалью в установленных и готовых к работе светильниках.

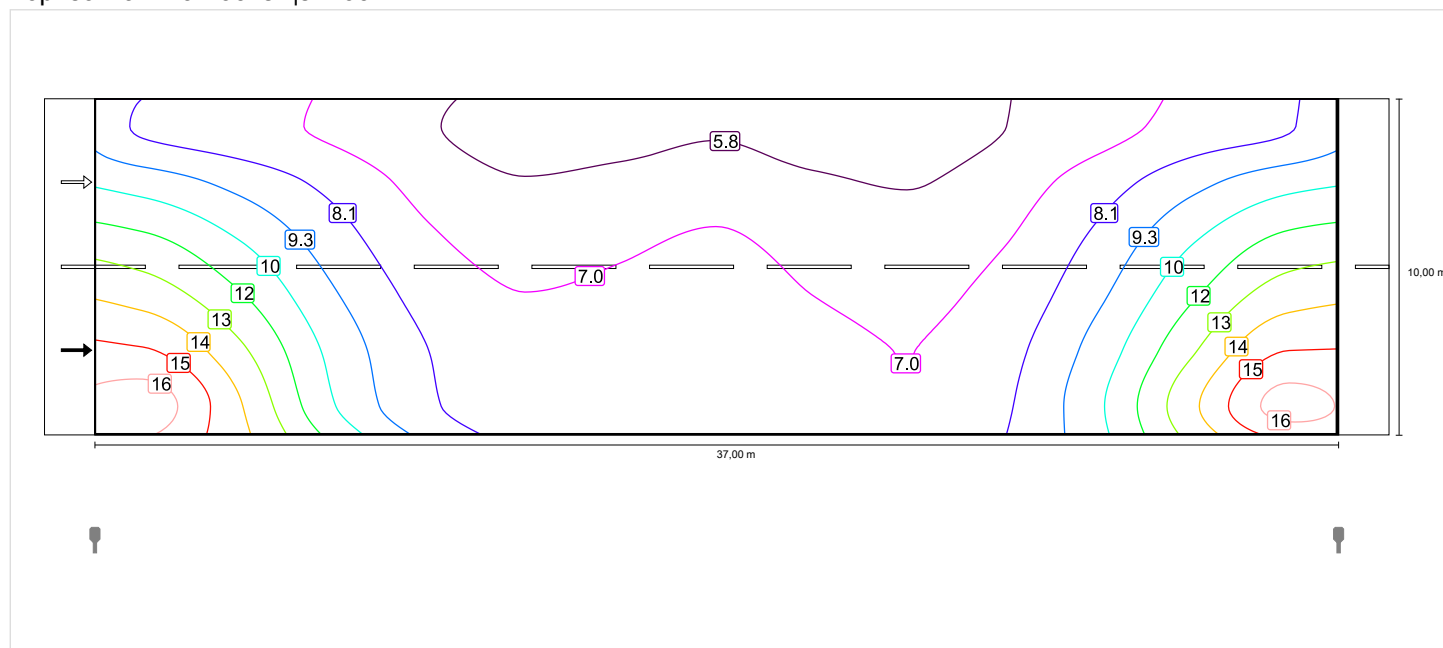
Компоновка отвечает классу индекса ослепления D.0

str. Lenina sec.6 (M5)

Коэффициент эксплуатации: 0.85
 Растр: 13 x 6 Точки

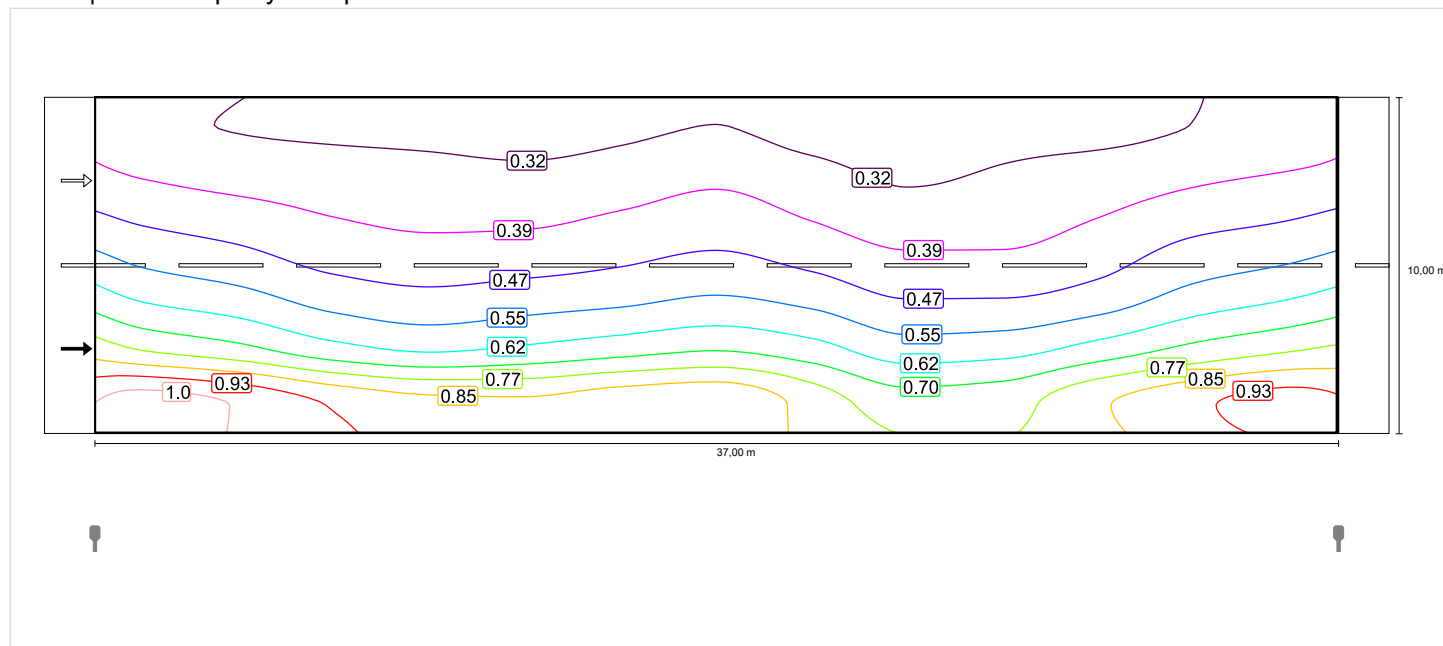
L_{cp} [cd/m ²] ≥ 0.50	U_0 ≥ 0.35	UI ≥ 0.40	TI [%] ≤ 15	EIR ≥ 0.30
✓ 0.53	✓ 0.46	✓ 0.76	✓ 14	✓ 0.61

Горизонтальная освещенность

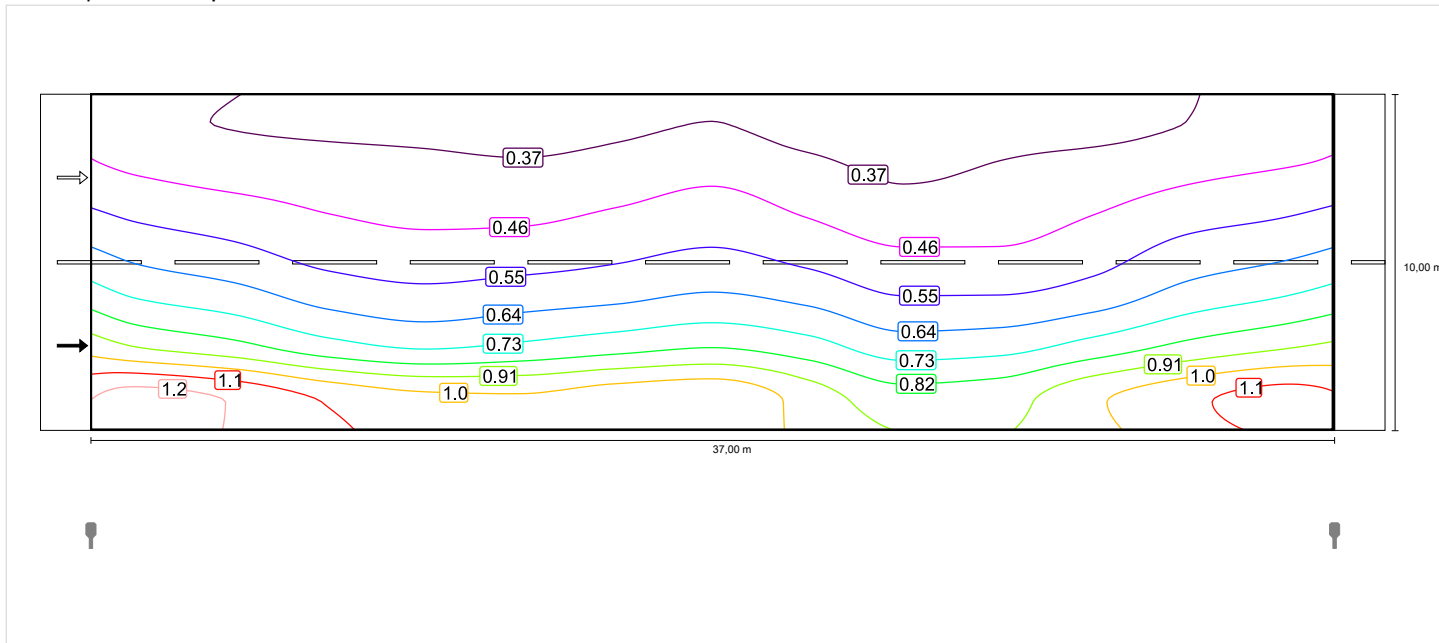


Наблюдатель 1

Освещенность при сухой проезжей части

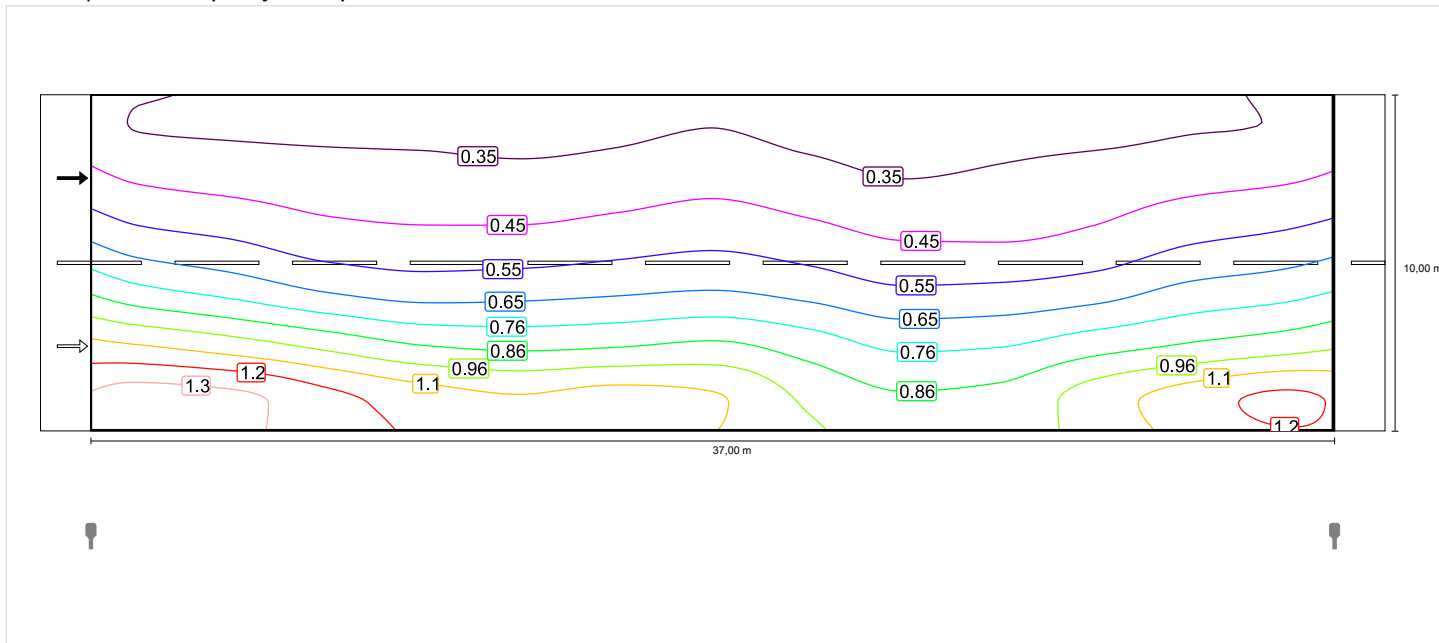


Освещенность при новой лампе

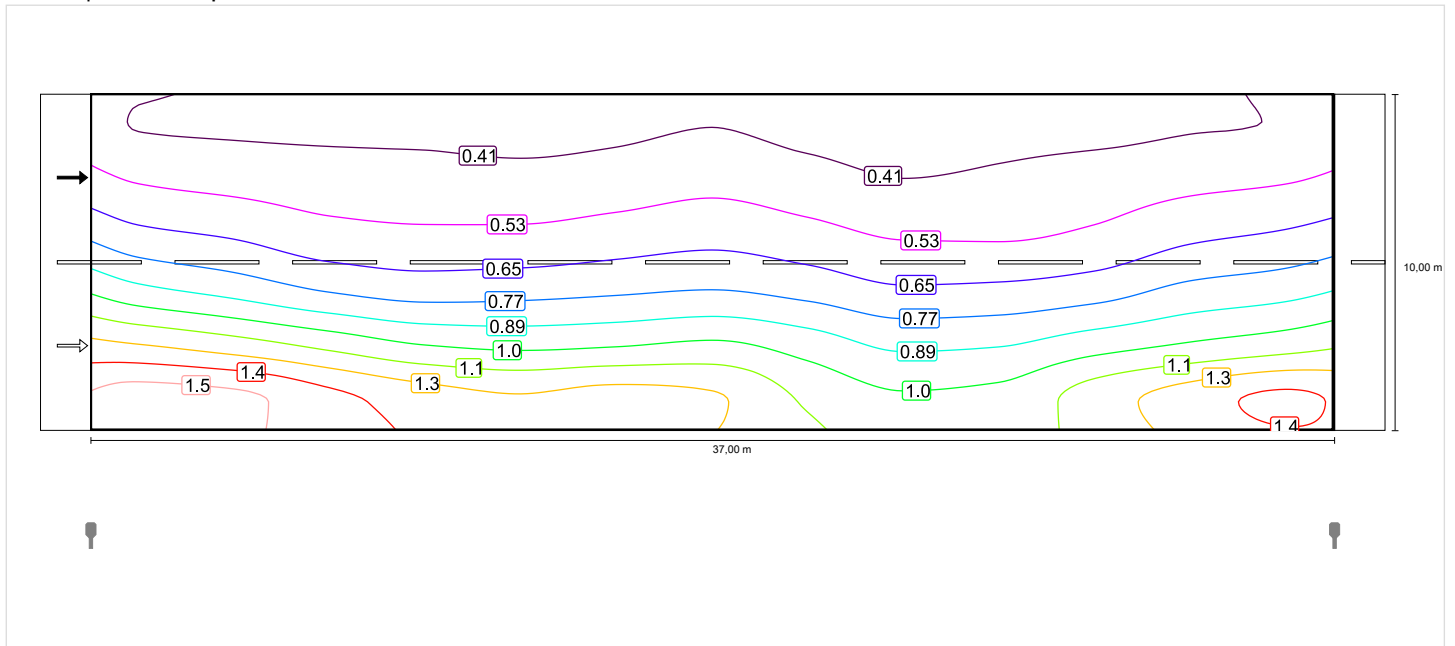


Наблюдатель 2

Освещенность при сухой проезжей части

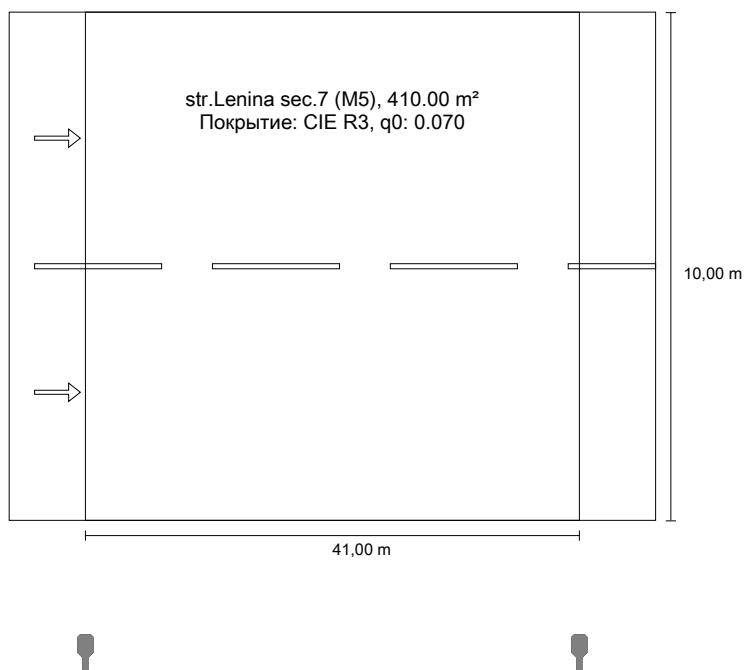


Освещенность при новой лампе



SIT 7 по EN 13201:2015

ECOCITY SRL PRO-STREET QUASAR S 70


Результаты для полей оценки
 Коэффициент эксплуатации: 0.85

str.Lenina sec.7 (M5)

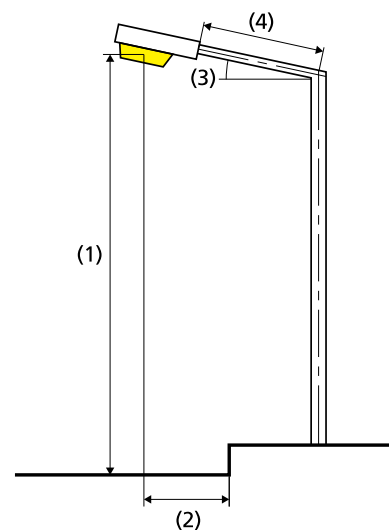
L_{cp} [cd/m ²] ≥ 0.50	U_0 ≥ 0.35	U_l ≥ 0.40	TI [%] ≤ 15	EIR ≥ 0.30
✓ 1.00	✓ 0.48	✓ 0.75	✓ 15	✓ 0.60

Результаты для показателей энергоэффективности

Индикатор плотности мощности (Dp) 0.011 W/lx²

Случай планирования с несколькими группами светильников не подпадает под норму EN 13201:2015-5. Поэтому расчет показателей мощности осуществляется только для группы светильников, расстояние которых между мачтами определяет длину нормированных полей.

Интенсивность потребления энергии

Расположение 1: PRO-STREET QUASAR S 70 (280.0 кВт- 0.7 кВт-ч/м² год ч/год)Расположение 2: PRO-STREET QUASAR S 70 (280.0 кВт- 0.7 кВт-ч/м² год ч/год)

Расстояние между мачтами этой группы светильников определяет длину нормированных полей.

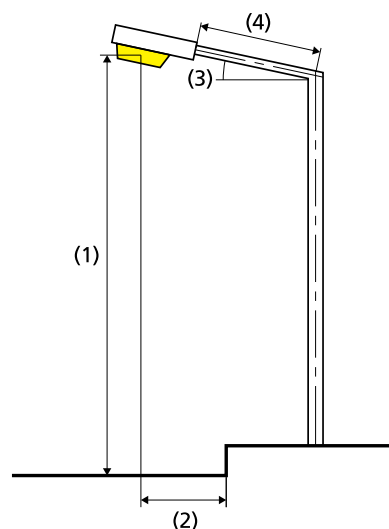
Лампа:	1xLED
Световой поток (светильник):	9196.46 lm
Световой поток (лампа):	9590.00 lm
Рабочие часы	
4000 h:	100.0 %, 70.0 W
W/km:	1680.0
Расположение:	односторонне вниз
Расстояние между мачтами:	41.000 m
Наклон консоли (3):	10.0°
Длина консоли (4):	0.500 m
Высота световых точек (1):	11.000 m
Свес световой точки (2):	-2.500 m

ULR:	0.01
ULOR:	0.01
Наибольшие значения силы света	
при 70°:	629 cd/klm
при 80°:	410 cd/klm
при 90°:	58.1 cd/klm
Класс интенсивности света:	/

В во всех направлениях, которые образуют указанный угол с нижней вертикалью в инсталлированных и готовых к работе светильниках.

Компоновка отвечает классу индекса ослепления D.0

ECOCITY SRL PRO-STREET QUASAR S 70



Лампа:	1xLED
Световой поток (светильник):	9196.46 lm
Световой поток (лампа):	9590.00 lm
Рабочие часы	
4000 h:	100.0 %, 70.0 W
W/км:	1680.0
Расположение:	односторонне внизу
Расстояние между мачтами:	41.000 m
Наклон консоли (3):	10.0°
Длина консоли (4):	0.500 m
Высота световых точек (1):	13.000 m
Свес световой точки (2):	-2.500 m

ULR:	0.01
ULOR:	0.01
Наибольшие значения силы света	
при 70°:	629 cd/klm
при 80°:	410 cd/klm
при 90°:	58.1 cd/klm
Класс интенсивности света:	/

В во всех направлениях, которые образуют указанный угол с нижней вертикалью в инсталлированных и готовых к работе светильниках.

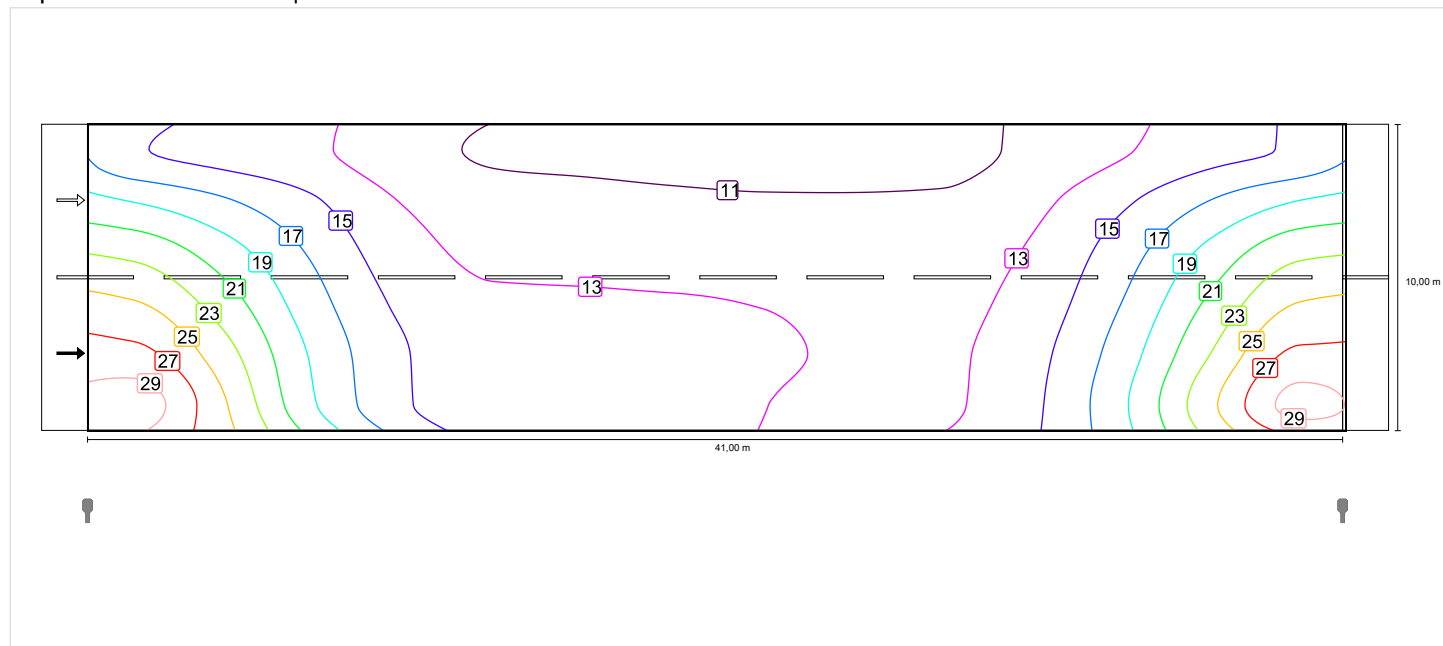
Компоновка отвечает классу индекса ослепления D.0

str.Lenina sec.7 (M5)

Коэффициент эксплуатации: 0.85
 Растр: 14 x 6 Точки

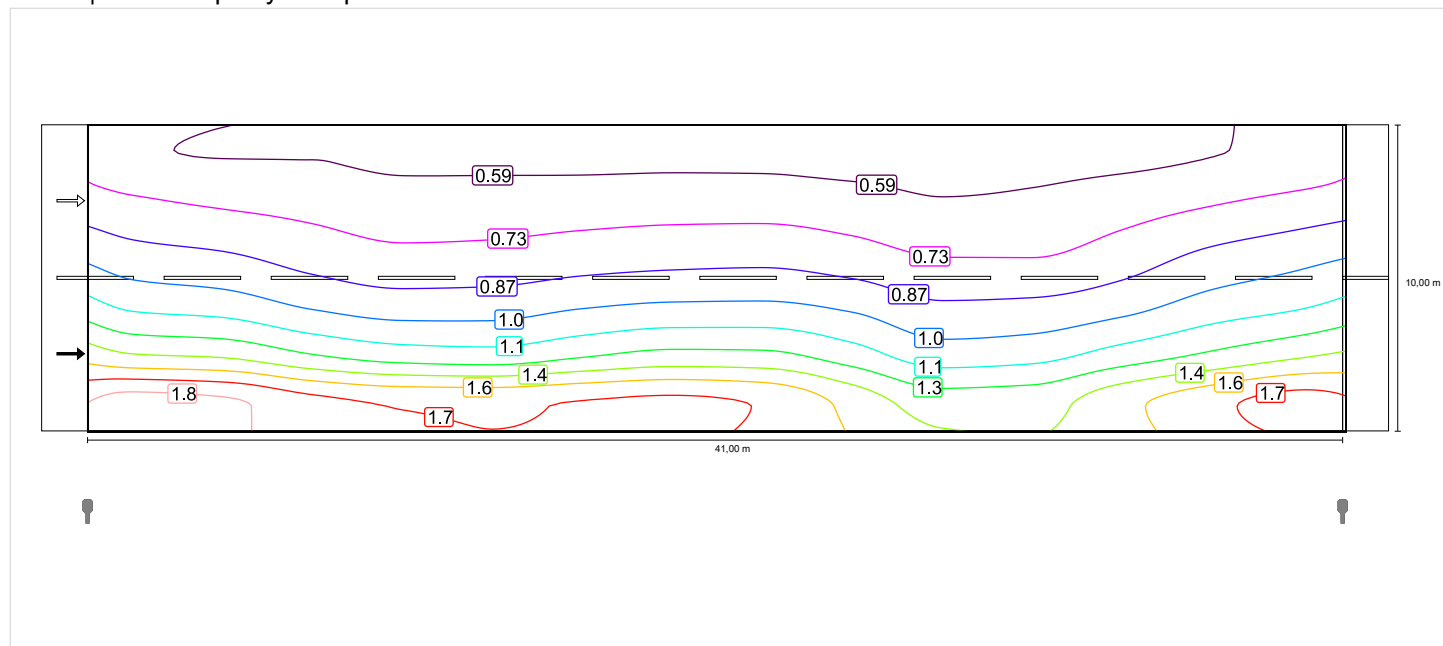
L_{cp} [cd/m ²] ≥ 0.50	U_o ≥ 0.35	UI ≥ 0.40	TI [%] ≤ 15	EIR ≥ 0.30
✓ 1.00	✓ 0.48	✓ 0.75	✓ 15	✓ 0.60

Горизонтальная освещенность

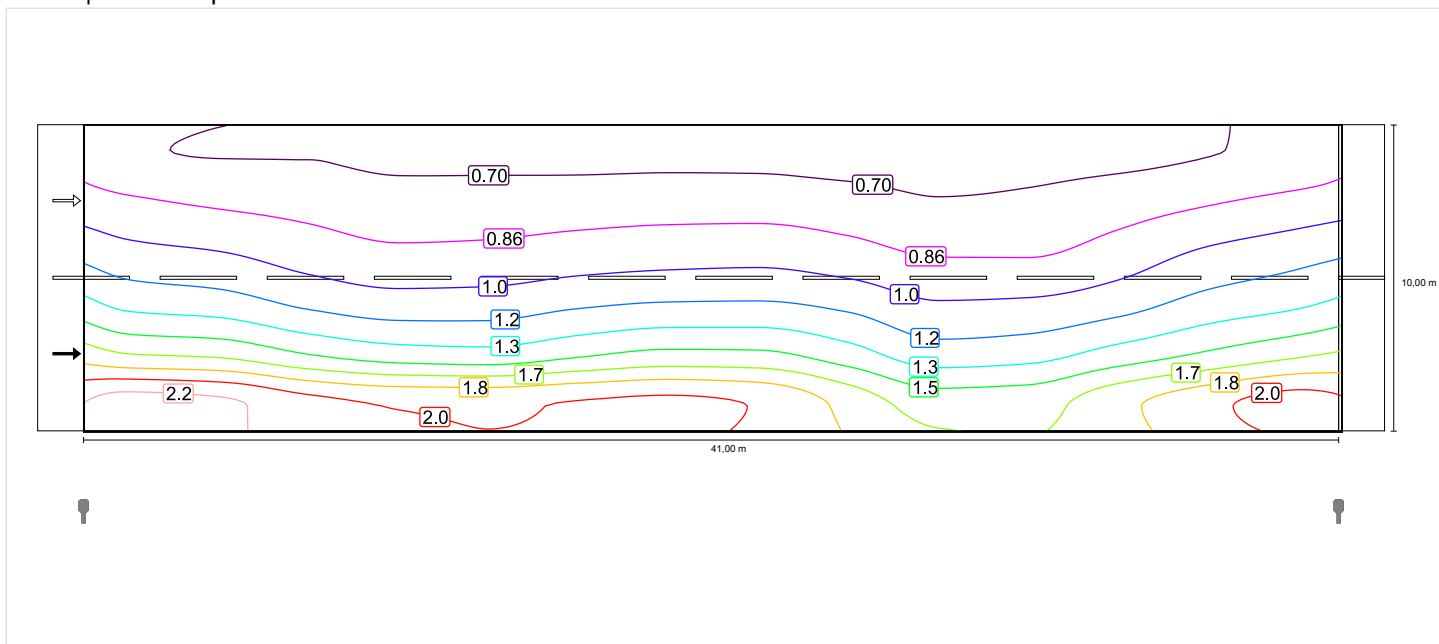


Наблюдатель 1

Освещенность при сухой проезжей части

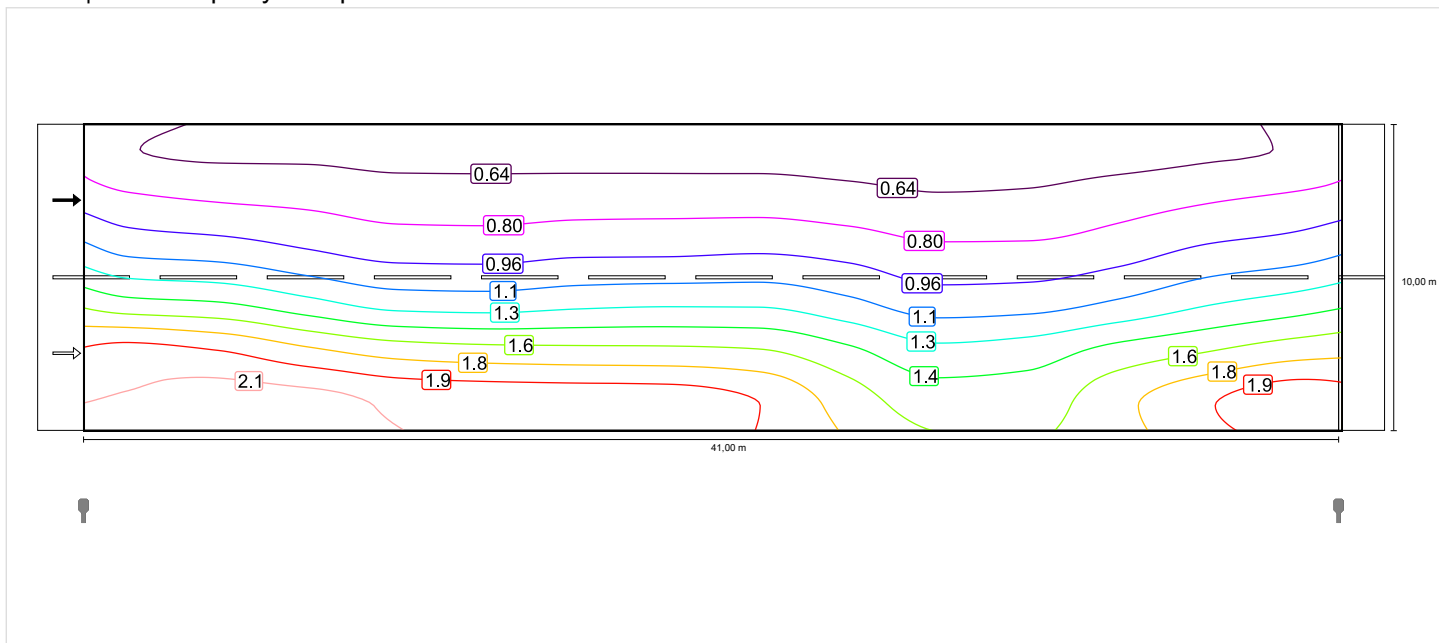


Освещенность при новой лампе

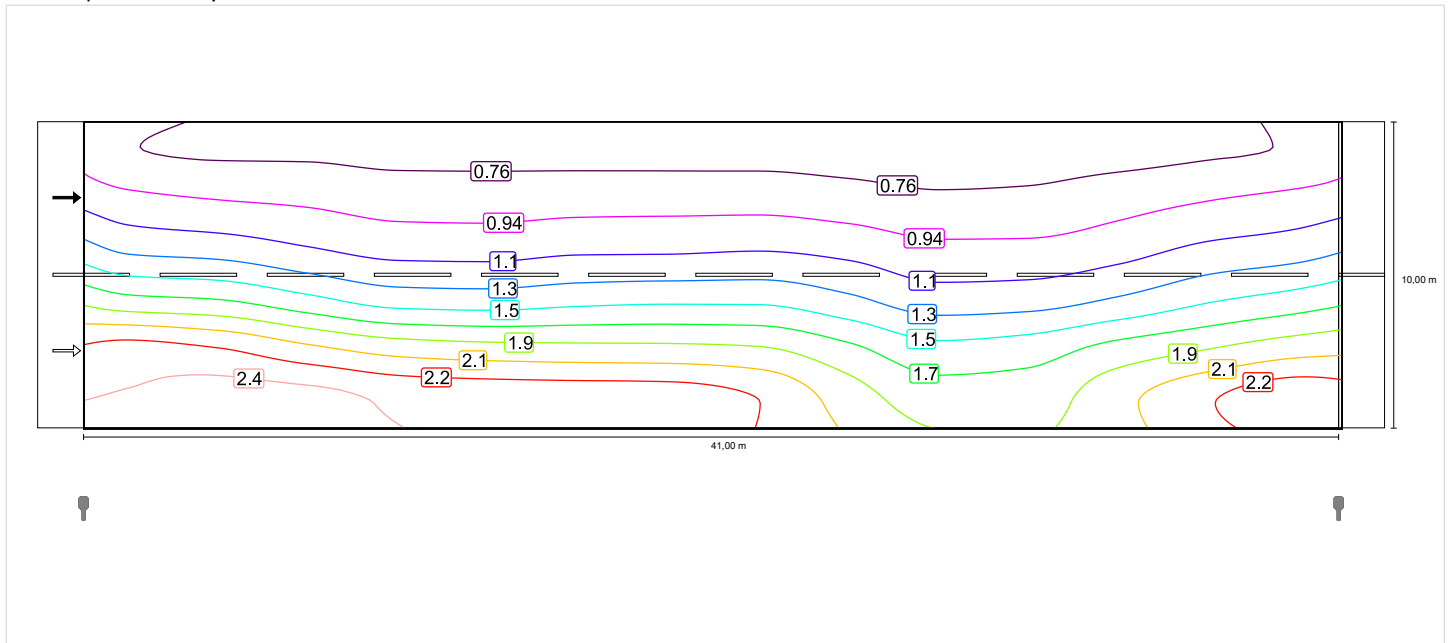


Наблюдатель 2

Освещенность при сухой проезжей части

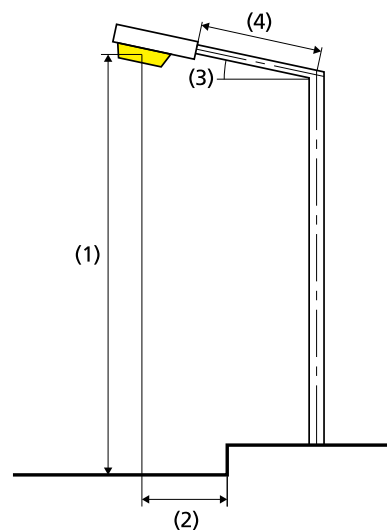
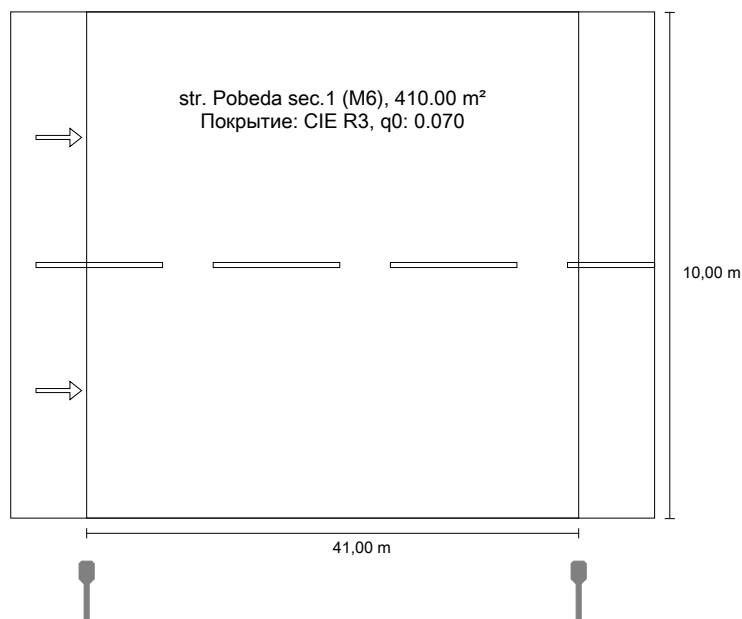


Освещенность при новой лампе



SIT 8 по EN 13201:2015

ECOCITY SRL PRO-STREET QUASAR S 50



Результаты для полей оценки
Коэффициент эксплуатации: 0.85

str. Pobeda sec.1 (M6)

L _{cp} [cd/m ²] ≥ 0.30	U _o ≥ 0.35	U _l ≥ 0.40	TI [%] ≤ 20	EIR ≥ 0.30
✓ 0.44	✓ 0.44	✓ 0.72	✓ 17	✓ 0.45

Результаты для показателей энергоэффективности

Индикатор плотности мощности (D _p)	0.019 W/lxm ²
Интенсивность потребления энергии	
Расположение: PRO-STREET QUASAR S 50 (200.0 кВт-ч/год)	0.5 кВт-ч/м ² год

Лампа:	1xLED
Световой поток (светильник):	6568.90 lm
Световой поток (лампа):	6850.00 lm
Рабочие часы	
4000 h:	100.0 %, 50.0 W
W/km:	1200.0
Расположение:	односторонне вниз
Расстояние между мачтами:	41.000 m
Наклон консоли (3):	15.0°
Длина консоли (4):	1.000 m
Высота световых точек (1):	9.500 m
Свес световой точки (2):	-1.100 m

ULR:	0.02
ULOR:	0.01
Наибольшие значения силы света	
при 70°:	629 cd/klm
при 80°:	512 cd/klm
при 90°:	84.8 cd/klm
Класс интенсивности света:	/

В во всех направлениях, которые образуют указанный угол с нижней вертикалью в инсталлированных и готовых к работе светильниках.

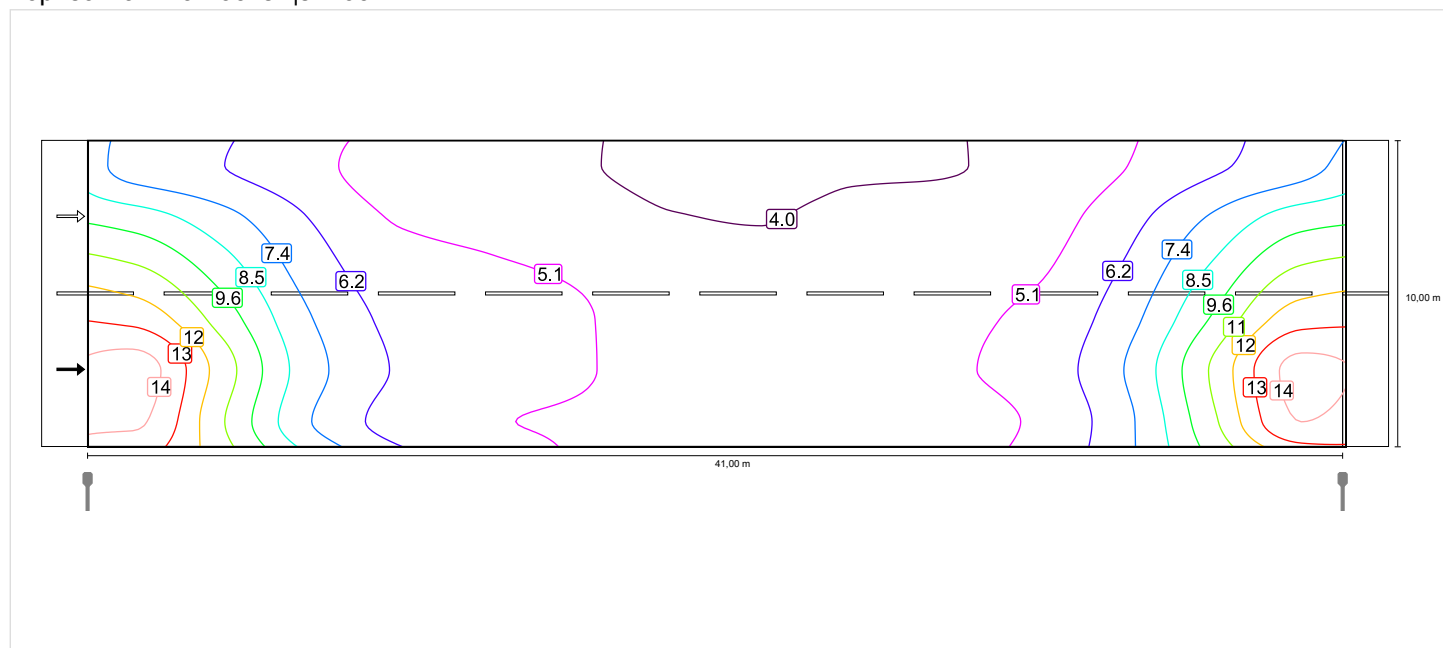
Компоновка отвечает классу индекса ослепления D.0

str. Pobeda sec.1 (M6)

Коэффициент эксплуатации: 0.85
 Растр: 14 x 6 Точки

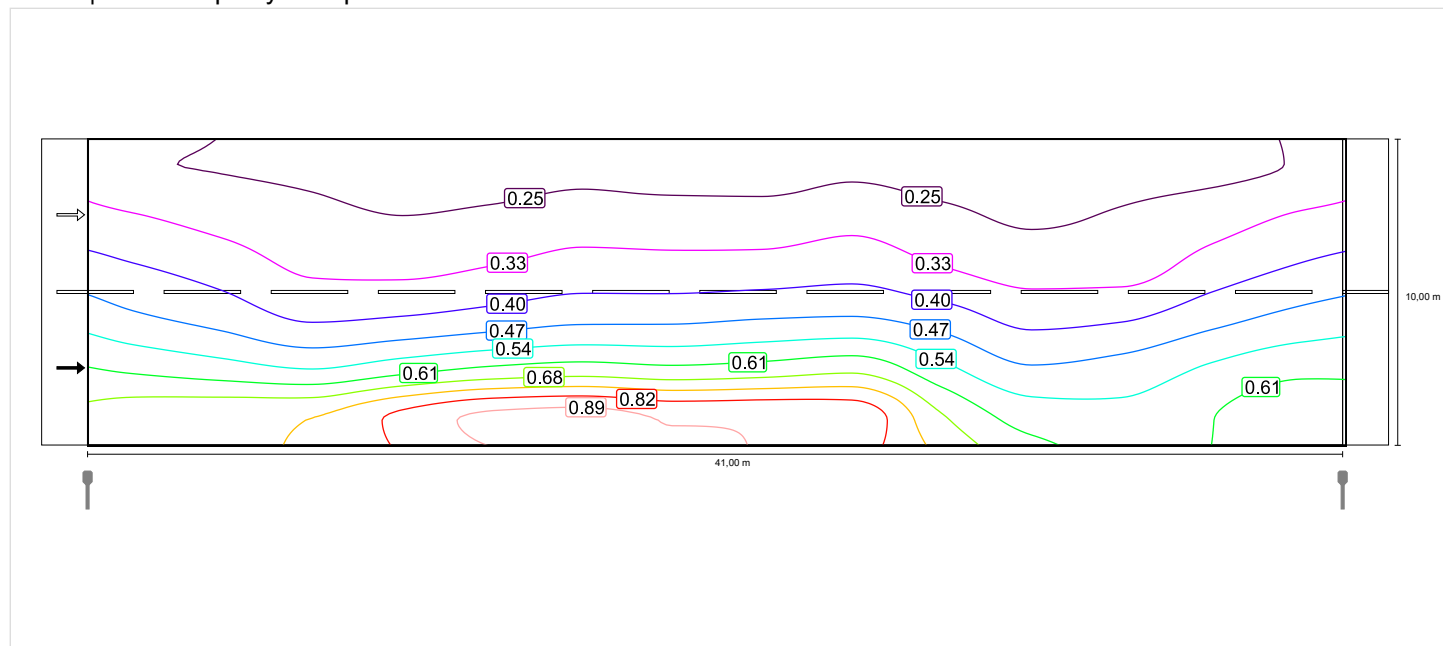
L_{cp} [cd/m ²] ≥ 0.30	U_0 ≥ 0.35	UI ≥ 0.40	TI [%] ≤ 20	EIR ≥ 0.30
✓ 0.44	✓ 0.44	✓ 0.72	✓ 17	✓ 0.45

Горизонтальная освещенность

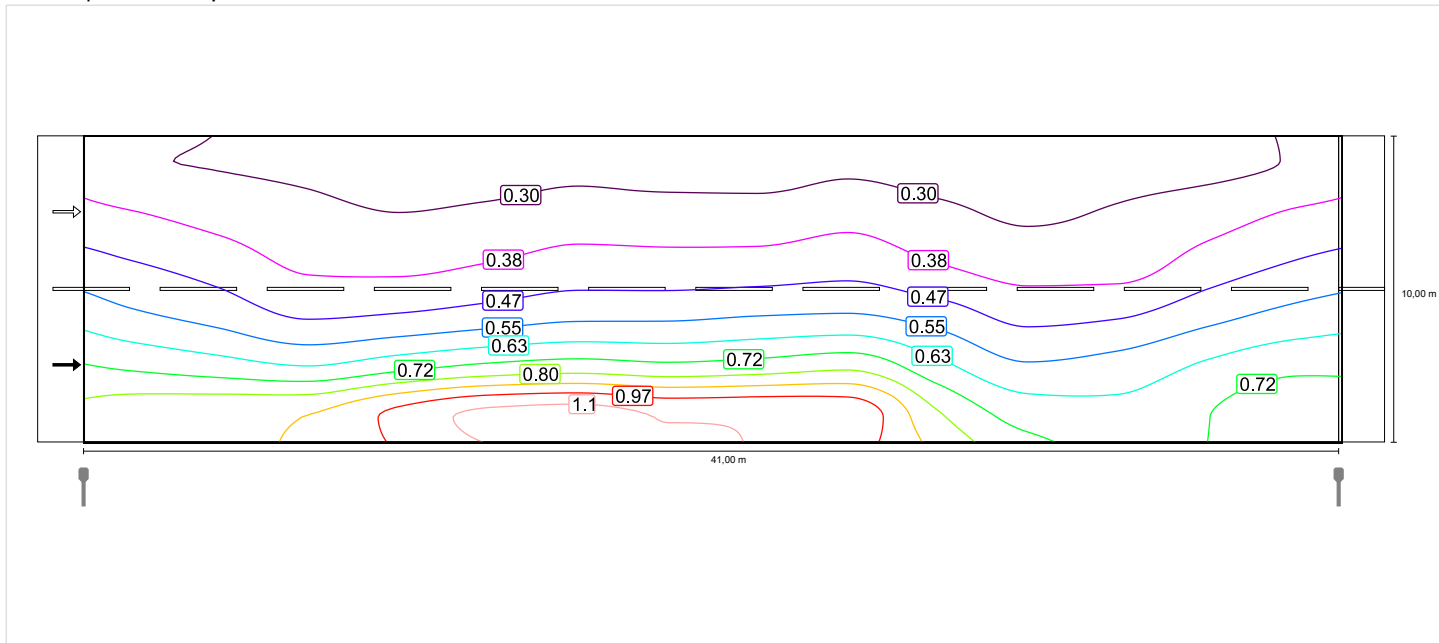


Наблюдатель 1

Освещенность при сухой проезжей части

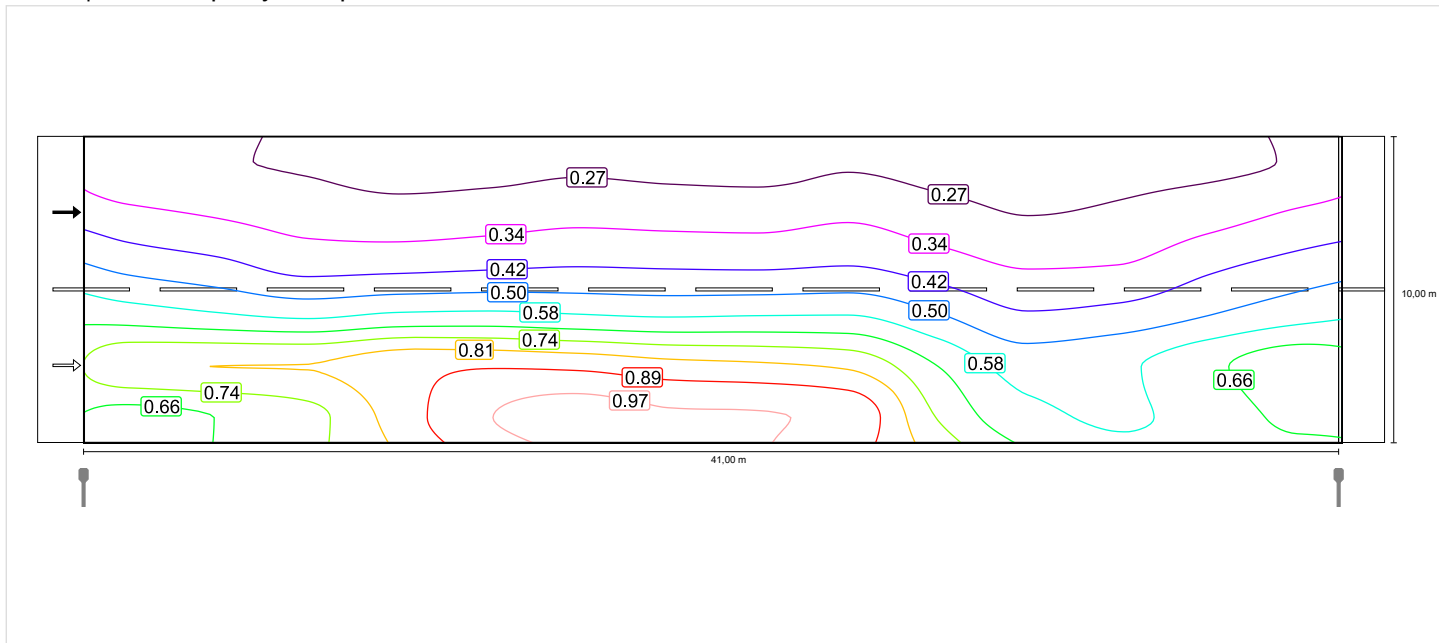


Освещенность при новой лампе

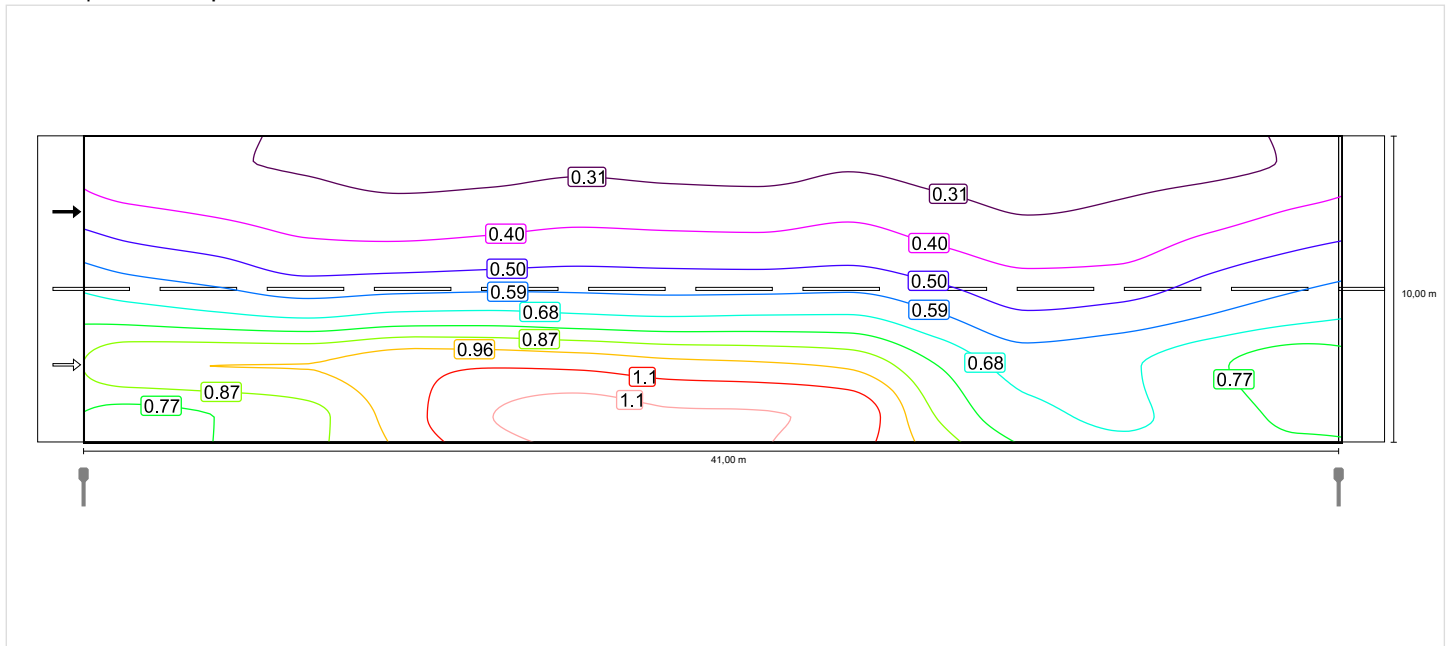


Наблюдатель 2

Освещенность при сухой проезжей части

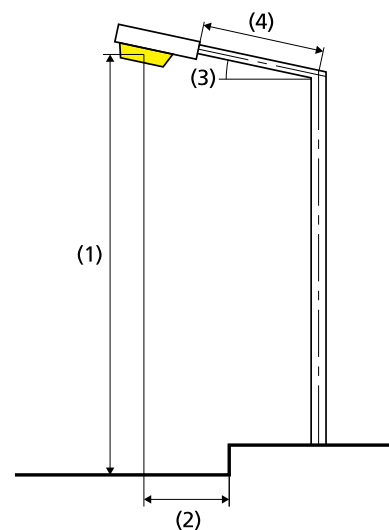
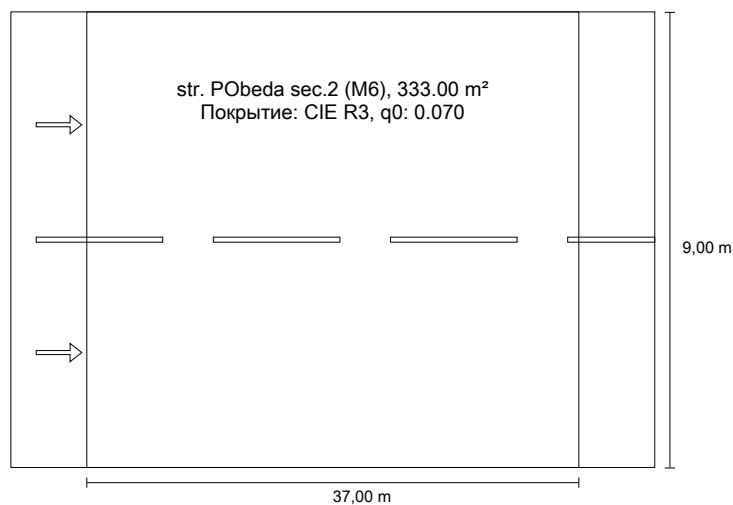


Освещенность при новой лампе



SIT 9 по EN 13201:2015

ECOCITY SRL PRO-STREET QUASAR S 50


Результаты для полей оценки
 Коэффициент эксплуатации: 0.85

str. PObeda sec.2 (M6)

L_{sp} [cd/m ²] ≥ 0.30	U_0 ≥ 0.35	UI ≥ 0.40	TI [%] ≤ 20	EIR ≥ 0.30
✓ 0.45	✓ 0.43	✓ 0.77	✓ 20	✓ 0.50

Результаты для показателей энергоэффективности

Индикатор плотности мощности (Dp)	0.020 W/lxm ²
Интенсивность потребления энергии	
Расположение: PRO-STREET QUASAR S 50 (200.0 кВт-ч/год)	0.6 кВт-ч/m ² год

Лампа:	1xLED
Световой поток (светильник):	6568.90 lm
Световой поток (лампа):	6850.00 lm
Рабочие часы	
4000 h:	100.0 %, 50.0 W
W/km:	1350.0
Расположение:	односторонне вниз
Расстояние между мачтами:	37.000 m
Наклон консоли (3):	15.0°
Длина консоли (4):	0.500 m
Высота световых точек (1):	8.000 m
Свес световой точки (2):	-2.500 m

ULR:	0.02
ULOR:	0.01
Наибольшие значения силы света	
при 70°:	629 cd/klm
при 80°:	512 cd/klm
при 90°:	84.8 cd/klm
Класс интенсивности света:	/

В во всех направлениях, которые образуют указанный угол с нижней вертикалью в инсталлированных и готовых к работе светильниках.

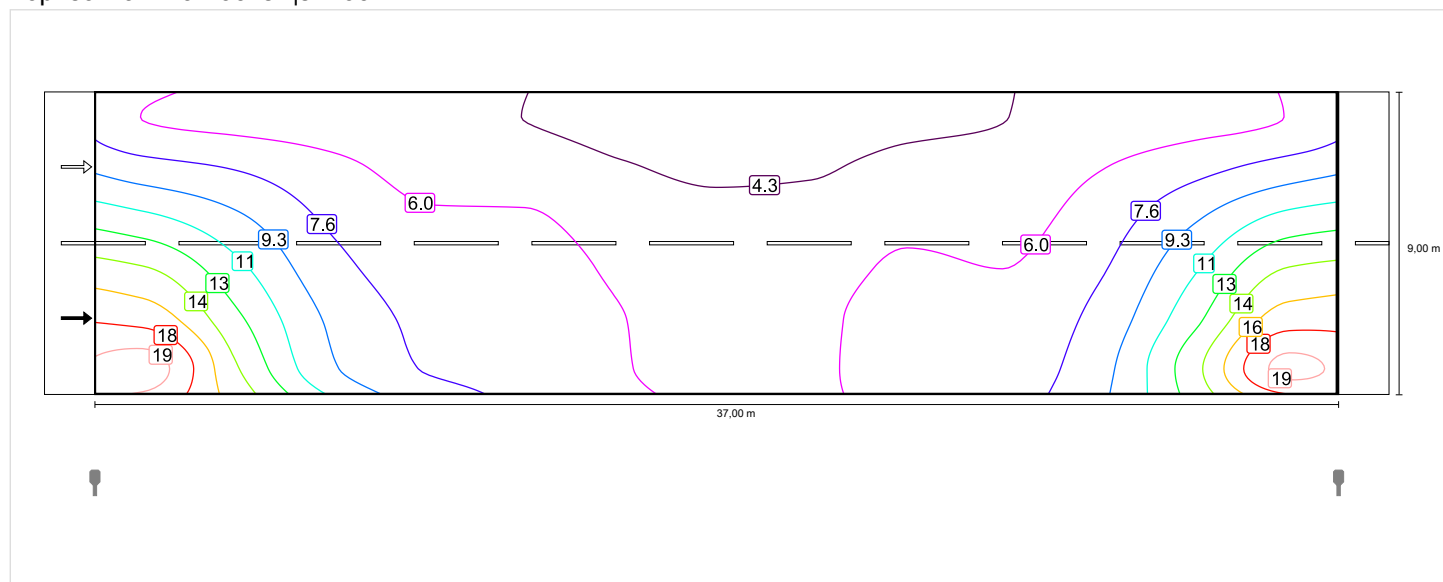
Компоновка отвечает классу индекса ослепления D.0

str. PObeda sec.2 (M6)

Коэффициент эксплуатации: 0.85
 Растр: 13 x 6 Точки

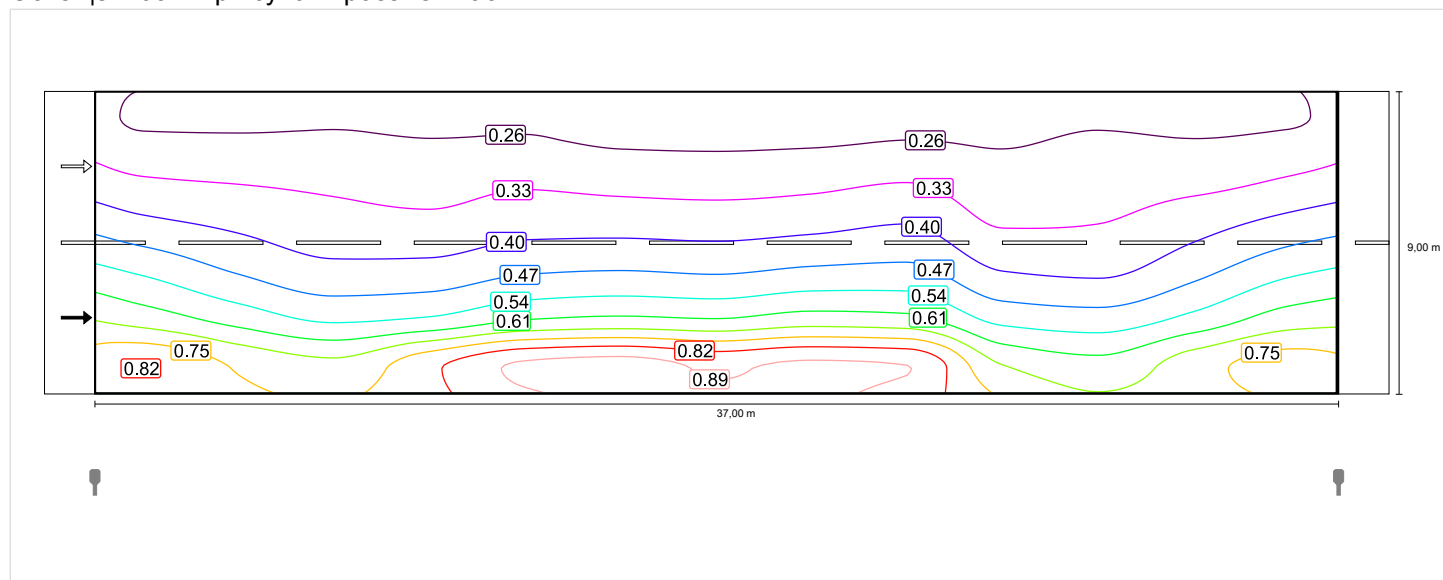
L_{cp} [cd/m ²] ≥ 0.30	U_o ≥ 0.35	U_I ≥ 0.40	TI [%] ≤ 20	EIR ≥ 0.30
✓ 0.45	✓ 0.43	✓ 0.77	✓ 20	✓ 0.50

Горизонтальная освещенность

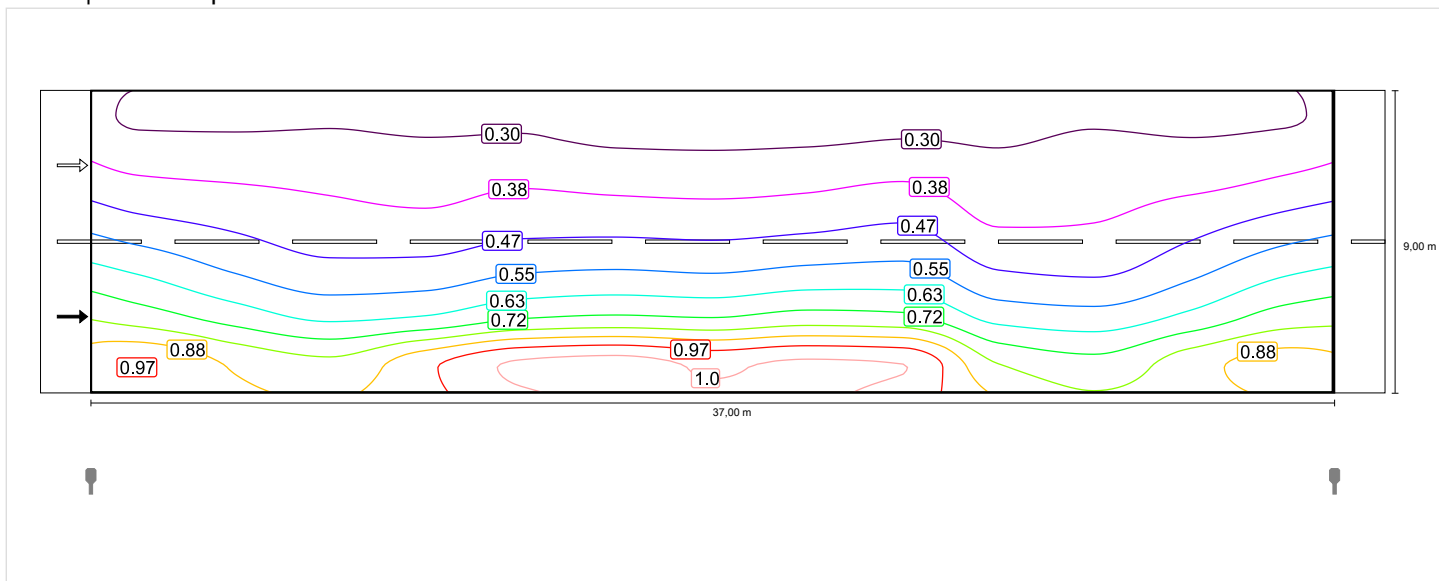


Наблюдатель 1

Освещенность при сухой проезжей части

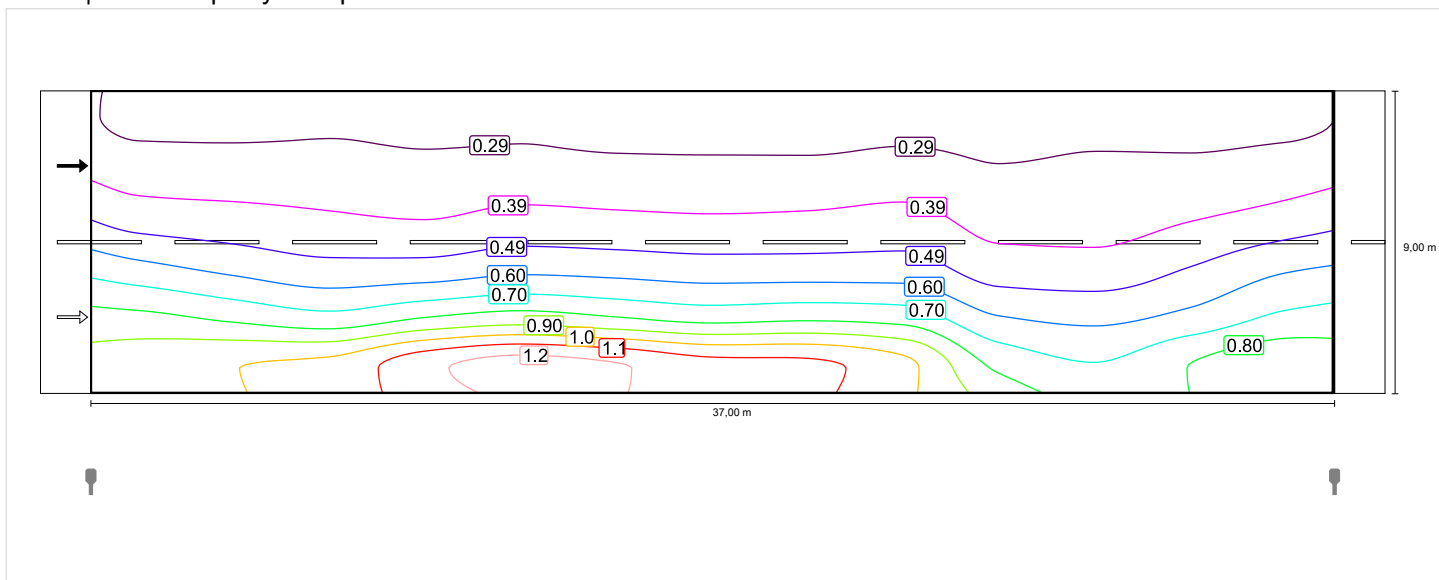


Освещенность при новой лампе

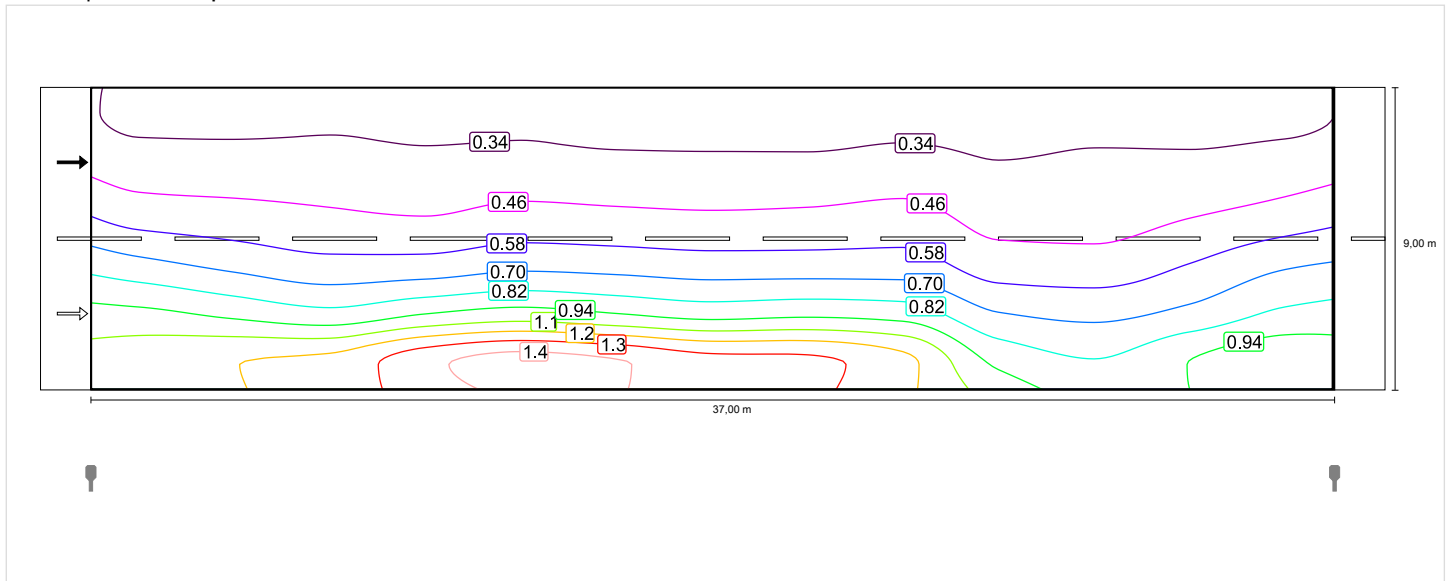


Наблюдатель 2

Освещенность при сухой проезжей части

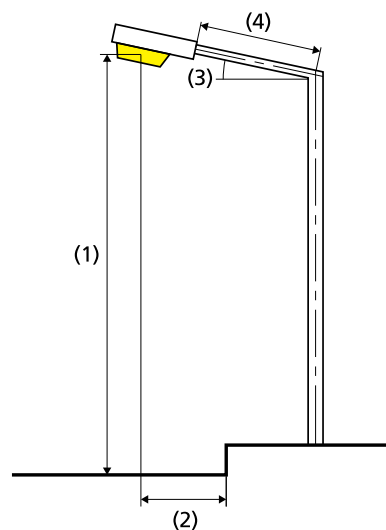
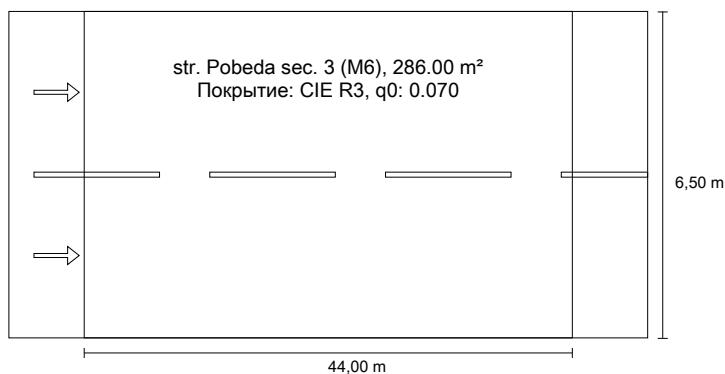


Освещенность при новой лампе



SIT 10 по EN 13201:2015

ECOCITY SRL PRO-STREET QUASAR S 50


Результаты для полей оценки
 Коэффициент эксплуатации: 0.85

str. Pobeda sec. 3 (M6)

L_{cp} [cd/m ²] ≥ 0.30	U_0 ≥ 0.35	U_I ≥ 0.40	TI [%] ≤ 20	EIR ≥ 0.30
✓ 0.37	✓ 0.48	✓ 0.68	✓ 18	✓ 0.57

Результаты для показателей энергоэффективности

Индикатор плотности мощности (Dp)	0.027 W/lx·m ²
Интенсивность потребления энергии	
Расположение: PRO-STREET QUASAR S 50 (200.0 кВт-ч/год)	0.7 кВт-ч/m ² год

Лампа:	1xLED
Световой поток (светильник):	6568.90 lm
Световой поток (лампа):	6850.00 lm
Рабочие часы	
4000 h:	100.0 %, 50.0 W
W/km:	1150.0
Расположение:	односторонне вниз
Расстояние между мачтами:	44.000 m
Наклон консоли (3):	5.0°
Длина консоли (4):	0.500 m
Высота световых точек (1):	9.000 m
Свес световой точки (2):	-3.500 m

ULR:	0.01
ULOR:	0.01
Наибольшие значения силы света	
при 70°:	629 cd/klm
при 80°:	278 cd/klm
при 90°:	41.8 cd/klm
Класс интенсивности света:	/

В во всех направлениях, которые образуют указанный угол с нижней вертикалью в инсталлированных и готовых к работе светильниках.

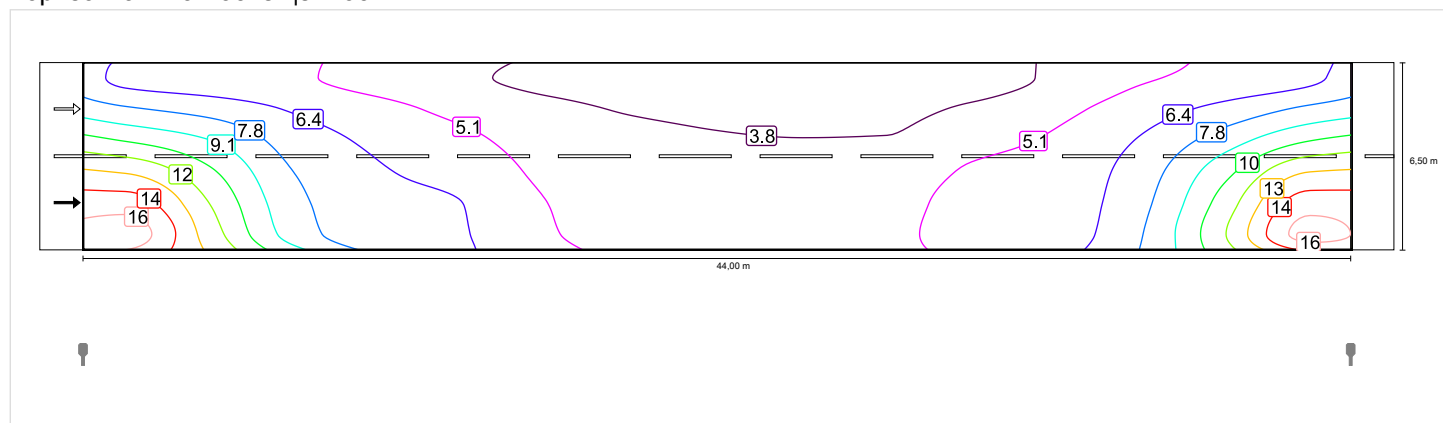
Компоновка отвечает классу индекса ослепления D.0

str. Pobeda sec. 3 (M6)

Коэффициент эксплуатации: 0.85
 Растр: 15 x 6 Точки

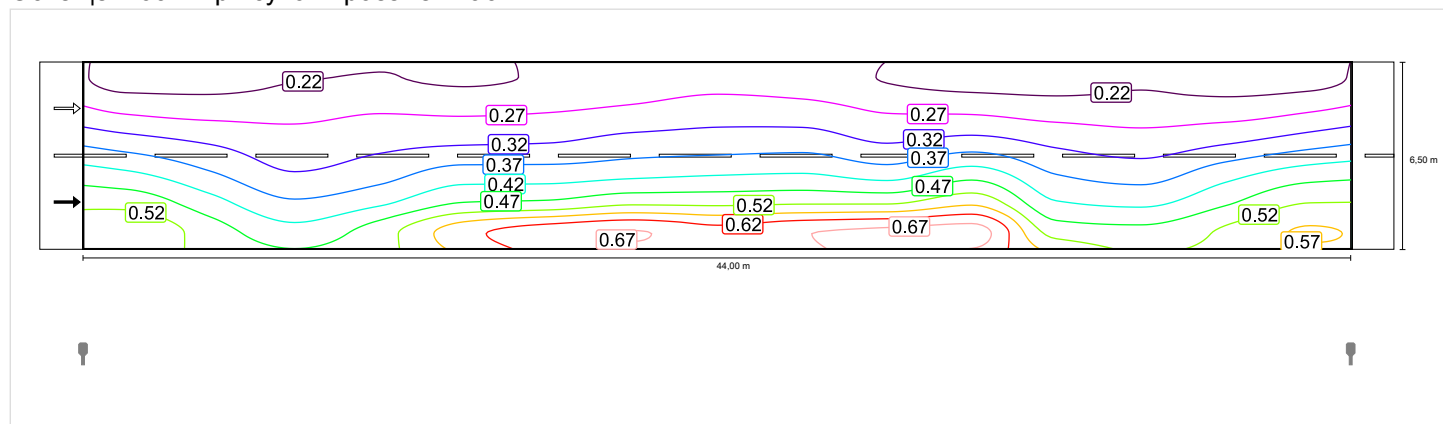
L_{cp} [cd/m ²] ≥ 0.30	U_o ≥ 0.35	UI ≥ 0.40	TI [%] ≤ 20	EIR ≥ 0.30
✓ 0.37	✓ 0.48	✓ 0.68	✓ 18	✓ 0.57

Горизонтальная освещенность

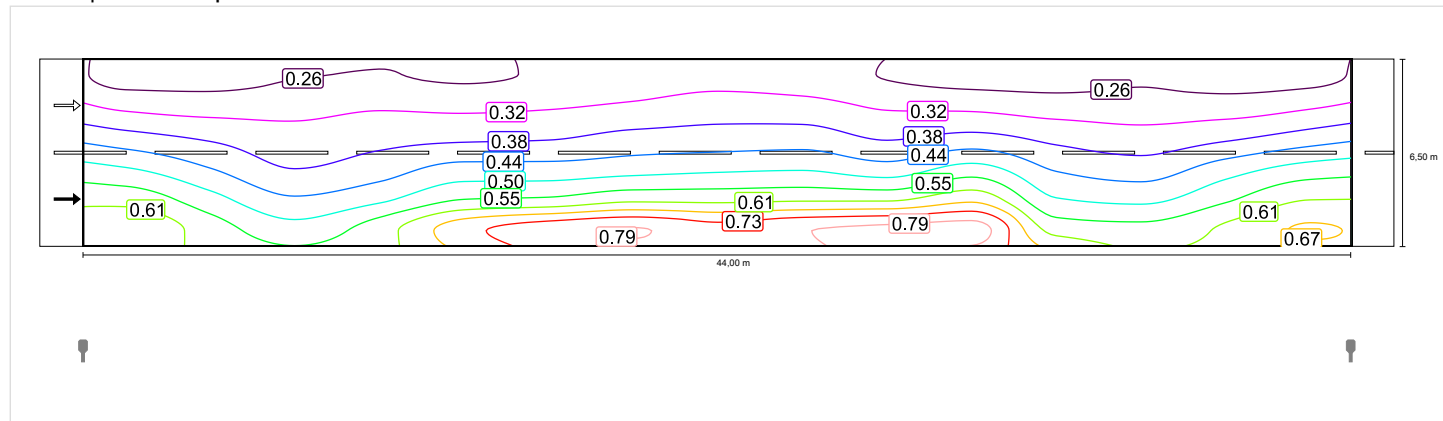


Наблюдатель 1

Освещенность при сухой проезжей части

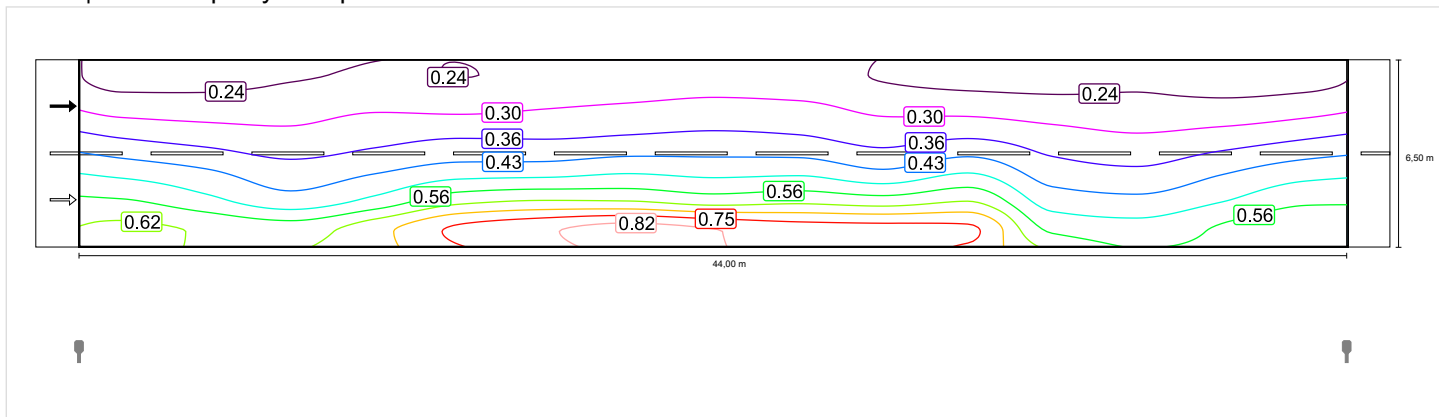


Освещенность при новой лампе

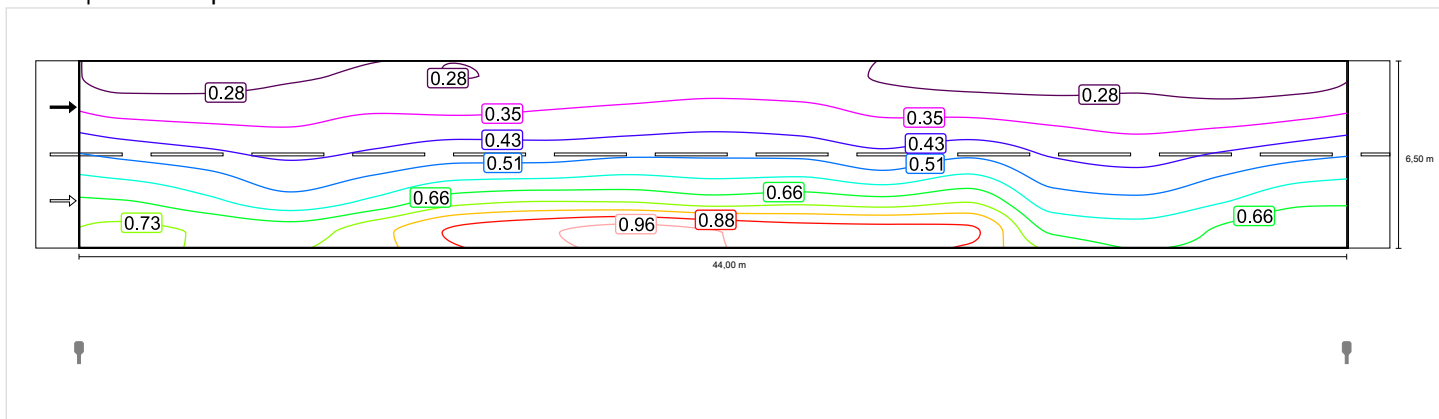


Наблюдатель 2

Освещенность при сухой проезжей части

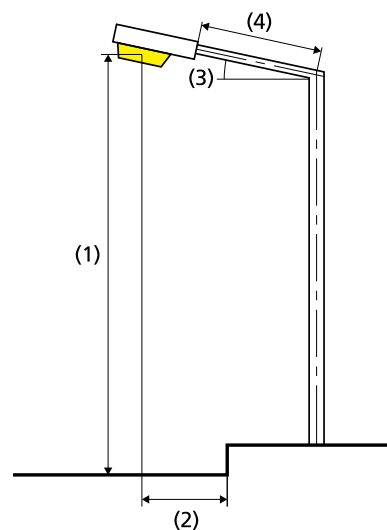
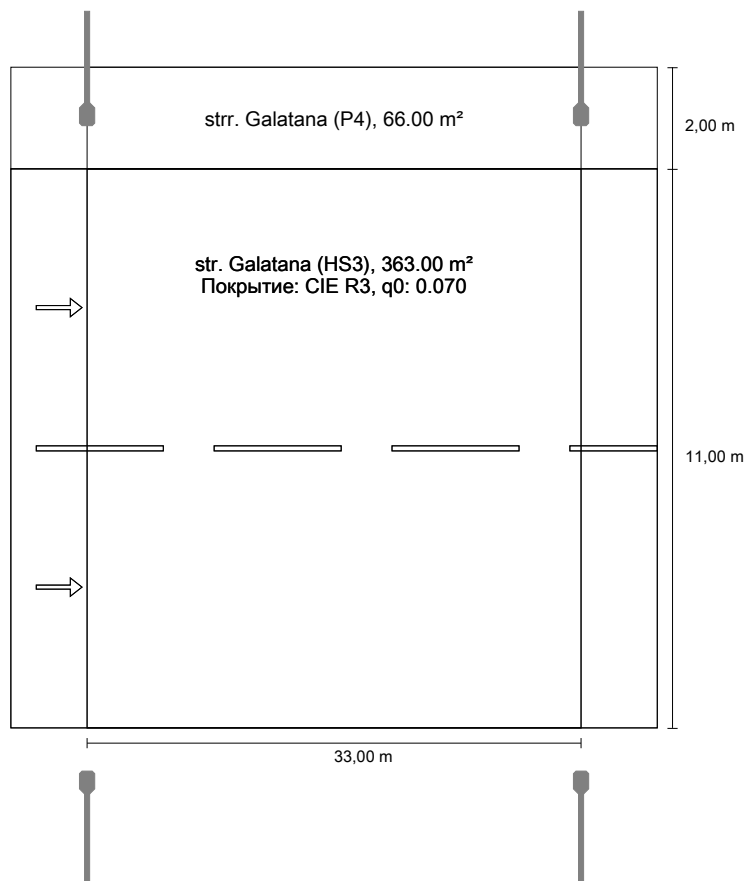


Освещенность при новой лампе



SIT 11 по EN 13201:2015

ECOCITY SRL PRO-STREET QUASAR S 20



Лампа:	1xLED
Световой поток (светильник):	2627.56 lm
Световой поток (лампа):	2740.00 lm
Рабочие часы	
4000 h:	100.0 %, 20.0 W
W/км:	1200.0
Расположение:	двухсторонне напротив
Расстояние между мачтами:	33.000 m
Наклон консоли (3):	5.0°
Длина консоли (4):	2.000 m
Высота световых точек (1):	9.500 m
Свес световой точки (2):	-1.100 m

Результаты для полей оценки

Коэффициент эксплуатации: 0.85

str. Galatana (P4)

Е _{сп} [lx]	Е _{мин} [lx]
≥ 5.00	≥ 1.00
≤ 7.50	
✓ 5.02	✓ 3.24

str. Galatana (HS3)

Е _m (полусфера рич.) [lx]	U _o (полусфера рич.) [lx]
≥ 1.00	≥ 0.15
✓ 4.55	✓ 0.76

Результаты для показателей энергоэффективности

Индикатор плотности мощности (D _p)	0.015 W/lx ²
Интенсивность потребления энергии	

ULR:	0.01
ULOR:	0.01
Наибольшие значения силы света	
при 70°:	629 cd/klm
при 80°:	278 cd/klm
при 90°:	41.8 cd/klm
Класс интенсивности света:	/

В во всех направлениях, которые образуют указанный угол с нижней вертикалью в инсталлированных и готовых к работе светильниках.

Компоновка отвечает классу индекса ослепления D.3

Расположение: PRO-STREET QUASAR S 20 (160.0 кВт-ч/год 0.4 кВт-ч/м² год)

SIT 11: Альтернатива 11 / str. Galatana (P4) / Изолинии

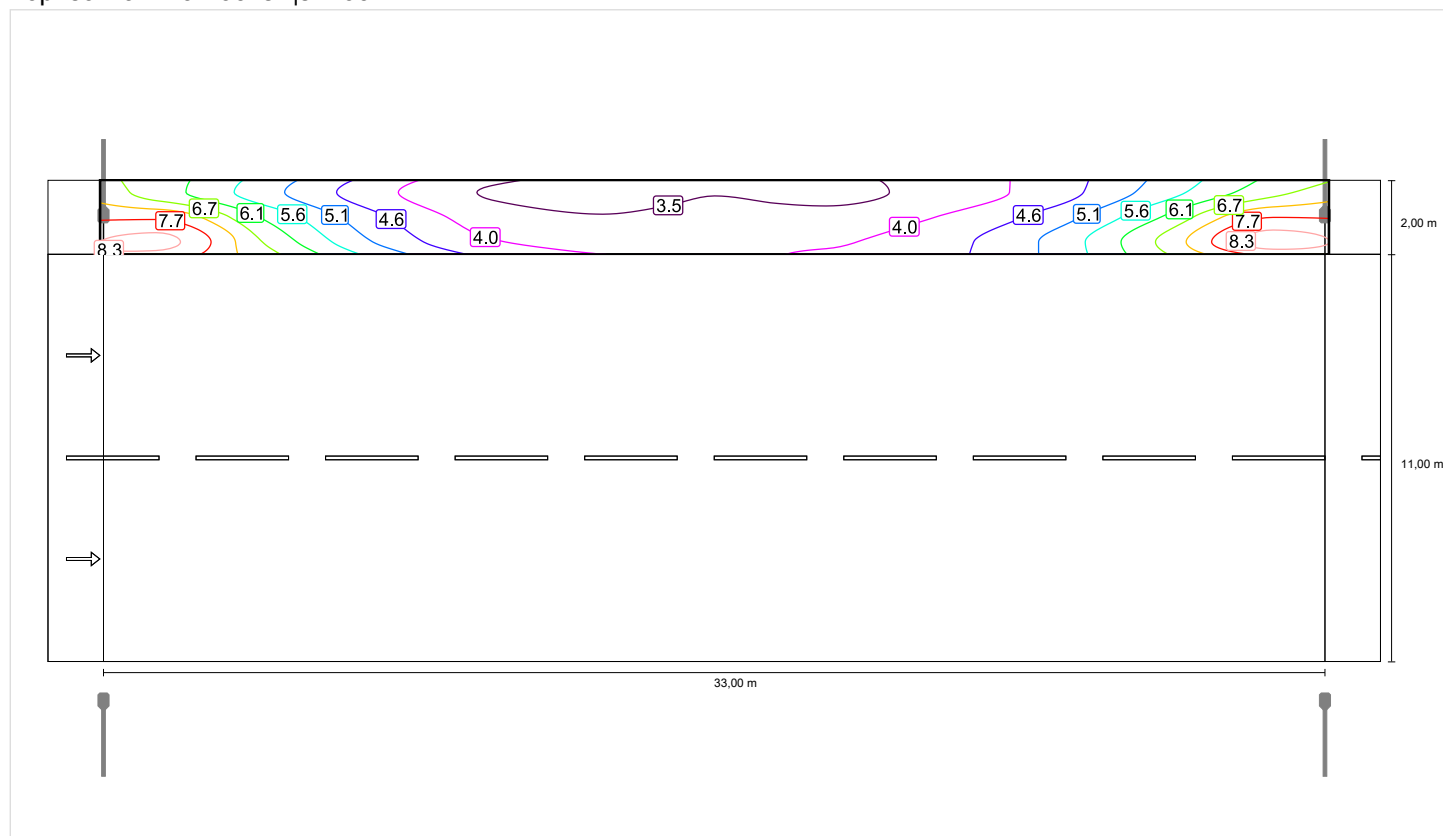
str. Galatana (P4)

Коэффициент эксплуатации: 0.85

Растр: 11 x 3 Точки

Еср [lx]	Emin [lx]
≥ 5.00	≥ 1.00
≤ 7.50	
✓ 5.02	✓ 3.24

Горизонтальная освещенность

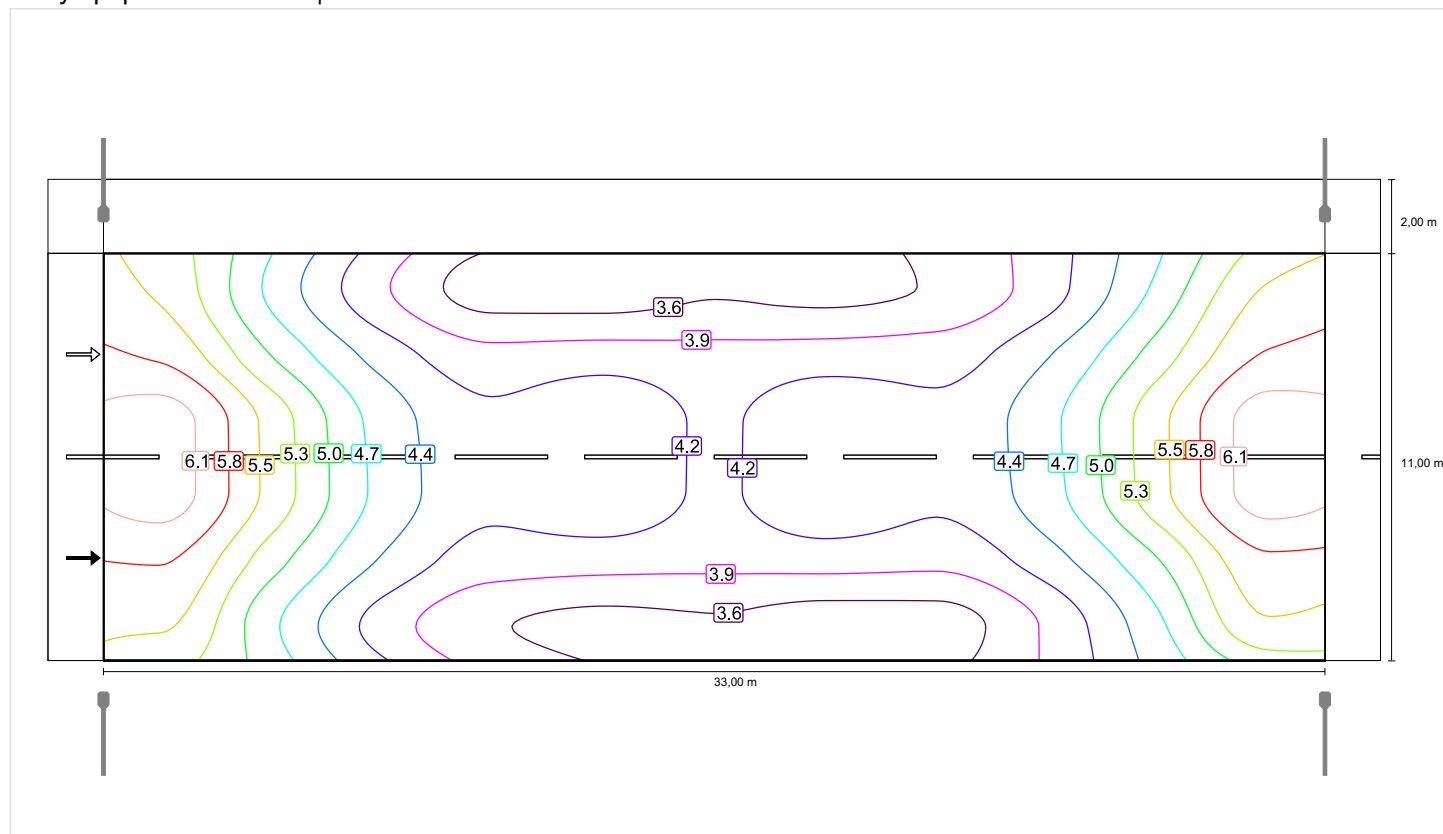


str. Galatana (HS3)

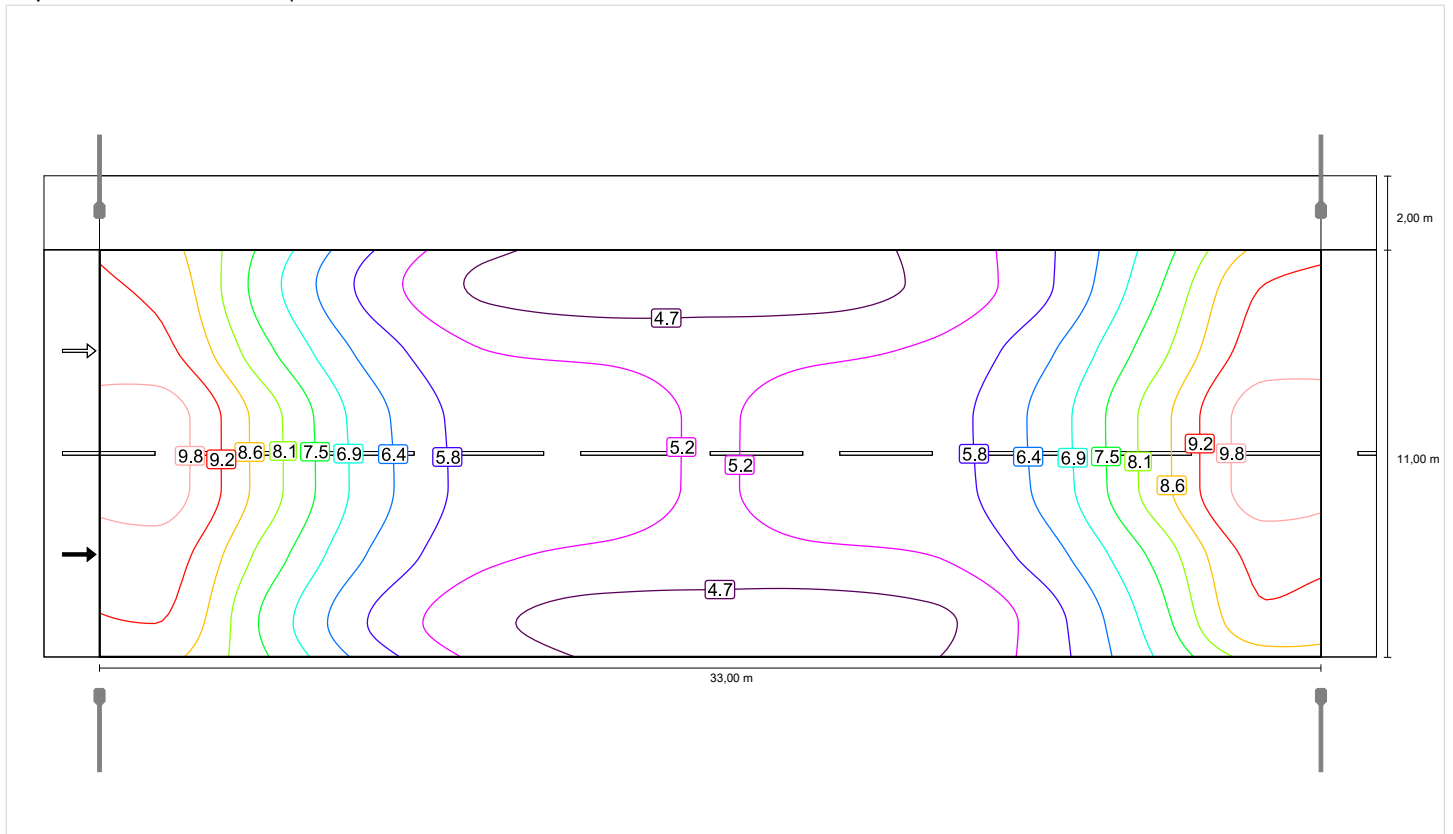
Коэффициент эксплуатации: 0.85
 Растр: 11 x 6 Точки

Em (полусфера рич.) [lx] ≥ 1.00	Uo (полусфера рич.) [lx] ≥ 0.15
✓ 4.55	✓ 0.76

Полусферическая освещенность

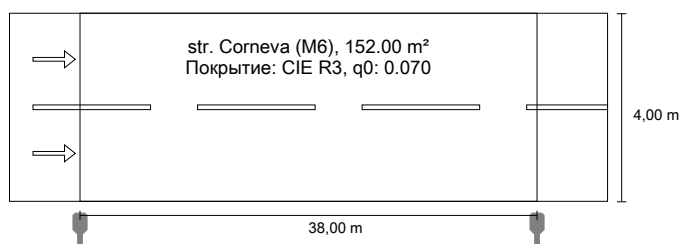


Горизонтальная освещенность



SIT 12 по EN 13201:2015

ECOCITY SRL PRO-STREET QUASAR S 25



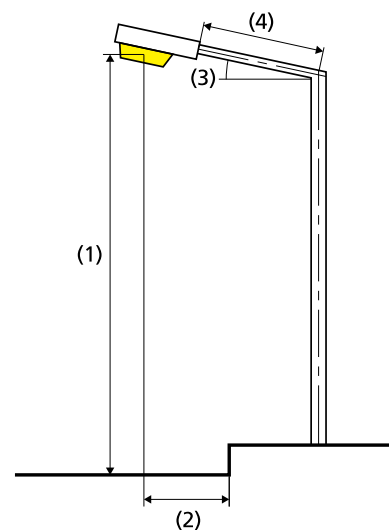
Результаты для полей оценки
Коэффициент эксплуатации: 0.85

str. Corneva (M6)

L_{cp} [cd/m ²] ≥ 0.30	U_0 ≥ 0.35	U_1 ≥ 0.40	TI [%] ≤ 20	EIR ≥ 0.30
✓ 0.40	✓ 0.55	✓ 0.53	✓ 17	✓ 0.53

Результаты для показателей энергоэффективности

Индикатор плотности мощности (Dp)	0.033 W/lx·m ²
Интенсивность потребления энергии	
Расположение: PRO-STREET QUASAR S 25 (100.0 кВт-ч/год)	0.7 кВт-ч/m ² год



Лампа:	1xLED
Световой поток (светильник):	3284.45 lm
Световой поток (лампа):	3425.00 lm
Рабочие часы	
4000 h:	100.0 %, 25.0 W
W/km:	650.0
Расположение:	односторонне вниз
Расстояние между мачтами:	38.000 m
Наклон консоли (3):	15.0°
Длина консоли (4):	0.500 m
Высота световых точек (1):	7.500 m
Свес световой точки (2):	-0.500 m

ULR:	0.02
ULOR:	0.01
Наибольшие значения силы света	
при 70°:	629 cd/klm
при 80°:	512 cd/klm
при 90°:	84.8 cd/klm
Класс интенсивности света:	/

В во всех направлениях, которые образуют указанный угол с нижней вертикалью в установленных и готовых к работе светильниках.

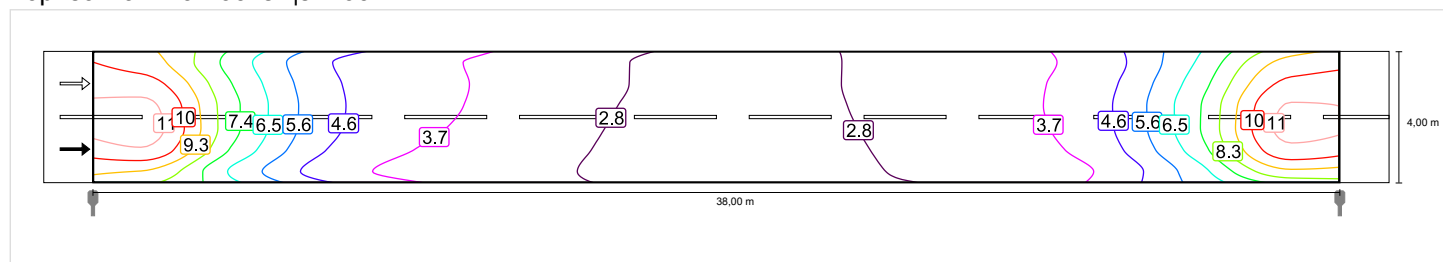
Компоновка отвечает классу индекса ослепления D.0

str. Corneva (M6)

Коэффициент эксплуатации: 0.85
 Растр: 13 x 6 Точки

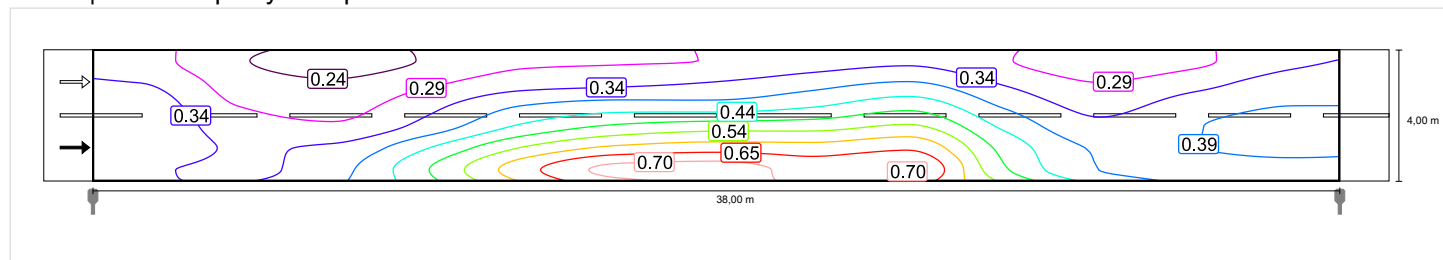
Lcp [cd/m ²] ≥ 0.30	Uo ≥ 0.35	UI ≥ 0.40	TI [%] ≤ 20	EIR ≥ 0.30
✓ 0.40	✓ 0.55	✓ 0.53	✓ 17	✓ 0.53

Горизонтальная освещенность

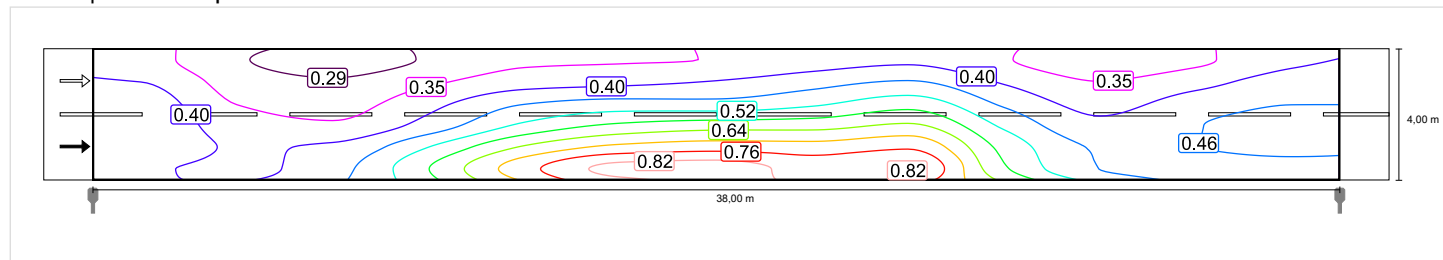


Наблюдатель 1

Освещенность при сухой проезжей части

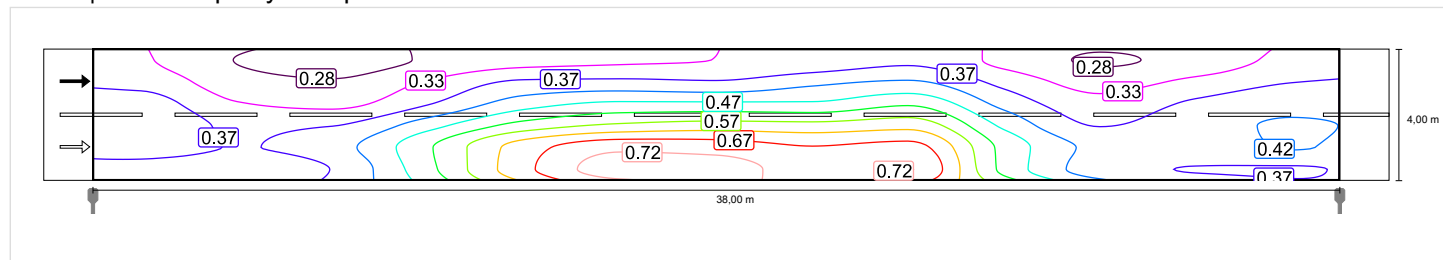


Освещенность при новой лампе

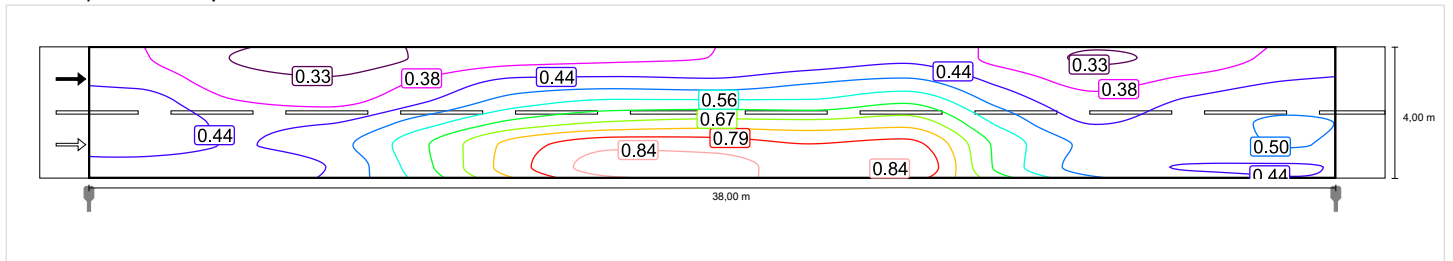


Наблюдатель 2

Освещенность при сухой проезжей части

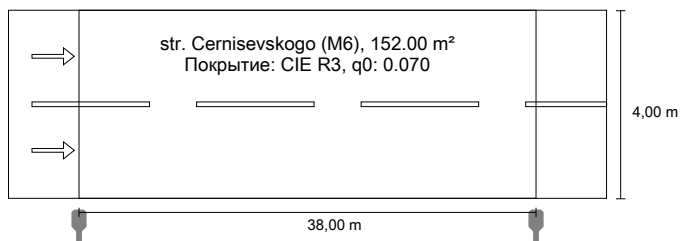


Освещенность при новой лампе



SIT 13 по EN 13201:2015

ECOCITY SRL PRO-STREET QUASAR S 25



Результаты для полей оценки
Коэффициент эксплуатации: 0.85

str. Cernisevskogo (M6)

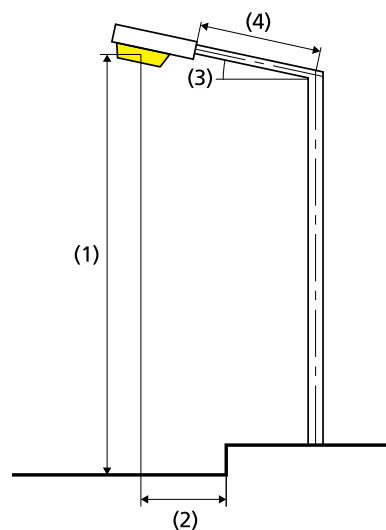
L_{cp} [cd/m ²] ≥ 0.30	U_0 ≥ 0.35	U_1 ≥ 0.40	TI [%] ≤ 20	EIR ≥ 0.30
✓ 0.40	✓ 0.55	✓ 0.53	✓ 17	✓ 0.53

Результаты для показателей энергоэффективности

Индикатор плотности мощности (Dp) 0.033 W/lx·m²

Интенсивность потребления энергии

Расположение: PRO-STREET QUASAR S 25 (100.0 кВт-ч/год) 0.7 кВт-ч/м² год



Лампа:	1xLED
Световой поток (светильник):	3284.45 lm
Световой поток (лампа):	3425.00 lm
Рабочие часы	
4000 h:	100.0 %, 25.0 W
W/km:	650.0
Расположение:	односторонне вниз
Расстояние между мачтами:	38.000 m
Наклон консоли (3):	15.0°
Длина консоли (4):	0.500 m
Высота световых точек (1):	7.500 m
Свес световой точки (2):	-0.500 m

ULR: 0.02

ULOR: 0.01

Наибольшие значения силы света

при 70°: 629 cd/klm

при 80°: 512 cd/klm

при 90°: 84.8 cd/klm

Класс интенсивности света: /

В во всех направлениях, которые образуют указанный угол с нижней вертикалью в установленных и готовых к работе светильниках.

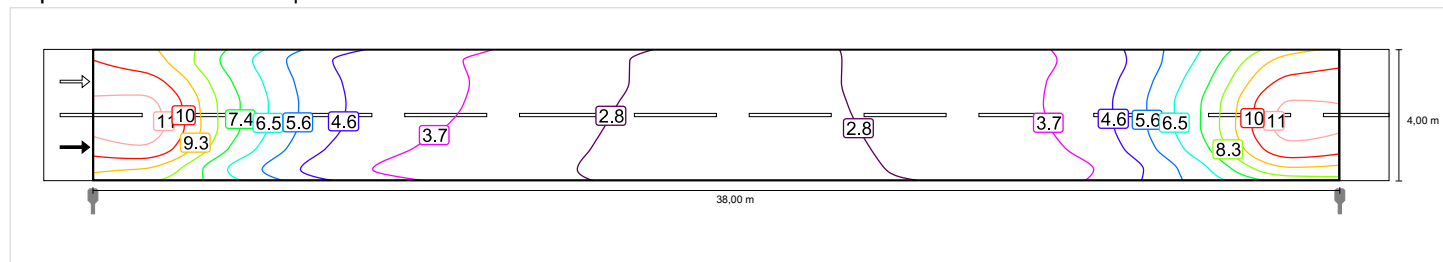
Компоновка отвечает классу индекса ослепления D.0

str. Cernisevskogo (M6)

Коэффициент эксплуатации: 0.85
 Растр: 13 x 6 Точки

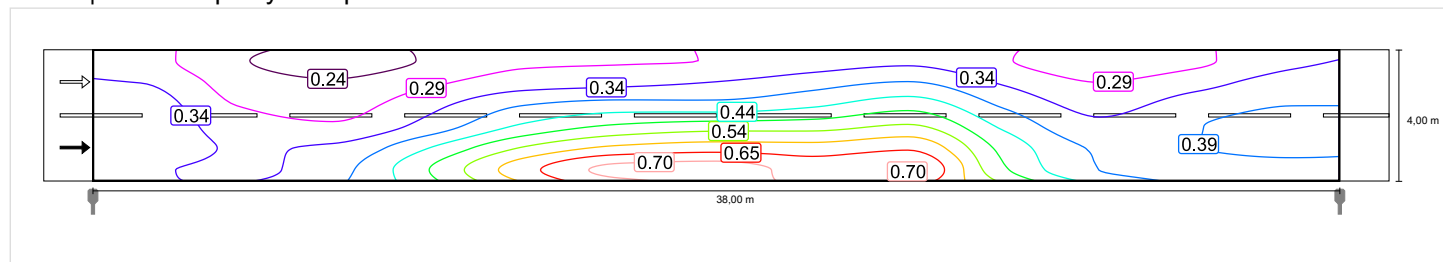
L_{cp} [cd/m ²] ≥ 0.30	U_o ≥ 0.35	U_i ≥ 0.40	TI [%] ≤ 20	EIR ≥ 0.30
✓ 0.40	✓ 0.55	✓ 0.53	✓ 17	✓ 0.53

Горизонтальная освещенность

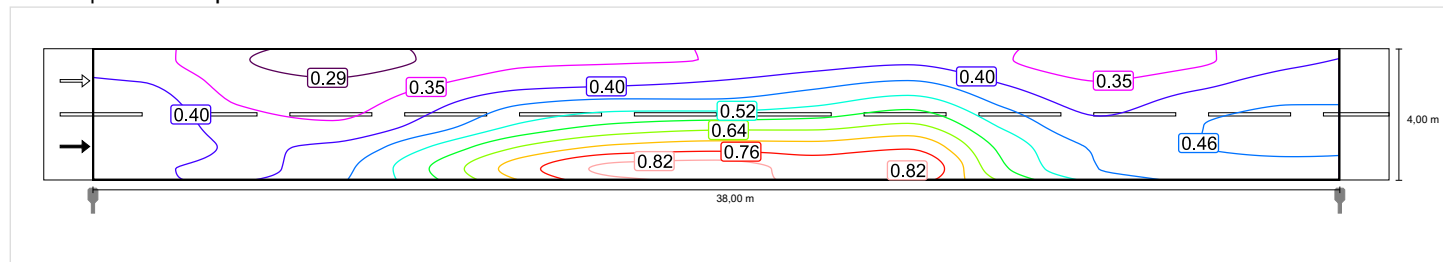


Наблюдатель 1

Освещенность при сухой проезжей части

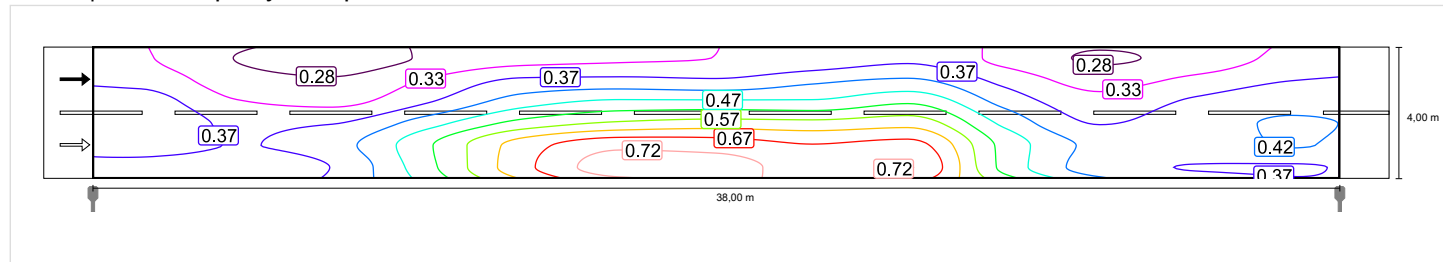


Освещенность при новой лампе

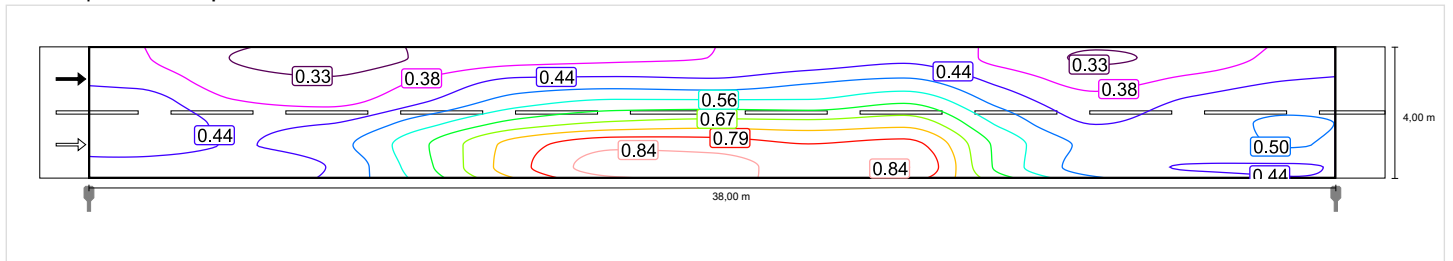


Наблюдатель 2

Освещенность при сухой проезжей части

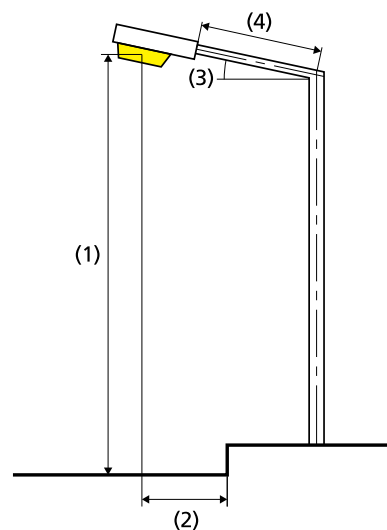
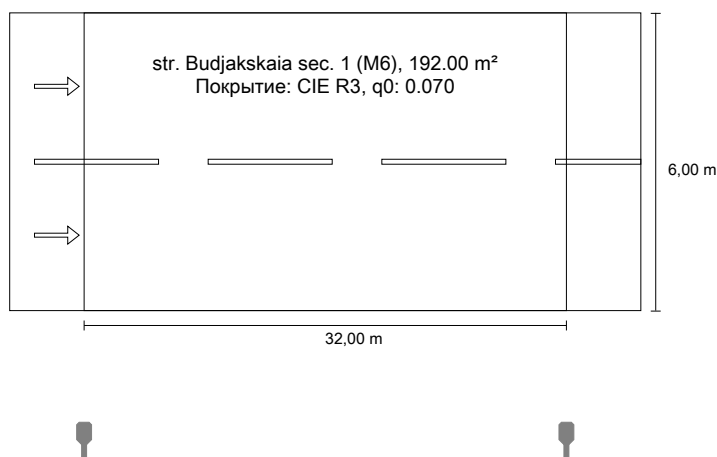


Освещенность при новой лампе



SIT 14 по EN 13201:2015

ECOCITY SRL PRO-STREET QUASAR S 25


Результаты для полей оценки
 Коэффициент эксплуатации: 0.85

str. Budjaskaia sec. 1 (M6)

L_{sp} [cd/m ²] ≥ 0.30	U_0 ≥ 0.35	UI ≥ 0.40	TI [%] ≤ 20	EIR ≥ 0.30
✓ 0.31	✓ 0.54	✓ 0.74	✓ 16	✓ 0.68

Результаты для показателей энергоэффективности

Индикатор плотности мощности (Dp)	0.026 W/lx ²
Интенсивность потребления энергии	
Расположение: PRO-STREET QUASAR S 25 (100.0 кВт-ч/год)	0.5 кВт-ч/м ² год

Лампа:	1xLED
Световой поток (светильник):	3284.45 lm
Световой поток (лампа):	3425.00 lm
Рабочие часы	
4000 h:	100.0 %, 25.0 W
W/km:	775.0
Расположение:	односторонне внизу
Расстояние между мачтами:	32.000 m
Наклон консоли (3):	15.0°
Длина консоли (4):	0.500 m
Высота световых точек (1):	7.900 m
Свес световой точки (2):	-2.500 m

ULR:	0.02
ULOR:	0.01
Наибольшие значения силы света	
при 70°:	629 cd/klm
при 80°:	512 cd/klm
при 90°:	84.8 cd/klm
Класс интенсивности света:	/

В во всех направлениях, которые образуют указанный угол с нижней вертикалью в инсталлированных и готовых к работе светильниках.

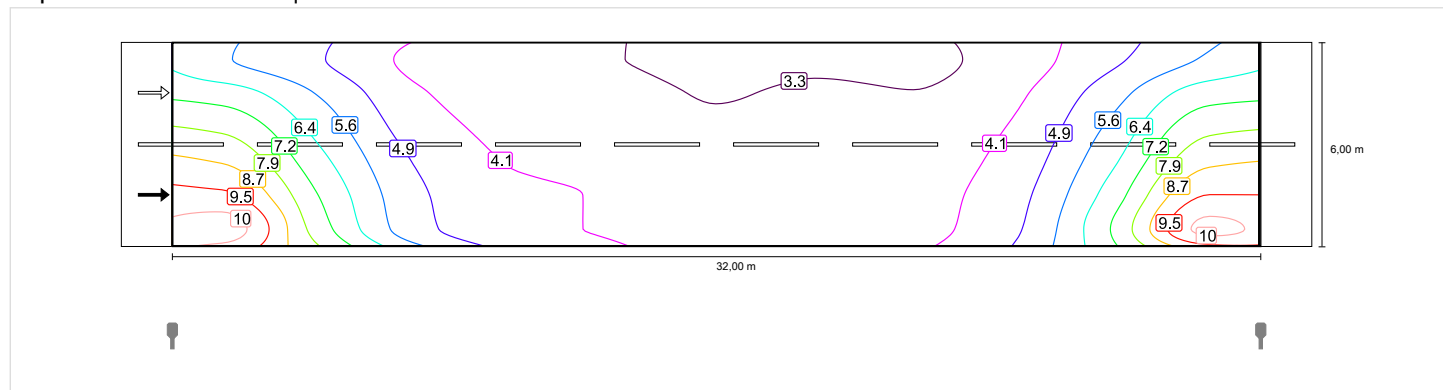
Компоновка отвечает классу индекса ослепления D.0

str. Budjaskaia sec. 1 (M6)

Коэффициент эксплуатации: 0.85
 Растр: 11 x 6 Точки

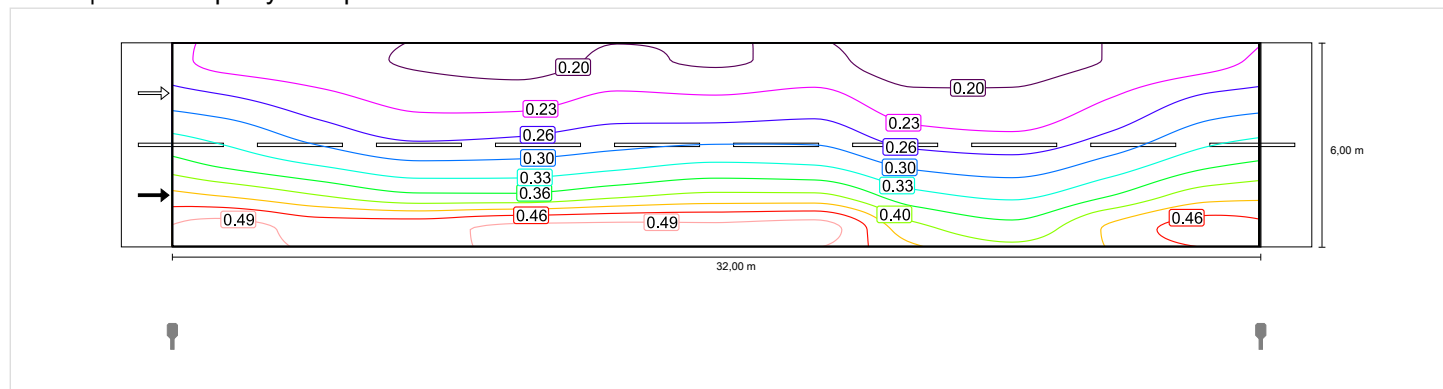
L_{cp} [cd/m ²] ≥ 0.30	U_o ≥ 0.35	U_i ≥ 0.40	TI [%] ≤ 20	EIR ≥ 0.30
✓ 0.31	✓ 0.54	✓ 0.74	✓ 16	✓ 0.68

Горизонтальная освещенность

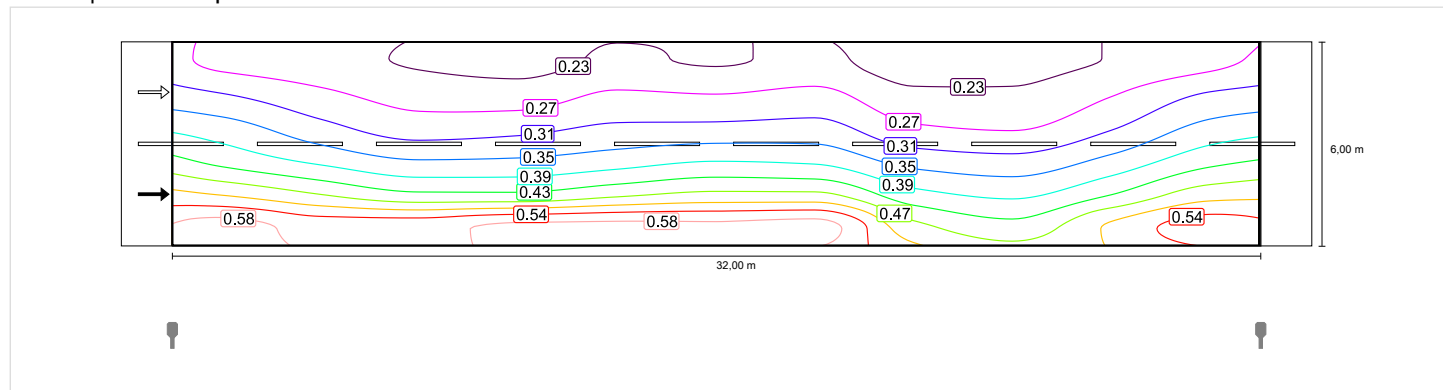


Наблюдатель 1

Освещенность при сухой проезжей части

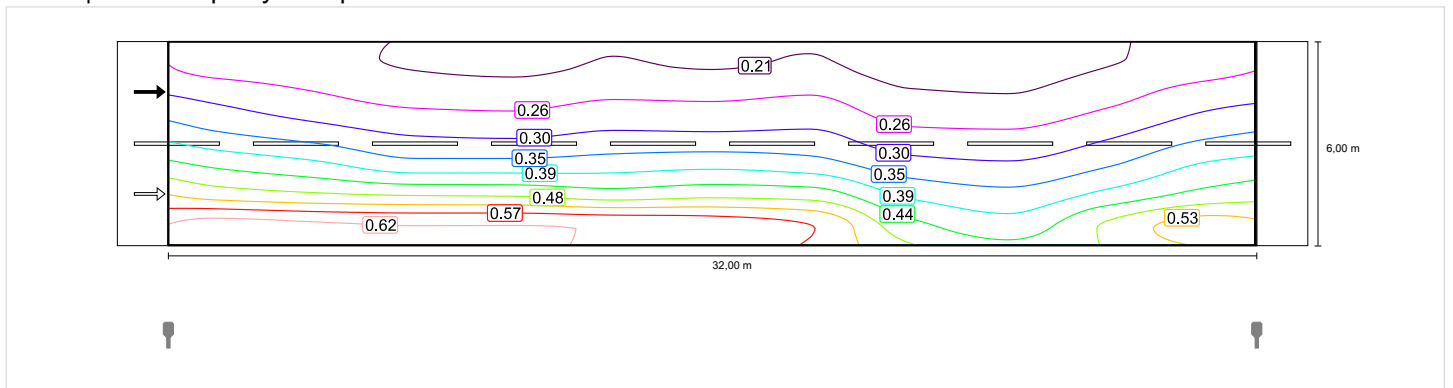


Освещенность при новой лампе

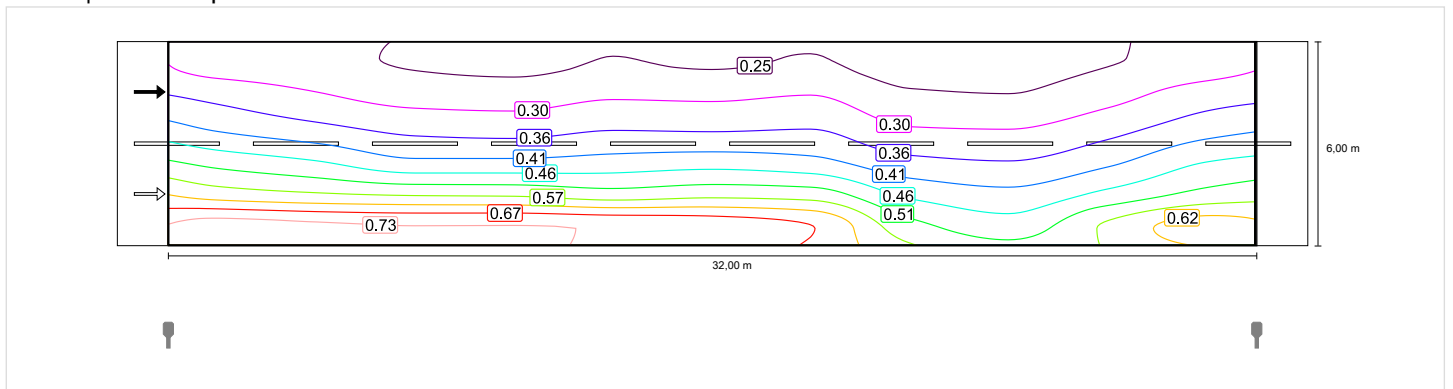


Наблюдатель 2

Освещенность при сухой проезжей части

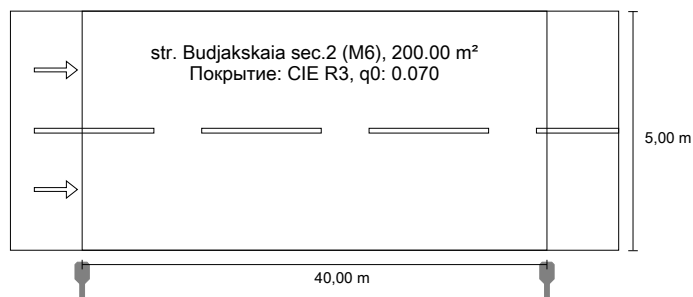


Освещенность при новой лампе



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ECOCITY SRL PRO-STREET QUASAR S 25

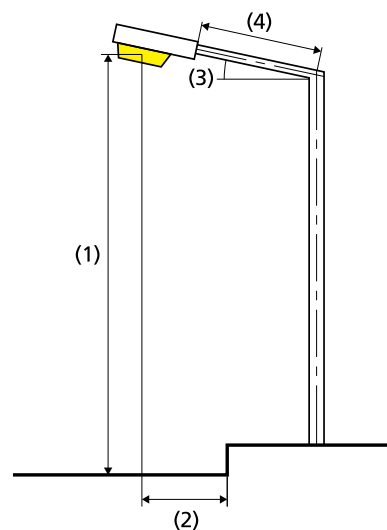

Результаты для полей оценки
 Коэффициент эксплуатации: 0.85

str. Budjaskaia sec.2 (M6)

Lcp [cd/m ²] ≥ 0.30	Uo ≥ 0.35	UI ≥ 0.40	TI [%] ≤ 20	EIR ≥ 0.30
✓ 0.34	✓ 0.54	✓ 0.56	✓ 17	✓ 0.49

Результаты для показателей энергоэффективности

Индикатор плотности мощности (Dp)	0.028 W/lx ²
Интенсивность потребления энергии	
Расположение: PRO-STREET QUASAR S 25 (100.0 кВт-ч/год)	0.5 кВт-ч/м ² год



Лампа:	1xLED
Световой поток (светильник):	3284.45 lm
Световой поток (лампа):	3425.00 lm
Рабочие часы	
4000 h:	100.0 %, 25.0 W
W/km:	625.0
Расположение:	односторонне вниз
Расстояние между мачтами:	40.000 m
Наклон консоли (3):	15.0°
Длина консоли (4):	0.500 m
Высота световых точек (1):	7.900 m
Свес световой точки (2):	-0.500 m

ULR:	0.02
ULOR:	0.01
Наибольшие значения силы света	
при 70°:	629 cd/klm
при 80°:	512 cd/klm
при 90°:	84.8 cd/klm
Класс интенсивности света:	/

В во всех направлениях, которые образуют указанный угол с нижней вертикалью в установленных и готовых к работе светильниках.

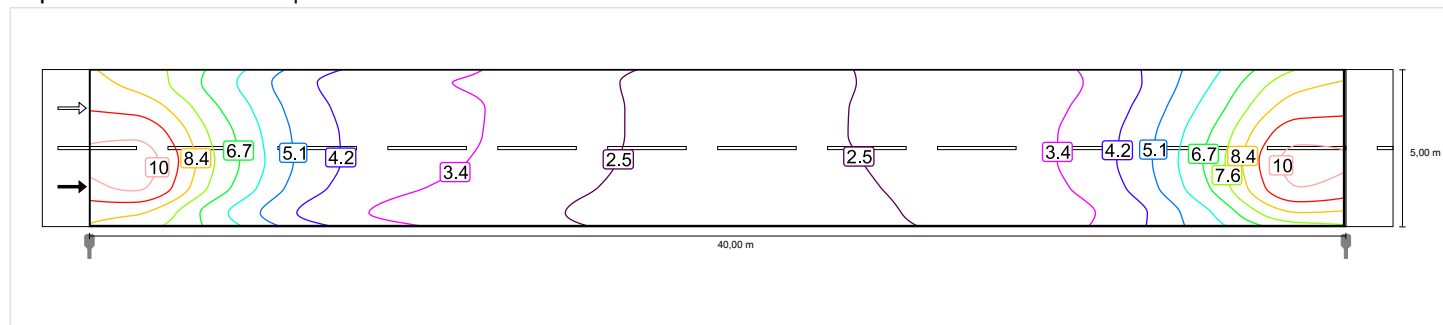
Компоновка отвечает классу индекса ослепления D.0

str. Budjaskaia sec.2 (M6)

Коэффициент эксплуатации: 0.85
 Растр: 14 x 6 Точки

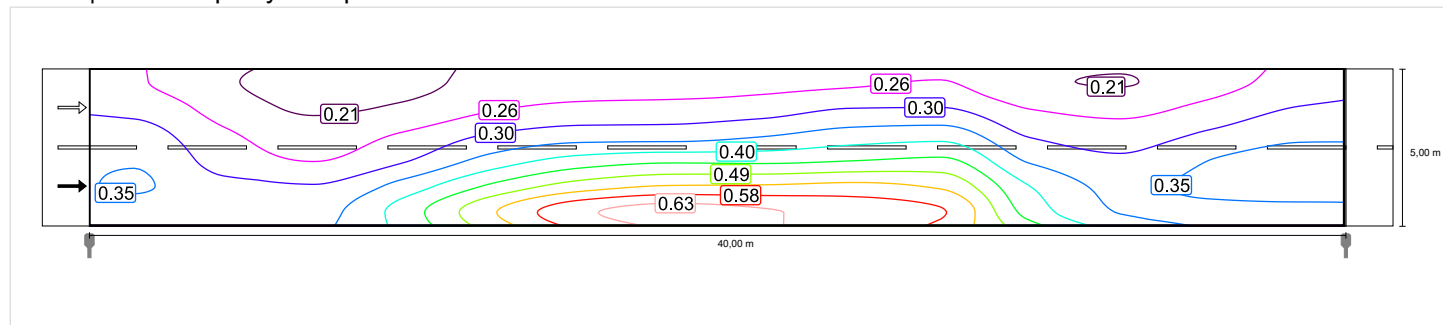
L_{cp} [cd/m ²] ≥ 0.30	U_0 ≥ 0.35	UI ≥ 0.40	TI [%] ≤ 20	EIR ≥ 0.30
✓ 0.34	✓ 0.54	✓ 0.56	✓ 17	✓ 0.49

Горизонтальная освещенность

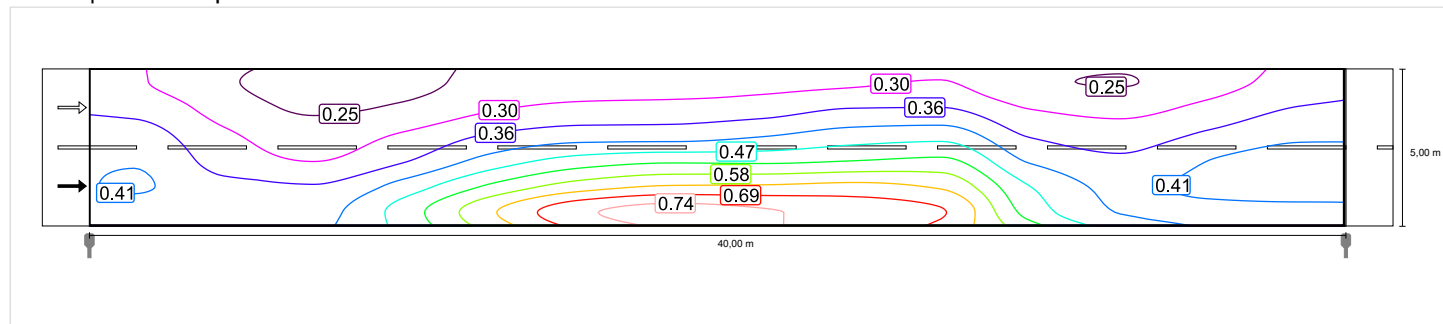


Наблюдатель 1

Освещенность при сухой проезжей части

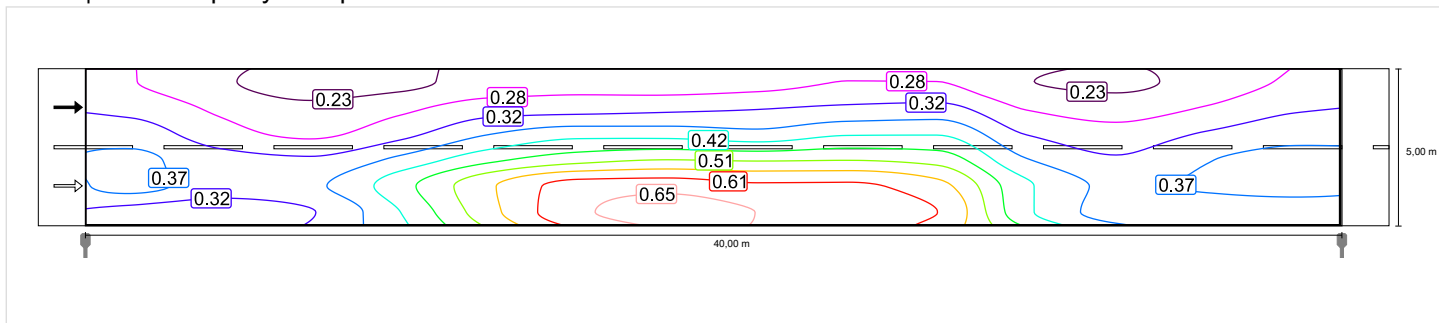


Освещенность при новой лампе

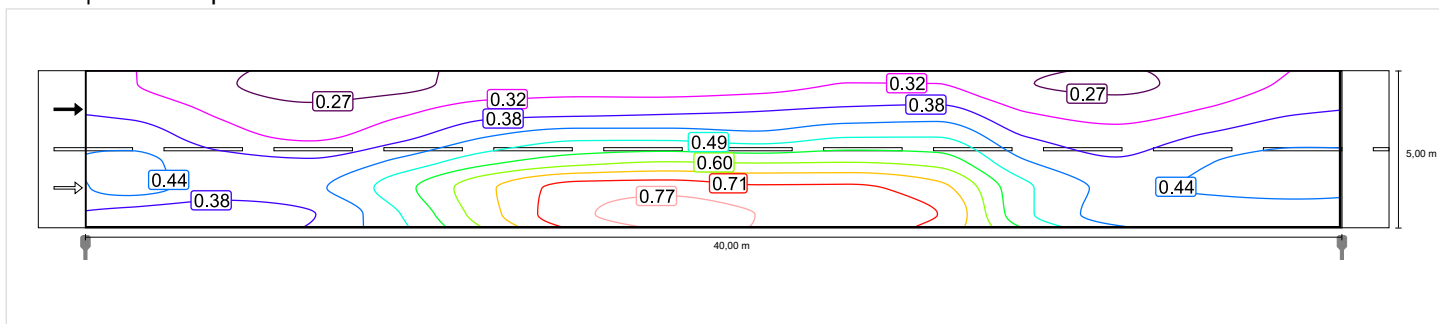


Наблюдатель 2

Освещенность при сухой проезжей части

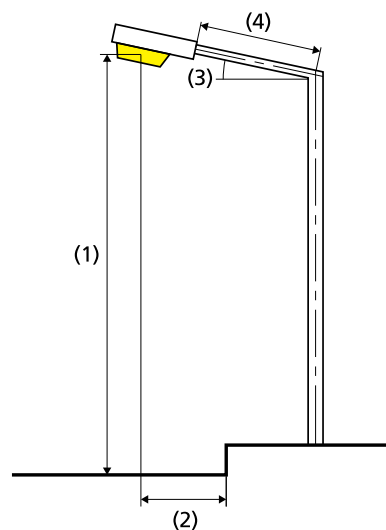
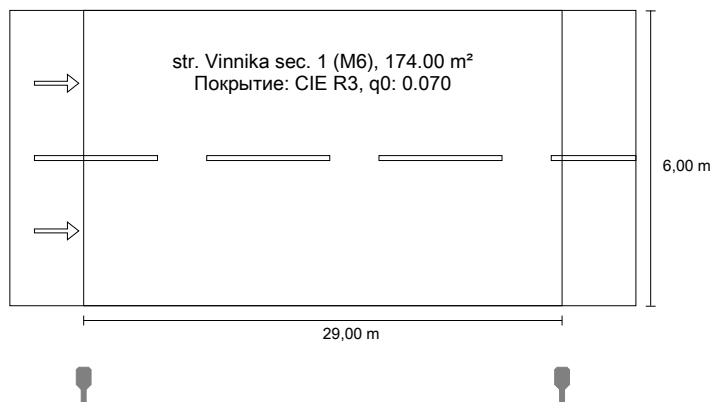


Освещенность при новой лампе



SIT 16 по EN 13201:2015

ECOCITY SRL PRO-STREET QUASAR S 25



Результаты для полей оценки

Коэффициент эксплуатации: 0.85

str. Vinnika sec. 1 (M6)

L_{cp} [cd/m ²] ≥ 0.30	U_0 ≥ 0.35	U_l ≥ 0.40	TI [%] ≤ 20	EIR ≥ 0.30
✓ 0.39	✓ 0.51	✓ 0.74	✓ 15	✓ 0.63

Результаты для показателей энергоэффективности

Индикатор плотности мощности (D_p)	0.024 W/lx ²
Интенсивность потребления энергии	
Расположение: PRO-STREET QUASAR S 25 (100.0 кВт-ч/год)	0.6 кВт-ч/м ² год

Лампа:	1xLED
Световой поток (светильник):	3284.45 lm
Световой поток (лампа):	3425.00 lm
Рабочие часы	
4000 h:	100.0 %, 25.0 W
W/km:	850.0
Расположение:	односторонне вниз
Расстояние между мачтами:	29.000 m
Наклон консоли (3):	15.0°
Длина консоли (4):	0.500 m
Высота световых точек (1):	8.000 m
Свес световой точки (2):	-1.500 m

ULR:	0.02
ULOR:	0.01
Наибольшие значения силы света	
при 70°:	629 cd/klm
при 80°:	512 cd/klm
при 90°:	84.8 cd/klm
Класс интенсивности света:	/

В во всех направлениях, которые образуют указанный угол с нижней вертикалью в установленных и готовых к работе светильниках.

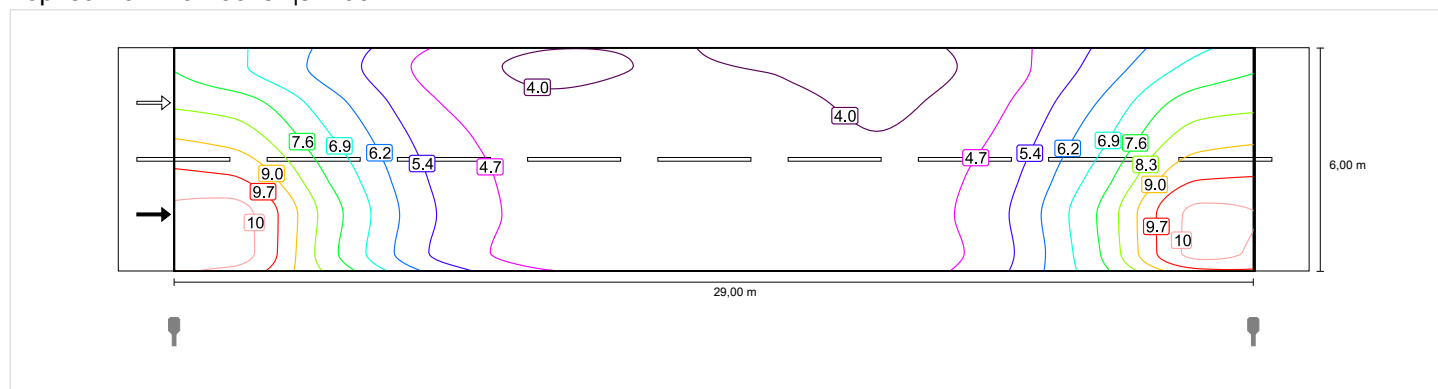
Компоновка отвечает классу индекса ослепления D.0

str. Vinnika sec. 1 (M6)

Коэффициент эксплуатации: 0.85
 Растр: 10 x 6 Точки

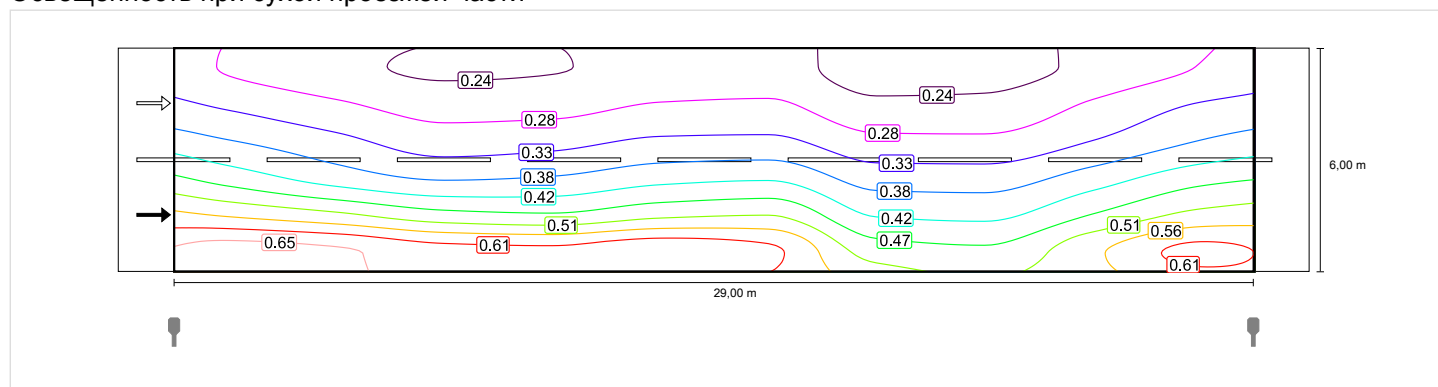
L_{cp} [cd/m ²] ≥ 0.30	U_0 ≥ 0.35	UI ≥ 0.40	TI [%] ≤ 20	EIR ≥ 0.30
✓ 0.39	✓ 0.51	✓ 0.74	✓ 15	✓ 0.63

Горизонтальная освещенность

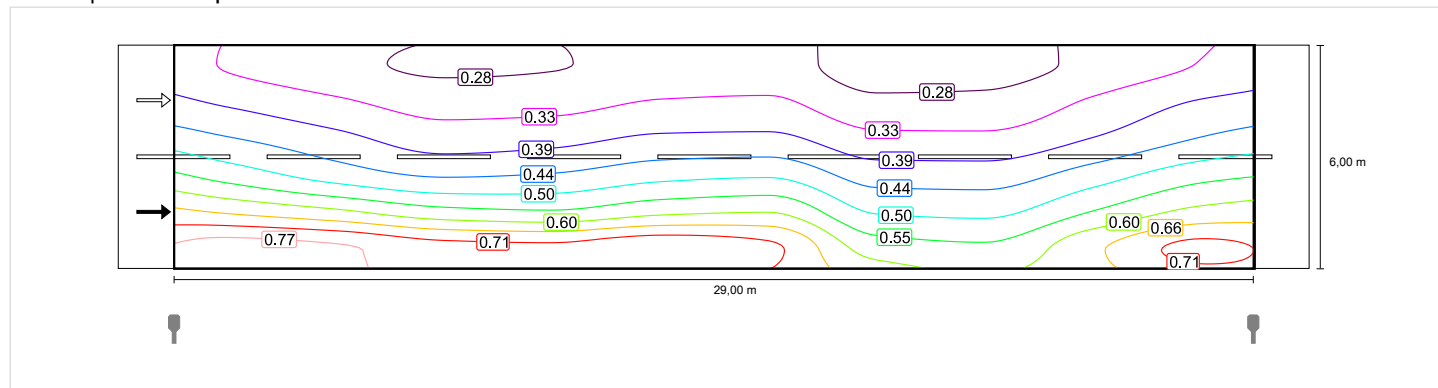


Наблюдатель 1

Освещенность при сухой проезжей части

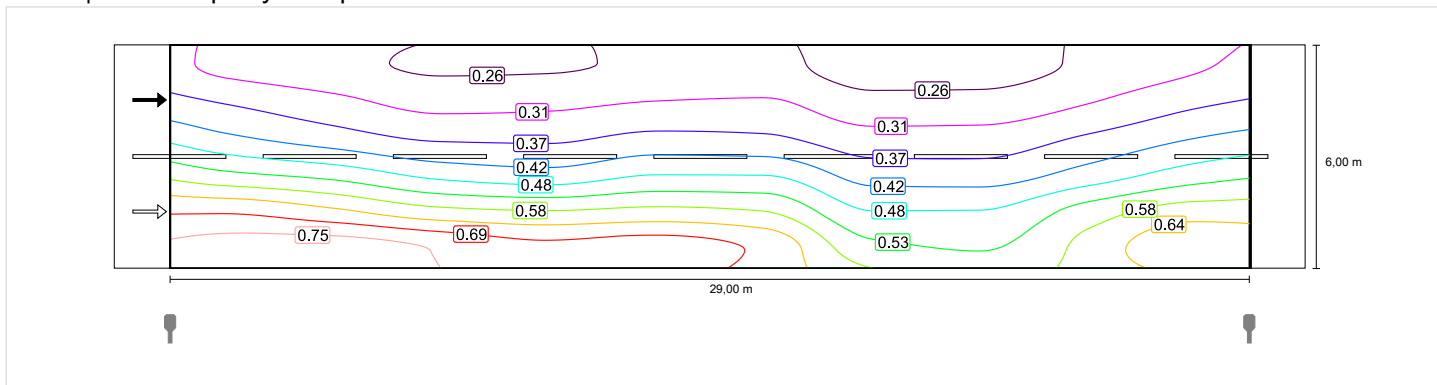


Освещенность при новой лампе

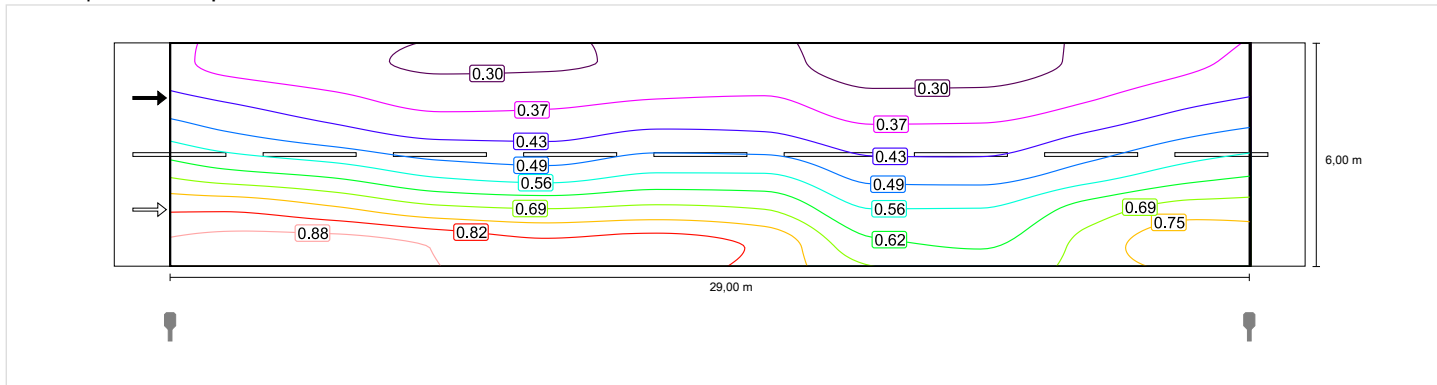


Наблюдатель 2

Освещенность при сухой проезжей части

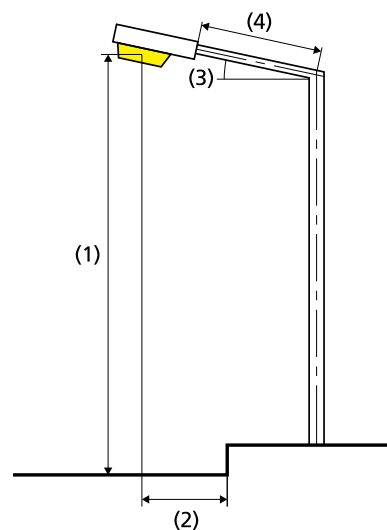
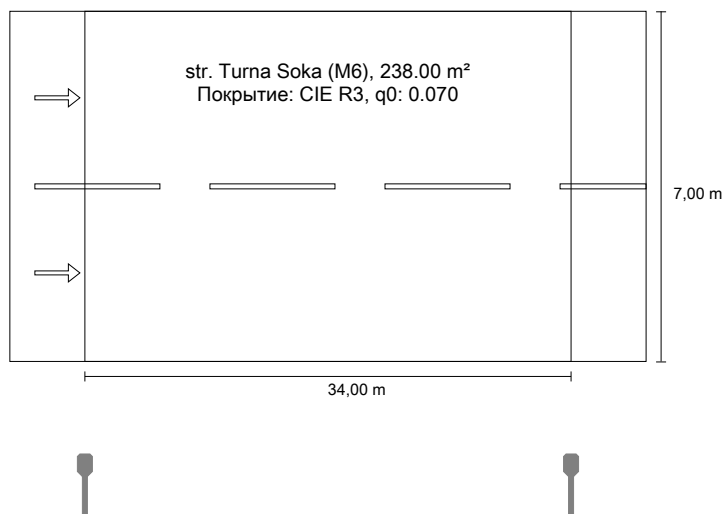


Освещенность при новой лампе



SIT 18 по EN 13201:2015

ECOCITY SRL PRO-STREET QUASAR S 25


Результаты для полей оценки
 Коэффициент эксплуатации: 0.85

str. Turna Soka (M6)

L_{cp} [cd/m ²] ≥ 0.30	U_0 ≥ 0.35	U_1 ≥ 0.40	TI [%] ≤ 20	EIR ≥ 0.30
✓ 0.30	✓ 0.50	✓ 0.75	✓ 18	✓ 0.59

Результаты для показателей энергоэффективности

Индикатор плотности мощности (D_p)	0.022 W/lx ²
Интенсивность потребления энергии	
Расположение: PRO-STREET QUASAR S 25 (100.0 кВт-ч/год)	0.4 кВт-ч/м ² год

Лампа:	1xLED
Световой поток (светильник):	3284.45 lm
Световой поток (лампа):	3425.00 lm
Рабочие часы	
4000 h:	100.0 %, 25.0 W
W/km:	725.0
Расположение:	односторонне внизу
Расстояние между мачтами:	34.000 m
Наклон консоли (3):	15.0°
Длина консоли (4):	1.000 m
Высота световых точек (1):	7.500 m
Свес световой точки (2):	-2.100 m

ULR:	0.02
ULOR:	0.01
Наибольшие значения силы света	
при 70°:	629 cd/klm
при 80°:	512 cd/klm
при 90°:	84.8 cd/klm
Класс интенсивности света:	/

В во всех направлениях, которые образуют указанный угол с нижней вертикалью в инсталлированных и готовых к работе светильниках.

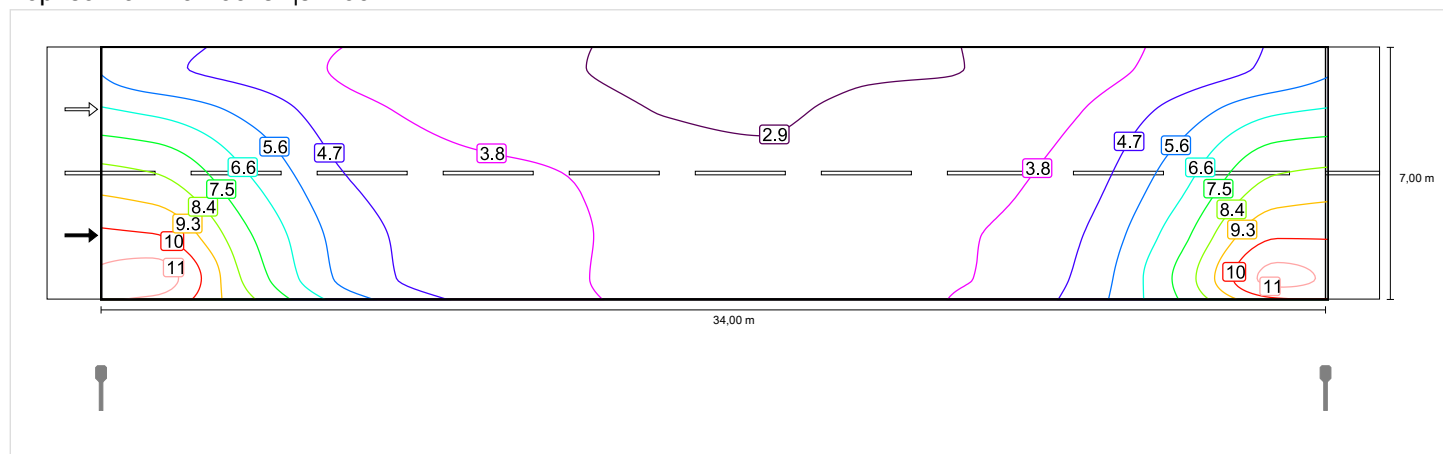
Компоновка отвечает классу индекса ослепления D.0

str. Turna Soka (M6)

Коэффициент эксплуатации: 0.85
 Растр: 12 x 6 Точки

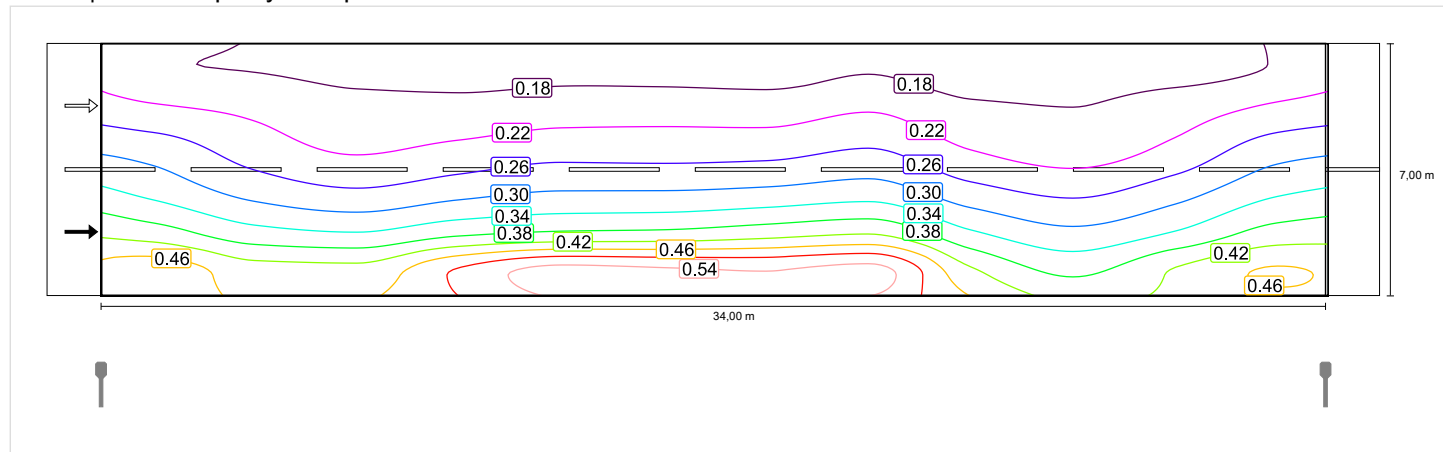
L_{cp} [cd/m ²] ≥ 0.30	U_o ≥ 0.35	U_I ≥ 0.40	TI [%] ≤ 20	EIR ≥ 0.30
✓ 0.30	✓ 0.50	✓ 0.75	✓ 18	✓ 0.59

Горизонтальная освещенность

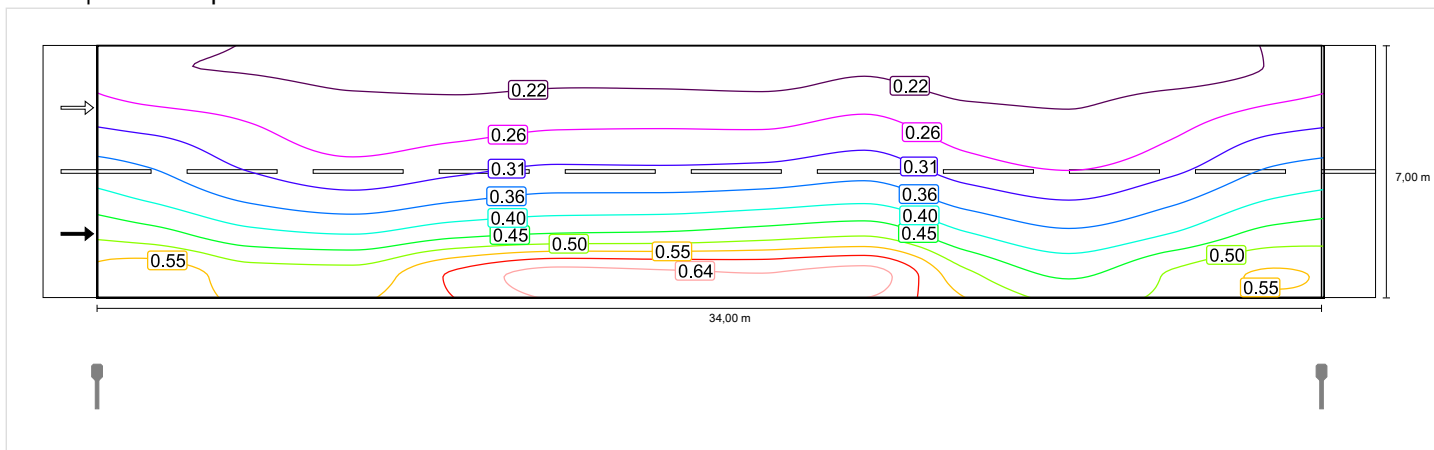


Наблюдатель 1

Освещенность при сухой проезжей части

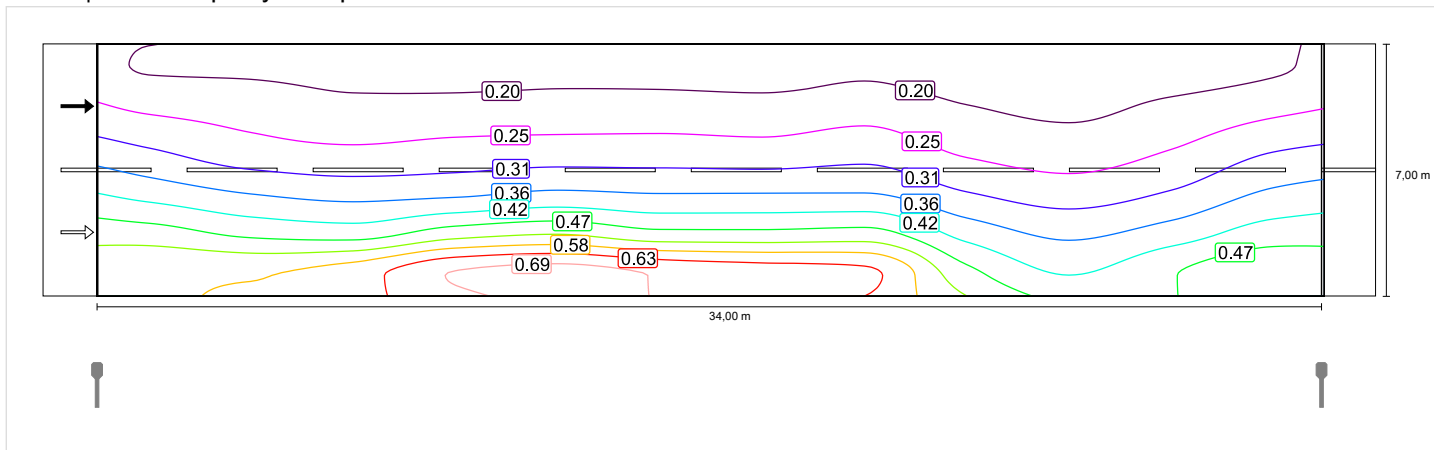


Освещенность при новой лампе

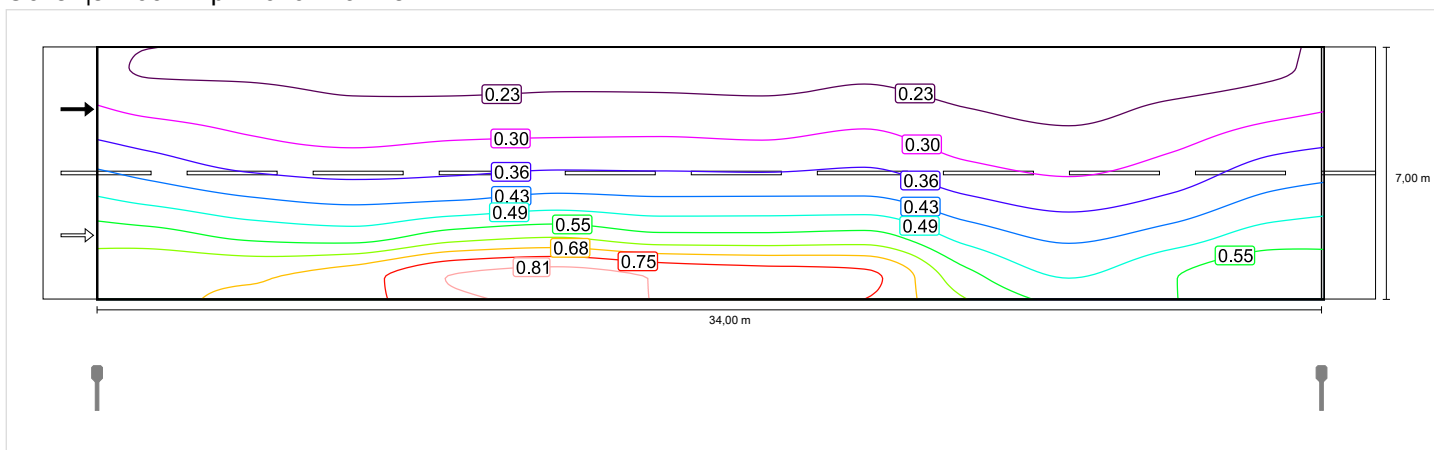


Наблюдатель 2

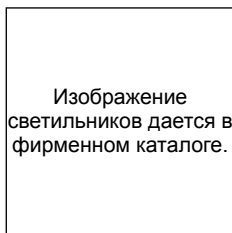
Освещенность при сухой проезжей части



Освещенность при новой лампе



EcoCity SRL Pro Street Quasar S 35 1x



Коэффициент полезного действия: 94.11%

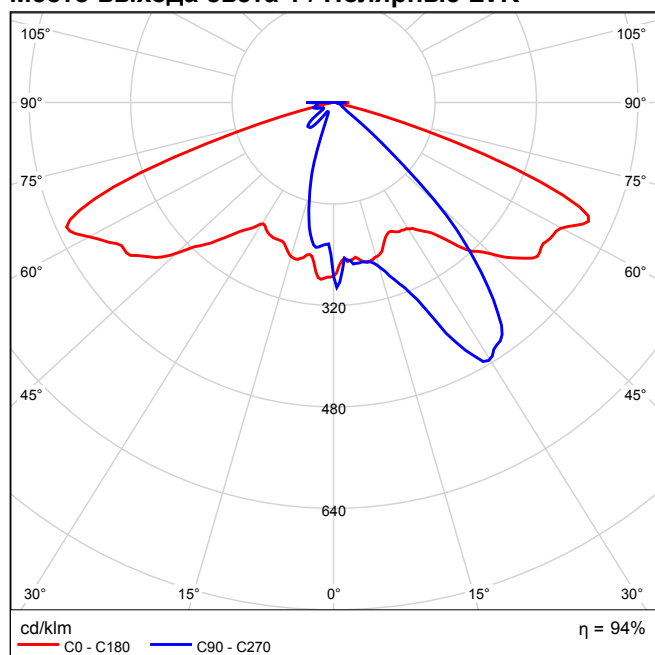
Световой поток ламп: 4760 lm

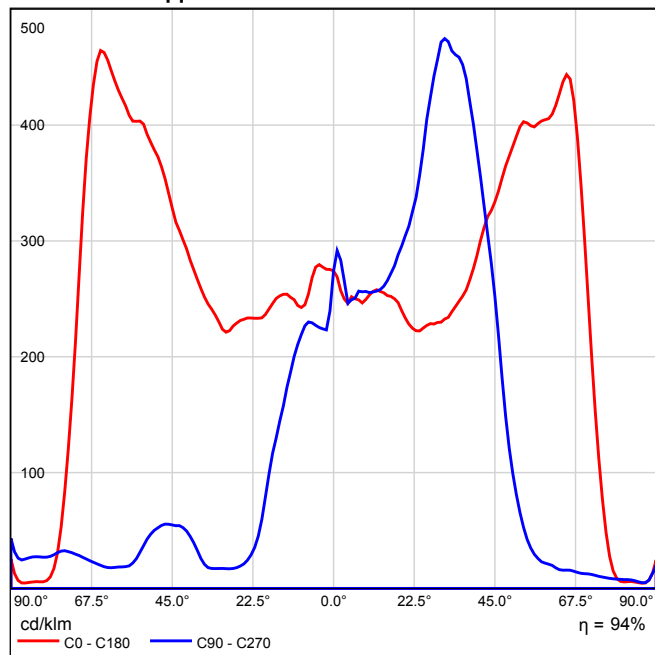
Световой поток от светильников: 4480 lm

Мощность: 35.0 W

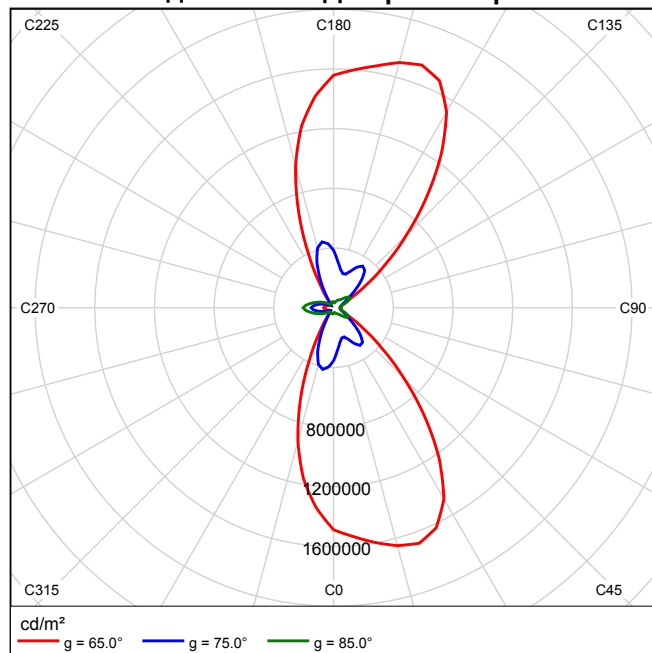
Светоотдача: 128.0 lm/W

Место выхода света 1 / Полярные LVK



Место выхода света 1 / Линейные LVK

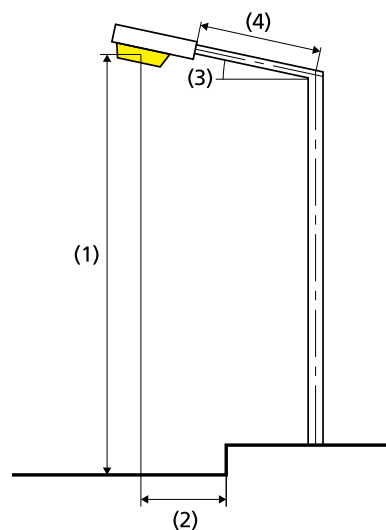
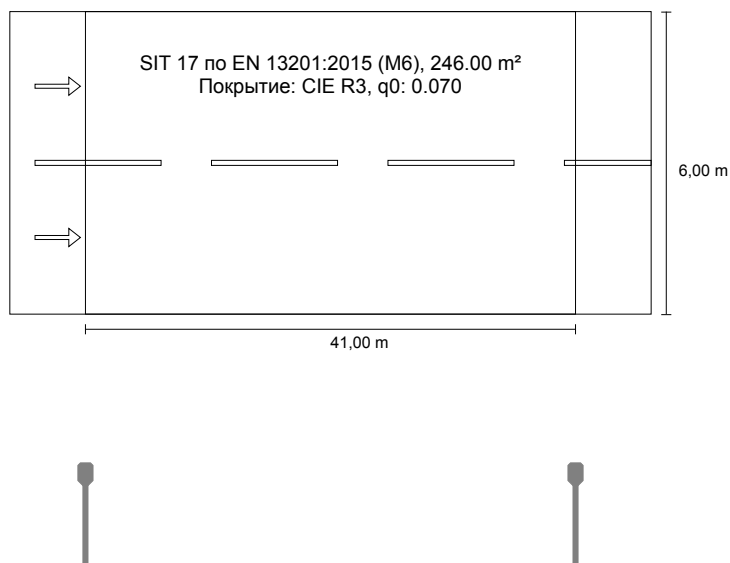
Невозможно создать коническую диаграмму, так как светораспределение несимметричное.

Место выхода света 1 / Диаграмма яркости

Невозможно создать UGR-диаграмму, так как светораспределение несимметричное.

Уличное освещение мун. Комрат по EN 13201:2015

EcoCity SRL Pro Street Quasar S 35



Результаты для полей оценки
Коэффициент эксплуатации: 0.85

str. Vinnika sec2 (M6)

Lcp [cd/m ²] ≥ 0.30	Uo ≥ 0.35	UI ≥ 0.40	TI [%] ≤ 20	EIR ≥ 0.30
✓ 0.30	✓ 0.48	✓ 0.41	✓ 13	✓ 0.56

Результаты для показателей энергоэффективности

Индикатор плотности мощности (Dp)	0.023 W/lxм ²
Интенсивность потребления энергии	
Расположение: Pro Street Quasar S 35 (140.0 кВт-ч/год)	0.6 кВт-ч/м ² год

Лампа:	1x
Световой поток (светильник):	4479.57 lm
Световой поток (лампа):	4760.00 lm
Рабочие часы	
4000 h:	100.0 %, 35.0 W
W/km:	840.0
Расположение:	односторонне внизу
Расстояние между мачтами:	41.000 m
Наклон консоли (3):	10.0°
Длина консоли (4):	1.826 m
Высота световых точек (1):	8.000 m
Свес световой точки (2):	-3.200 m

ULR:	0.00
ULOR:	0.00
Наибольшие значения силы света	
на 70°	557 cd/klm *
на 80°	120 cd/klm *
на 90°	33.2 cd/klm *
Класс интенсивности света:	G*1

В во всех направлениях, которые образуют указанный угол с нижней вертикалью в установленных и готовых к работе светильниках.

* Luminous intensity values in [cd/klm] for calculating luminous intensity class refer to the output flux of the luminaire, according EN 13201:2015.

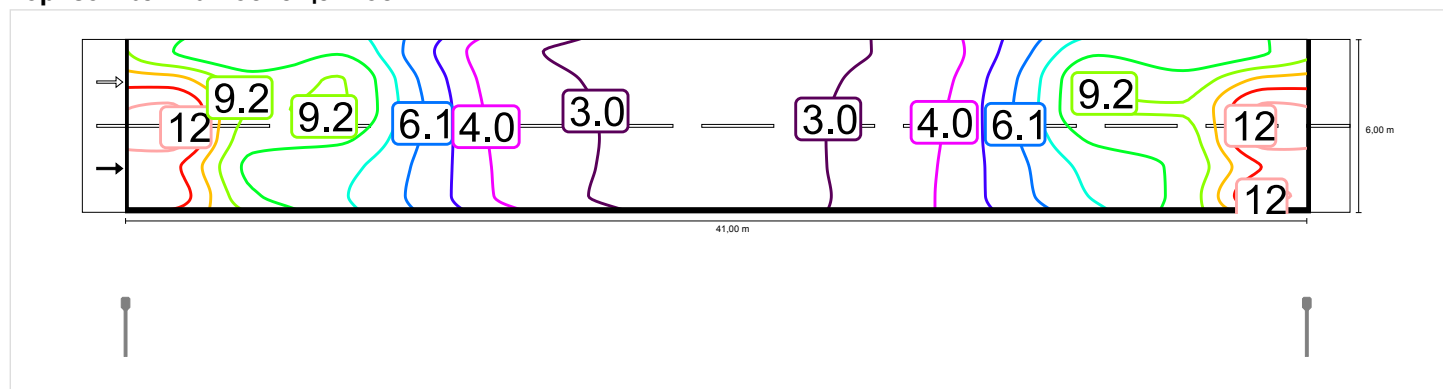
Компоновка отвечает классу индекса ослепления D.0

str. Vinnika sec2 (M6)

Коэффициент эксплуатации: 0.85
 Растр: 14 x 6 Точки

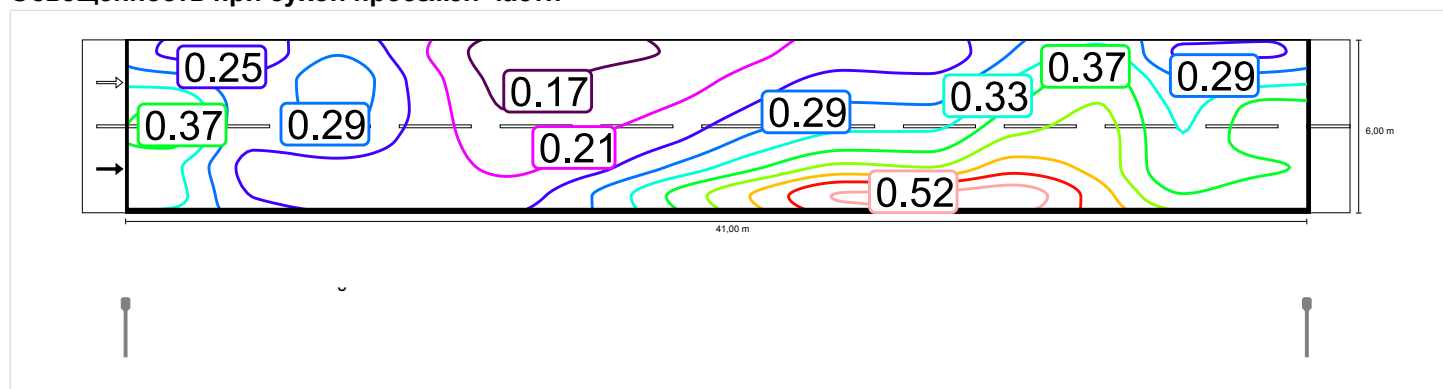
Lcp [cd/m ²] ≥ 0.30	Uo ≥ 0.35	UI ≥ 0.40	TI [%] ≤ 20	EIR ≥ 0.30
✓ 0.30	✓ 0.48	✓ 0.41	✓ 13	✓ 0.56

Горизонтальная освещенность

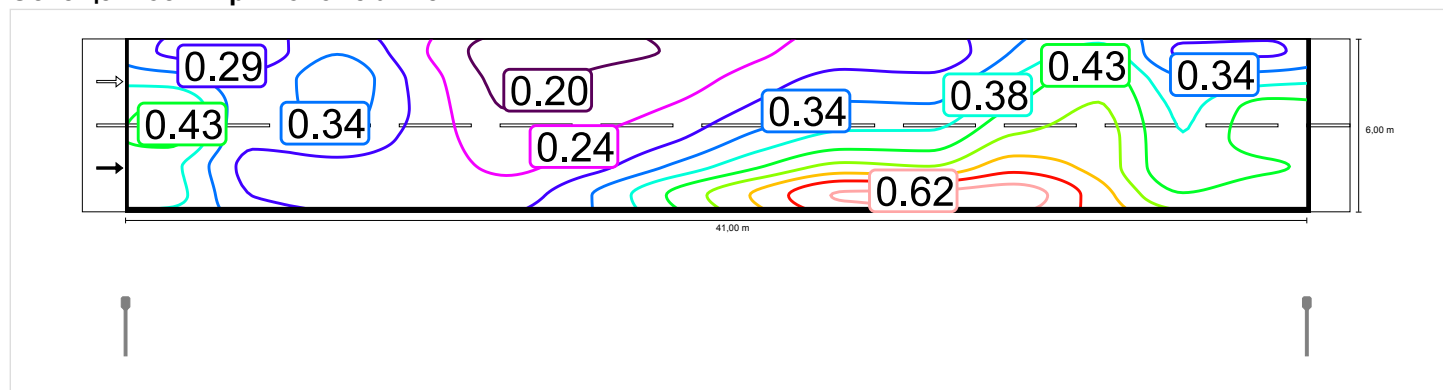


Наблюдатель 1

Освещенность при сухой проезжей части

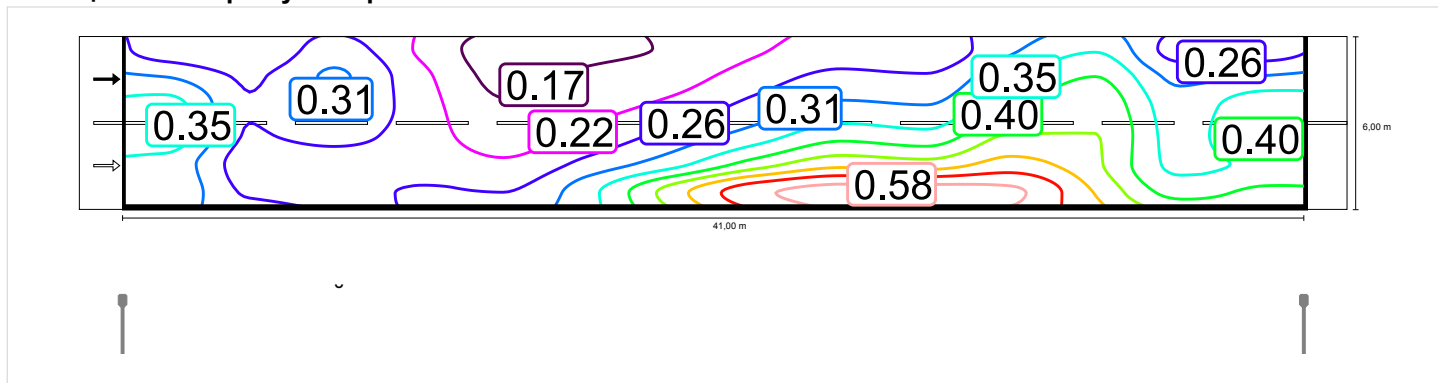


Освещенность при новой лампе



Наблюдатель 2

Освещенность при сухой проезжей части



Освещенность при новой лампе

