



Iluminat public Ștefanesti

Luctări de execuție a proiectului Iluminat stradal din satul Ștefănești



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Description

Pentru iluminatul rutier si pietonal, calculele luminotehnice trebuie sa asigure urmatoarelor obiective:

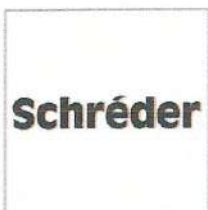
- Drum central nivel de iluminat E mediu - 6 lx
- Drum secundar nivel de iluminat E mediu - 4 lx

Date pentru calcul:

- Montaj: unilateral, la fiecare pilon, câte 1 corp de iluminat pe pilon
- Distanța între piloni: 35 m (în medie pe localitate)
- Lățime carosabil: 5,5 m (în medie pe localitate)
- Retrageră stâlp: 2 m
- Înălțimea de montare: 6 - 6,5 m
- Lungime consola: 1 m
- Unghi înclinare PL: 0° - maxim 15°

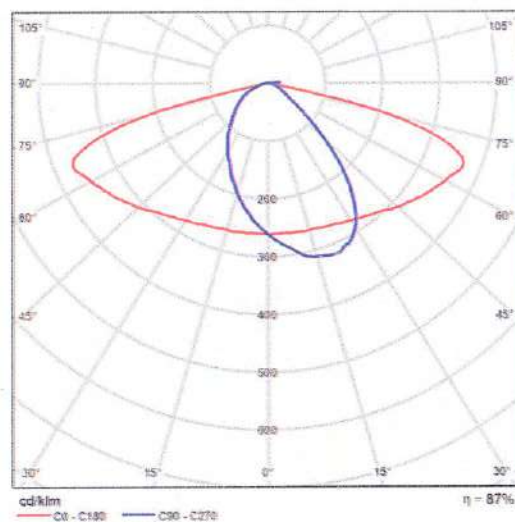
Product data sheet

SCHREDER VOLTANA 0

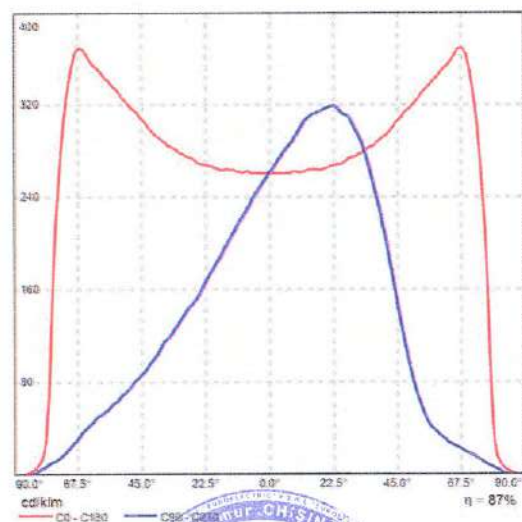


Article No. VOLTANA 0 5137 8
LH351C@1050mA
NW 740 230V 00-49-069

P	29.3 W
Φ_{Lamp}	3860 lm
$\Phi_{\text{Luminaire}}$	3353 lm
η	86.88 %
Luminous efficacy	114.4 lm/W
CCT	3000 K
CRI	100



Polar LDC

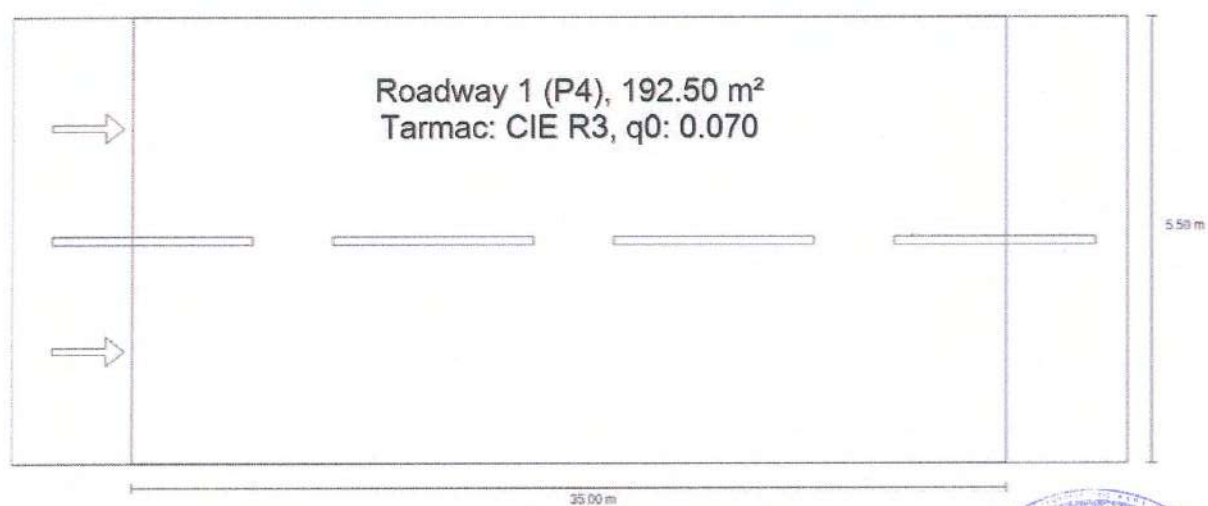


Linear LDC



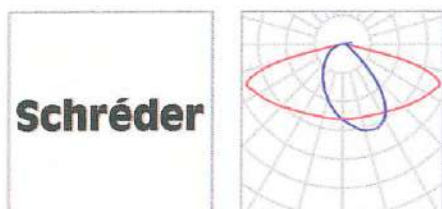
Street 1

Summary (according to EN 13201:2015)



Street 1

Summary (according to EN 13201:2015)



Manufacturer	SCHREDER
Article No.	VOLTANA 0 5137 8 LH351C@1050mA NW 740 230V 00-49-069
Article name	VOLTANA 0
Fitting	1x 8 LH351C@1050mA NW 740 230V 00-49-069 [CJOISCSTDA], valid from 21/02/2019

P	29.3 W
Φ_{Lamp}	3860 lm
$\Phi_{Luminaire}$	3353 lm
η	86.88 %

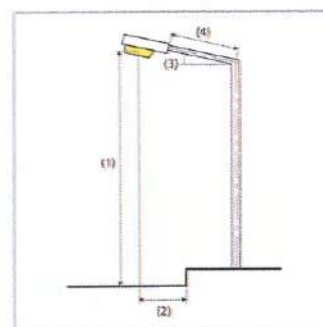


Street 1

Summary (according to EN 13201:2015)

VOLTANA 0 (single side bottom)

Pole distance	35.000 m
(1) Light spot height	6.500 m
(2) Light point overhang	-1.500 m
(3) Boom inclination	0.0°
(4) Boom length	0.500 m
Annual operating hours	4000 h: 100.0 %, 29.3 W
Consumption	849.7 W/km
ULR / ULOR	0.00 / 0.00
Max. luminous intensities Any direction forming the specified angle from the downward vertical, with the luminaire installed for use.	$\geq 70^\circ$: 505 cd/klm $\geq 80^\circ$: 72.9 cd/klm $\geq 90^\circ$: 0.00 cd/klm
Luminous intensity class The luminous intensity values in [cd/klm] for calculation of the luminous intensity class refer to the luminaire luminous flux according to EN 13201:2015.	G*3
Glare index class	D.6



Results for valuation fields

	Symbol	Calculated	Target	Check
Roadway 1 (P4)	$E_{av}^{(2)}$	6.41 lx	[6.00 - 9.00] lx	✓
	E_{min}	2.02 lx	≥ 1.00 lx	✓
	TI	16 %	≤ 30 %	✓

(2) Setpoint changed by the planner, deviant to the norm

A maintenance factor of 0.85 was used for calculating for the installation.



Street 1

Summary (according to EN 13201:2015)

Results for energy efficiency indicators

	Symbol	Calculated	Consumption
Street 1	D_p	0.024 W/lx·m ²	-
VOLTANA 0 (single side bottom)	D_e	0.6 kWh/m ² yr,	117.2 kWh/yr





Organisme belge d'Accréditation
Belgische Accreditatieinstelling
Belgische Akkreditierungsstelle
Belgian Accreditation Body
EA MLA Signatory

Annexe au certificat d'accréditation
Bijlage bij accreditatiecertificaat
Annex to the accreditation certificate
Beilage zur Akkreditierungszertifikat

226-TEST

EN ISO/IEC 17025:2017

Version / Versie / Version / Fassung	12
Validité / Geldigheidsperiode / Validity / Gültigkeitsdauer	2021-05-28 - 2026-05-27

Maureen Logghe
La Présidente du Bureau d'Accréditation
Voorzitter van het Accreditatiebureau
Chair of the Accreditation Board
Vorsitzende des Akkreditierungsbüro

L'accréditation est délivrée à / De accreditatie werd uitgereikt aan
The accreditation is granted to / Die akkreditierung wurde erteilt für:

Recherche et Technologie - Research for Technology sa
R-Tech sa
Rue de Mons 3
4000 Liège

Accréditation
Service public fédéral Economie
P.M.E., Classes moyennes et Energie
Bd du Roi Albert II 16 - 1000 Bruxelles
Numéro d'entreprise : 0314.595.348

Accreditatie
Federale Overheidsdienst Economie
K.M.O., Middenstand en Energie
Koning Albert II-laan 16 - 1000 Brussel
Ondernemingsnummer : 0314.595.348

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belac@economie.fgov.be
www.belac.be

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Code essai <i>Test Code</i>	Echantillons <i>Samples</i>	Caractéristique mesurée Gamme de mesure <i>Measurement Measurement range</i>	Description méthode d'essai Equipement <i>Testing Methodology Description Equipment</i>
PTP-01	Lampes à incandescence ou à décharge pour luminaires.	Flux lumineux exprimé en lumen (lm)	Mesure du flux lumineux en sphère d'Ulbricht selon la norme de référence EN 13032-1 § 6.1.2. Pour toutes lampes sauf les LED (Solid State Lighting)
	<i>Incandescent or high intensity discharge lamp for luminaires.</i>	<i>Luminous flux in lumen (lm)</i>	<i>Luminous flux measurement with Ulbricht's sphere according to EN 13032 § 6.1.2 Standard for all light sources except LED (Solid State Lighting)</i>
PTP-01	Sources lumineuses de type LED pour luminaires.	Flux lumineux exprimé en lumen (lm)	Mesure du flux lumineux en sphère d'Ulbricht selon la norme de référence EN 13032-1 § 6.1.2, EN 13032-4, CIE S 025/E et IES LM79-08. Pour LEDs (Solid State Lighting)
	<i>LED light source for luminaires.</i>	<i>Luminous flux in lumen (lm)</i>	<i>Luminous flux measurement with Ulbricht's sphere according to EN 13032-1 § 6.1.2, EN 13032-4, CIE S 025/E et IES LM79-08 Standard. For LED (Solid State Lighting)</i>
PTP-02	Luminaires pour lampes à incandescence ou à décharge	Distribution des intensités lumineuses exprimées en candela (cd)	Relevé photométrique au goniophotomètre selon la norme de référence EN 13032-1 et CIE 121-1996 Pour toutes lampes sauf les LED (Solid State Lighting)
	<i>Luminaires for incandescent, HID lamp</i>	<i>Light distribution in candela (cd)</i>	<i>Light distribution measurement with goniometer according to EN 13032-1 and CIE 121-1996 Standard for all light sources except LED (Solid State Lighting)</i>



PTP-02	Luminaires à sources lumineuses de type LED pour luminaires. <i>Luminaires for LED light sources.</i>	Distribution des intensités lumineuses exprimées en candela (cd) <i>Light distribution in candela (cd)</i>	Relevé photométrique au goniophotomètre selon la norme de référence EN 13032-1, EN 13032-4, CIE S 025/E, CIE 121-1996 et IES LM79-08 Pour les LED (Solid State Lighting) <i>Light distribution measurement with gonio according to EN 13032-1, EN 13032-4, CIE S 025/E, CIE 121-1996 et IES LM79-08 Standard. For LED (Solid State Lighting)</i>
PTP-09	Lampes à incandescence ou à décharge pour luminaires ou luminaires associés. <i>Incandescent or high intensity discharge lamp for luminaires or associated luminaires.</i>	Données colorimétriques : IRC, T° de couleur, coordonnées trichromatiques, données spectrales (domaine du visible) <i>Colorimetric values, CRI, CCT, tristimulus values, spectrum (visible range)</i>	Relevé colorimétrique en sphère via spectromètre selon la norme de référence EN 13032-1 et CIE 13.3, 15, 63, 121-1996 S014 (1,2 et 3) Pour équipements lumineux sauf ceux incluant des LED (Solid State Lighting) <i>Colorimetric measurement with spectrometric sphere to EN 13032-1 and CIE 13.3, 15, 63, 121-1996 S014 (1,2 et 3) Standard for all light equipment except LED (Solid State Lighting)</i>
PTP-09	Sources lumineuses de type LED pour luminaires ou luminaires associés. <i>Led light source for luminaires or associated luminaires.</i>	Données colorimétriques : IRC, T° de couleur, coordonnées trichromatiques, données spectrales (domaine du visible) <i>Colorimetric values, CRI, CCT, tristimulus values, spectrum (visible range)</i>	Relevé colorimétrique en sphère et spectromètre selon la norme de référence EN 13032-1, EN 13032-4, CIE S 025/E et CIE 13.3, 15, 63, 121-1996 S014 (1,2 et 3) et IES LM79-08 pour équipements lumineux à LED (Solid State Lighting) <i>Colorimetric measurement with spectrometric sphere according to EN 13032-1, EN 13032-4, CIE S 025/E et CIE 13.3, 15, 63, 121-1996 S014 (1,2 et 3) and IES LM79-08 Standard. For LED light equipment (Solid State Lighting)</i>



PT-S-01	Luminaires <i>Luminaires</i>	Essais de protection contre la pénétration de l'humidité (IPX3, IPX4) <i>Test of protection against humidity (IPX3 - IPX4)</i>	Evaluation de la protection contre l'humidité suivant la norme IEC 60598-1 <i>Evaluation of the protection against humidity according to IEC 60598-1 Standard</i>
PT-S-02	Echantillon de verre protecteur pour luminaires <i>Glass protectors for luminaires</i>	Test de fragmentation <i>Fragmentation test</i>	Evaluation de la fragmentation d'un verre suivant les normes IEC 60598-2-3 & IEC 60598-2-5 & GDE-GUI-003 <i>Evaluation of the fragmentation of a glass sample according to IEC 60598-2-3 & IEC 60598-2-5 & GDE-GUI-003</i>
PT-S-04	Luminaires <i>Luminaires</i>	Test d'endurance <i>Endurance test</i>	Test d'endurance sur luminaires suivant la norme IEC 60598-1 <i>Endurance test on luminaires according to IEC 60598-1 Standard</i>
PT-S-05	Luminaires <i>Luminaires</i>	Résistance mécanique (IK07 à IK10) <i>Mechanical resistance (IK07 to IK10)</i>	Essai de résistance mécanique aux impacts (code IK)- méthode au marteau pendulaire suivant norme IEC/TR 62696 & IEC 60598 et GDE-GUI-003 <i>Mechanical resistance to impacts (IK code) - Pendulum hammer method according to IEC/TR 62696 & IEC 60598 & GDE-GUI-003</i>
PT-S-06	Luminaires <i>Luminaires</i>	Essais de protection contre la pénétration des poussières (IP5X, IP6X) <i>Protection against dust (IP5X - IP6X)</i>	Evaluation de la protection contre les poussières suivant la norme IEC 60598-1 & PT-S-06 <i>Evaluation of the protection against dust according to IEC 60598-1 Standard & PT-S-06</i>
PT-S-07	Luminaires <i>Luminaires</i>	Essai d'échauffement en fonctionnement normal <i>Thermal test in normal operation</i>	Evaluation de l'échauffement des composants suivant la norme IEC 60598-1 & PT-S-07 & GDE-POL-001 <i>Evaluation of the components heating according to IEC 60598-1 Standard and PT-S-07 & GDE-POL-001</i>



PT-S-15	Luminaire <i>Luminaire</i>	Essais de protection contre la pénétration des poussières (IP3X, 4X) <i>Protection against dust (IP3X, 4X)</i>	Evaluation de la protection contre l'entrée des solides suivant la norme IEC 60598-1 & PT-S-15 <i>Evaluation of the protection against solid ingress according to IEC 60598-1 Standard & PT-S-15</i>
PT-S-16	Modules led <i>Led modules</i>	Essais d'endurance pour la durée de vie du module led <i>Endurance test for led module life</i>	Evaluation de la dépréciation du flux après cyclage thermique suivant la norme IEC 62717 & PT-S-16 <i>Evaluation of the flux depreciation after thermal cycling according to IEC 62717 & PT-S-16</i>
PT-S-17	Modules led <i>Led modules</i>	Evaluation de l'échauffement en condition de surpuissance <i>Evaluation of the heating in overpower condition</i>	Evaluation de l'échauffement en condition de surpuissance suivant IEC 62031 & PT-S-17 <i>Evaluation of the heating in overpower condition according to IEC 62031 & PT-S-17</i>
PT-S-18	Luminaire <i>Luminaire</i>	Essais de conductivité de terre <i>Earth continuity test</i>	Mesure de la résistance du circuit de terre suivant IEC 60598-1 & PT-S-18 <i>Earth circuit resistance measurement according to IEC 60598-1 & PT-S-18</i>
PT-S-19	Luminaire <i>Luminaire</i>	Essai de résistance d'isolement <i>Insulation resistance test</i>	Mesure de la résistance électrique des matériaux isolants suivant IEC 60598-1 & PT-S-19 <i>Electrical resistance measurement of the insulating material according to IEC 60598-1 & PT-S-19</i>
PT-S-20	Luminaire <i>Luminaire</i>	Essai de rigidité diélectrique <i>Electrical strength test</i>	Evaluation de la résistance au claquage suivant IEC 60598-1 & PT-S-20 <i>Evaluation of the breakdown voltage according to IEC 60598-1 & PT-S-20</i>
PT-S-21	Luminaire <i>Luminaire</i>	Essai de charge statique (Essai A) <i>Static load test (A test)</i>	Evaluation de la résistance des moyens de fixation à une charge statique suivant la norme IEC 60598-1 & PT-S-11 <i>Evaluation of the resistance of the fixation means to static load according to IEC 60598-1 Standard & PT-S-11</i>





Organisme belge d'Accréditation
Belgische Accreditatieinstelling
Belgische Akkreditierungsstelle
Belgian Accreditation Body

EA MLA Signatory

Certificat d'Accréditation n° 226-TEST

En application des dispositions de l'arrêté royal du 31 janvier 2006 créant BELAC, le Bureau d'Accréditation atteste avoir délivré une accréditation conformément aux exigences de la norme EN ISO/IEC 17025:2017 à:

Recherche et Technologie - Research for Technology sa
R-Tech sa
Rue de Mons 3
4000 Liège

L'organisme a démontré posséder la compétence pour effectuer les activités réalisées dans les sites d'activités mentionnés dans la portée d'accréditation 226-TEST qui fait partie intégrante du présent certificat.

La version en vigueur de la portée d'accréditation est disponible via www.belac.be.

Ce certificat reste valable à condition que l'organisme continue de répondre aux conditions d'accréditation.

La Présidente du Bureau d'Accréditation BELAC,


Maureen LOGGHE

Version : 5

Période de validité : 2021-05-28 - 2026-05-27





Organisme belge d'Accréditation
Belgische Accreditatieinstelling
Belgische Akkreditierungsstelle
Belgian Accreditation Body

EA MLA Signatory

Accreditatiecertificaat nr. 226-TEST

In uitvoering van de beschikkingen van het koninklijk besluit van 31 januari 2006 tot oprichting van BELAC, verklaart het Accreditatiebureau accreditatie conform de eisen van de norm EN ISO/IEC 17025:2017 te hebben verleend aan:

Recherche et Technologie - Research for Technology sa
R-Tech sa
Rue de Mons 3
4000 Liège

De instelling heeft aangetoond bekwaamheid te bezitten voor de activiteiten uitgevoerd in de activiteitencentra zoals gespecificeerd in de accreditatiescope 226-TEST die integraal deel uitmaakt van dit certificaat.

De huidige versie van de accreditatiescope is beschikbaar op www.belac.be.

Dit certificaat blijft geldig onder voorwaarde dat de instelling blijft voldoen aan de accreditatievoorwaarden.

De Voorzitster van het Accreditatiebureau BELAC,

Maureen LOGGHE

Versie : 5

Geldigheidsduur : 2021-05-28 - 2026-05-27

De originele versie van dit certificaat is in het Frans.





Organisme belge d'Accréditation
Belgische Accreditatieinstelling
Belgische Akkreditierungsstelle
Belgian Accreditation Body

EA MLA Signatory

Accreditation Certificate No. 226-TEST

In compliance with the provisions of the Royal Decree of 31 January 2006 setting up BELAC, the Accreditation Board hereby declares to have granted accreditation conform the requirements of the standard EN ISO/IEC 17025:2017 to:

Recherche et Technologie - Research for Technology sa
R-Tech sa
Rue de Mons 3
4000 Liège

The body demonstrated the competence to perform the activities in the activity sites, as described in the scope of accreditation 226-TEST which is an integral part of the present certificate.

The current version of the scope of accreditation is available at www.belac.be.

This certificate remains valid as long as the body continues to meet the accreditation conditions.

The Chair of the Accreditation Board BELAC,

Maureen LOGGHE

Version : 5

Validity period : 2021-05-28 - 2026-05-27

Original version of this certificate is in French.



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Organisme belge d'Accréditation
Belgische Accreditatieinstelling
Belgische Akkreditierungsstelle
Belgian Accreditation Body

EA MLA Signatory

Akkreditierungszertifikat Nr. 226-TEST

Aufgrund der Bestimmungen des königlichen Erlasses vom 31. Januar 2006 zur Gründung von BELAC, bestätigt das Akkreditierungsbüro, gemäß den Vorschriften der Norm EN ISO/IEC 17025:2017, die folgende Stelle akkreditiert zu haben:

**Recherche et Technologie - Research for Technology sa
R-Tech sa
Rue de Mons 3
4000 Liège**

Die Stelle hat ihre Kompetenz für die in den Aktivitätszentren durchgeführten Aktivitäten gemäß dem Geltungsbereich der Akkreditierung 226-TEST, der ein integraler Bestandteil des vorliegenden Zertifikats ist, nachgewiesen.

Die aktuelle Version des Geltungsbereichs der Akkreditierung ist unter www.belac.be verfügbar.

Dieses Zertifikat bleibt unter der Bedingung gültig, dass die Stelle die Akkreditierungsanforderungen weiterhin erfüllt.

Die Vorsitzende des Akkreditierungsbüros BELAC,

Maureen LOGGHE

Fassung : 5

Gültigkeitsdauer : 2021-05-28 - 2026-05-27

Die Originalfassung dieses Zertifikats ist in französischer Sprache.



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Organisme belge d'Accréditation
Belgische Accreditatieinstelling
Belgische Akkreditierungsstelle
Belgian Accreditation Body

Signatory to EA, ILAC and IAF
Multilateral Agreements

Accreditation Certificate No. 226-TEST

In compliance with the provisions of the Royal Decree of 31 January 2006 setting up BELAC, the Accreditation Board hereby declares, that the test laboratory

LABORATOIRE DE PHOTOMETRIE DE R-TECH
Rue de Mons, 3
4000 LIEGE - Belgium

has the competence to perform the tests as described in the annex which is an integral part of the present certificate, in accordance with the requirements of the standard NBN EN ISO/IEC 17025:2005. The present accreditation is the subject of regular surveillance in order to confirm the compliance with the accreditation conditions.

The Chair of the Accreditation Board BELAC,

Issue date : 2016-05-19

Validity date : 2021-05-27

Original version of this certificate is in French.

Nicole MEURÉE-VANLAETHEN



SUPERVISED MANUFACTURER'S TESTING

Report nr. CEBEC-002B

SGS Belgium NV

Division SGS CEBEC

Business Riverside Park
Bld Internationalelaan, 55 Build. D
B-1070 Brussels - Belgium

Acting as national Certification Body participation in the Certification Bodies Scheme (CB Scheme) and the European Certification System (ECS) has recognized the following laboratory as

SMT laboratory nr. CEBEC-002

Operating in the framework of the IECEE CB-scheme and ECS certification system (CCA and ENEC).

Approved laboratory, name and address:

Service Laboratoire
R-TECH S.A.
Rue de Mons, 3
BE-4000 LIEGE

Manufacturing factories:

European Factories
Belonging to the
Schröder Group G.I.E.

Products covered by the contract:

Category	Standards	Products
LITE	IEC/EN 60598-1 IEC/EN 60598-2-1 IEC/EN 60598-2-3 IEC/EN 60598-2-5 IEC/EN 60598-2-13	Luminaires Fixed general purpose luminaires Luminaires for road and street lighting Floodlights Ground recessed luminaires

Brussels, 2013-02-01


ir. C. Lana,
Certification Manager



SGS Belgium NV

Division SGS CEBEC Bld Internationalelaan, 55 Build. D B-1070 Bruxelles/Brussel tel. +32 (0) 556 00 20 fax: +32 (0) 556 00 36 www.cebec.sgs.com
Siège Social/Maatschappelijke Zetel: SGS House Noorderlaan 87 B-2030 Antwerpen

Member of the SGS Group (Société Générale de Surveillance)

RPM/RPR Anvers/Antwerpen TVA/BTW BE 404.662.790 Dexia 550-356000-93

AUTORIZARE

Către: **Primăria Ștefănești**

Noi, **SCHRÉDER ROMANIA S.R.L.**, cu sediul în Cluj - Napoca, str. Corneliu Coposu, nr. 167A, înregistrată la Registrul Comerțului cu nr. J12 / 1759 / 1998, în calitate de producători de aparate de iluminat public de tipul:

- Aparat de iluminat Schreder, tip VOLTANA 0 8L

autorizăm prin prezenta pe furnizorul **COMELEC-LUX S.R.L.**, să livreze produsele mai sus menționate.

Prin prezenta garantăm calitatea și performanțele produselor oferite și autorizăm pe **COMELEC-LUX S.R.L.**, să asigure pentru produsele respective îndeplinirea obligațiilor care decurg din contractul de furnizare, referitoare la serviciile de instalare și punere în funcțiune, de întreținere și de asistență tehnică.

Data completării: 06.09.2021

Producător
SCHRÉDER ROMANIA S.R.L.
Director Comercial,
Ovidiu GROZA



CERTIFICAT DE GARANȚIE
Nr. 557/06.09.2021

Producător/ Furnizor: SCHRÉDER ROMANIA S.R.L.

Beneficiar: **Primăria Ștefănești**

Data livrării: pe perioada de valabilitate a: **Lucrări de execuție a proiectului Iluminat stradal din satul Ștefănești**

Termen de garanție:

- Aparat de iluminat Schreder, tip VOLTANA 0 8L: 5 ani de la data livrării

Condiții de asigurare a garanției :

- **Se asigură garanție** pentru orice defecțiune a produsului generată de vicii ascunse care nu au putut fi detectate la momentul recepției de către Beneficiar.
- **Nu se asigură garanție** pentru viciile aparente după data recepției de către Beneficiar.
- Utilizarea necorespunzătoare a produsului și orice intervenție asupra sa **duce la pierderea garanției**.
- **Nu se asigură garanție** pentru materialele consumabile (varistori, fuzibili).
- **Nu se asigură garanție** dacă acest certificat nu este însoțit de originalul sau copia facturii de achiziție.

La livrare s-au predat Beneficiarului instrucțiuni de instalare, de punere în funcțiune, utilizare, întreținere, manipulare, depozitare și transport.

SCHRÉDER ROMANIA S.R.L.
Director Comercial,

Ovidiu GROZA



Eliberat,
Septembrie 2021, Cluj-Napoca



Schröder

Experts in lightability™

DECLARAȚIE DE CALITATE

Nr. 557/ 06.09.2021

Producător/Furnizor: SCHRÉDER ROMANIA S.R.L.
Beneficiar: **Primăria Ștefănești**

În conformitate cu prevederile legale privind calitatea produselor livrate, SCHRÉDER ROMANIA S.R.L. declară pe propria răspundere că produsele care vor fi livrate în cadrul contractului **“Lucrări de execuție a proiectului Iluminat stradal din satul Ștefănești”** în concordanță cu Declarația de conformitate nr. 557/ 06.09.2021 îndeplinesc condițiile de calitate prevăzute în documentația tehnică cu care vor fi livrate produsele.

SCHRÉDER ROMANIA S.R.L.
Director Comercial,

Ovidiu GROZA



Eliberat,
Septembrie 2021, Cluj-Napoca



DECLARAȚIE DE CONFORMITATE

Nr. 557/ 06.09.2021

Noi, SCHRÉDER ROMANIA S.R.L., cu sediul în Cluj - Napoca, str. Corneliu Coposu, nr. 167A, înregistrată la Registrul Comerțului cu nr. J12/1759/1998, asigurăm, garantăm și declarăm pe propria răspundere, conform prevederilor art. 4 din Hotărârea Guvernului nr. 1022 / 2002 privind regimul produselor care pot pune în pericol viața, sănătatea, securitatea muncii și protecția mediului, că următoarele produse:

- Aparat de iluminat Schreder, tip VOLTANA 0 6L

care vor fi livrate în cadrul contractului: **“Lucrări de execuție a proiectului Iluminat stradal din satul Ștefănești”** nu pun în pericol viața, sănătatea, securitatea muncii și nu produc un impact negativ asupra mediului, în situația în care sunt instalate și utilizate conform destinației.

SCHRÉDER ROMANIA S.R.L.

Director Comercial,

Ovidiu GROZA



DECLARAȚIE DE CONFORMITATE
Nr. 557/ 06.09.2021

Noi, SCHRÉDER ROMANIA S.R.L., cu sediul în Cluj - Napoca, str. Corneliu Coposu, nr. 167A, înregistrată la Registrul Comerțului cu nr. J12/1759/1998, asigurăm, garantăm și declarăm pe propria răspundere, conform prevederilor art. 4 din Hotărârea Guvernului nr. 1022 / 2002 privind regimul produselor care pot pune în pericol viața, sănătatea, securitatea muncii și protecția mediului, că următoarele produse:

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SCHRÉDER ROMANIA S.R.L.
Director Comercial,

Ovidiu GROZA



Declarație în atenția: **Primăria Ștefănești**

Din partea: **SCHRÉDER ROMANIA S.R.L.** și afiliații săi, în poziția de furnizori

DECLARAȚIA RoHS APARATE DE ILUMINAT

„Restricția folosirii anumitor substanțe periculoase în echipamentul electric și electronic” –
(RoHS) Directiva Europeană 2002/95/EC

Prin prezenta, *furnizorul* garantează că toate produsele și componentele lor, și materialele care intră în componența produselor și a componentelor acestora, furnizate către **COMELEC-LUX S.R.L.**, sunt conforme cerințelor Directivei RoHS.

Mai departe, *furnizorul* confirmă prin prezenta că informația transmisă prin această declarație este corectă și ia la cunoștință faptul că **COMELEC-LUX S.R.L.**, va acorda încredere totală reprezentărilor pe parcursul derulării contractelor cu propriii clienți și va considera furnizorul răspunzător în cazul în care oricare dintre informațiile transmise este neadevărată sau incorectă.

*Notă: Nivelurile maxime admise conform Directivei RoHS sunt:

- ☐ 0.1% din greutate în materiale omogene pentru conductori;
- ☐ 0.1% din greutate în materiale omogene pentru crom hexavalent;
- ☐ 0.1% din greutate în materiale omogene pentru mercur;
- ☐ 0.1% din greutate în materiale omogene pentru difenil polibromurat;
- ☐ 0.1% din greutate în materiale omogene pentru eter difenil polibromurat;
- ☐ 0.01% din greutate în materiale omogene pentru cadmiu.

Aprobat:

SCHRÉDER ROMANIA S.R.L.

Director Comercial,

Ovidiu GROZA



06 Septembrie 2021,
Cluj-Napoca





BUREAU
VERITAS

Bureau Veritas Certification

Schröder Magyarország Zrt.

2084 Pilisszentiván, Tópart 2. Hungary

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standards detailed below

ISO 9001:2015

Scope of certification

Design, manufacturing, sales of lighting fittings, their supporting structures and street furnitures

Original cycle start date: 27-06-2015

Expiry date of previous cycle: 26-06-2021

Certification / Recertification Audit date: 05-06-2021

Certification / Recertification cycle start date: 25-06-2021

Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: 26-06-2024

Certificate No.: HU005348 Version: 1 Issue Date: 25-06-2021

Bácsi Zoltán



0008

Certification Body Address: 5th Floor, 66 Prescott Street, London, E1 8HG, United Kingdom

Local Office: Bureau Veritas Magyarország Kft., Budafoki út 56., Budapest/H-1147, Magyarország

Further clarifications regarding the scope and validity of this certificate, and the applicability of the management system requirements, please call: +36 1 802 6900.





BUREAU
VERITAS

Bureau Veritas Certification

Schröder Magyarország Zrt.

2084 Pilisszentiván, Tópart 2. Hungary

Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standards detailed below

ISO 14001:2015

Scope of certification

Design, manufacturing, sales of lighting fittings, their supporting structures and street furnitures

Original cycle start date: 27-06-2015

Expiry date of previous cycle: 26-06-2021

Certification / Recertification Audit date: 05-06-2021

Certification / Recertification cycle start date: 25-06-2021

Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: 26-06-2024

Certificate No.: HU005347 Version: 1 Issue Date: 25-06-2021

Bárcsai Zoltán



0008

Certification Body Address: 5th Floor, 66 Prescott Street, London, E1 8HG, United Kingdom

Local Office: Bureau Veritas Magyarország Kft., Budafoki út 56., Budapest H-1117, Magyarország

Further clarifications regarding the scope and validity of this certificate, and the applicability of the management system requirements, please call: +36 1 802 6900.





BUREAU
VERITAS

Bureau Veritas Certification

Certificate

Awarded to

Schröder Magyarország Zrt

H - 2084 Pilisszentiván, Tópart utca 2.
Hungary

BUREAU VERITAS CERTIFICATION CZ, s.r.o. certifies that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standard detailed below:

Standard

ISO 45001:2018

Scope of supply

Design, manufacturing, sales of lighting fittings, their supporting structures and street furniture

Original Approval Date:	22-07-2015
Expiry date of previous cycle:	21-07-2021
Recertification Cycle Start Date:	22-07-2021
Recertification Cycle End Date:	21-07-2024
Subject to the continued satisfactory operation of the organization's Management System, this certificate is valid until:	21-07-2024

To check this certificate validity please call: +36 1 802 6900

Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organization.

Version 1 Issue Date: 16-07-2021

Certificate Number: CZE - 2100157



MANAGING OFFICE: BUREAU VERITAS CERTIFICATION CZ, s.r.o., Olbrachtova 1, 140 02 Praha 4, Czech Republic
ISSUING OFFICE ADDRESS: BUREAU VERITAS CERTIFICATION CZ, s.r.o., Olbrachtova 1, 140 02 Praha 4, Czech Republic





BUREAU
VERITAS

Bureau Veritas Certification

Certificate

Awarded to

Schröder Magyarország Zrt

H-2084 Pilisszentiván, Tópart 2.
Hungary

BUREAU VERITAS CERTIFICATION CZ, s.r.o. certifies that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standard detailed below:

Standard

ISO 50001:2018

Scope of energy management system

**Design, manufacturing, sales of lighting fittings,
their supporting structures and street furniture**

Original Approval Date:	01-12-2017
Expiry date of previous cycle:	30-11-2020
Recertification Cycle Start Date:	01-12-2020
Recertification Cycle End Date:	30-11-2023
Subject to the continued satisfactory operation of the organisation's Management System, this certificate is valid until:	
	30-11-2023

To check this certificate validity please call: +36 1 802 6900

Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organisation.

Version 1 Issue Date: 22-04-2021

Certificate Number: CZE - 210729



MANAGING OFFICE: BUREAU VERITAS CERTIFICATION CZ, s.r.o., Olbrachtova 1, 140 02 Praha 4, Czech Republic

ISSUING OFFICE ADDRESS: BUREAU VERITAS CERTIFICATION CZ, s.r.o., Olbrachtova 1, 140 02 Praha 4, Czech Republic



LED Flux measurement

Date : 16-01-19

Operator : FCE

Filename : 2019_58.xml

FORM-L-41 ED1 REV 2



226 - TEST

NBN EN ISO/IEC 17025 : 2005

LEDs

Trademark : **Samsung**

Entry number : **39R005-2**

Type : **LH351C**

Power (Catalogue) : **0,00** W

BIN Description : **40-70M-4-TB-RB**

Flux : **0** lm/LED

Part number : **Unknown**

Color or CCT (Theoretical) : **NW**

Number of LEDs : **8**

Lenses

Trademark : **None**

Type : **None**

Power & Print

Type : **DELTA SM400-AR-4**

Print description : **00-71-636 A - Voltana 1**

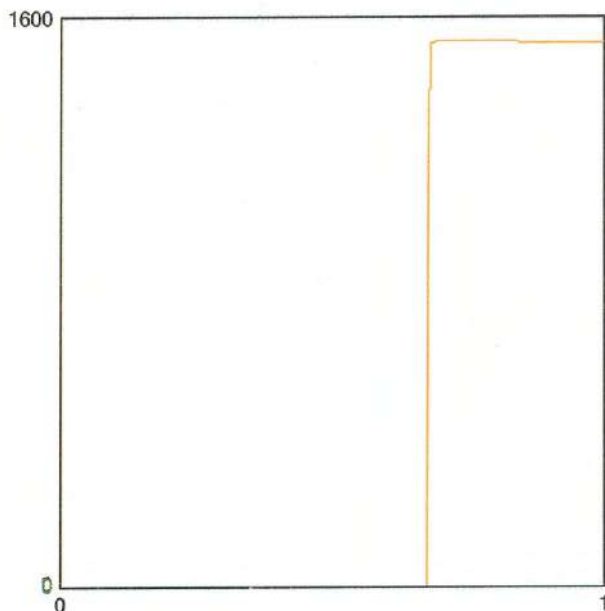
Active ☐

Picture



Sphere photometric measurement

Maximum flux : **1538** lumens



Operating condition

Position in sphere :



Ambient sphere T ° : **24,3**

Electrical measurement

● Secondary electrical measurement

Voltage : **22,37 V**

Current : **0,350 A**

Power : **7,82 Watt**

→ LEDs light efficiency at 25° :

196,6 lm/W

192,2 lm/Led

● Primary electrical measurement

Voltage : **N/A V**

Current : **N/A A**

Power : **N/A Watt**

Cos φ : **N/A**

→ Driver losses : **N/A %**

→ LEDS & Driver light efficiency :

N/A lm/W

Description :

Flux @25°/350mA - pcb Voltana 1 - 8 Samsung LH351C - pcb N°2

Comment :

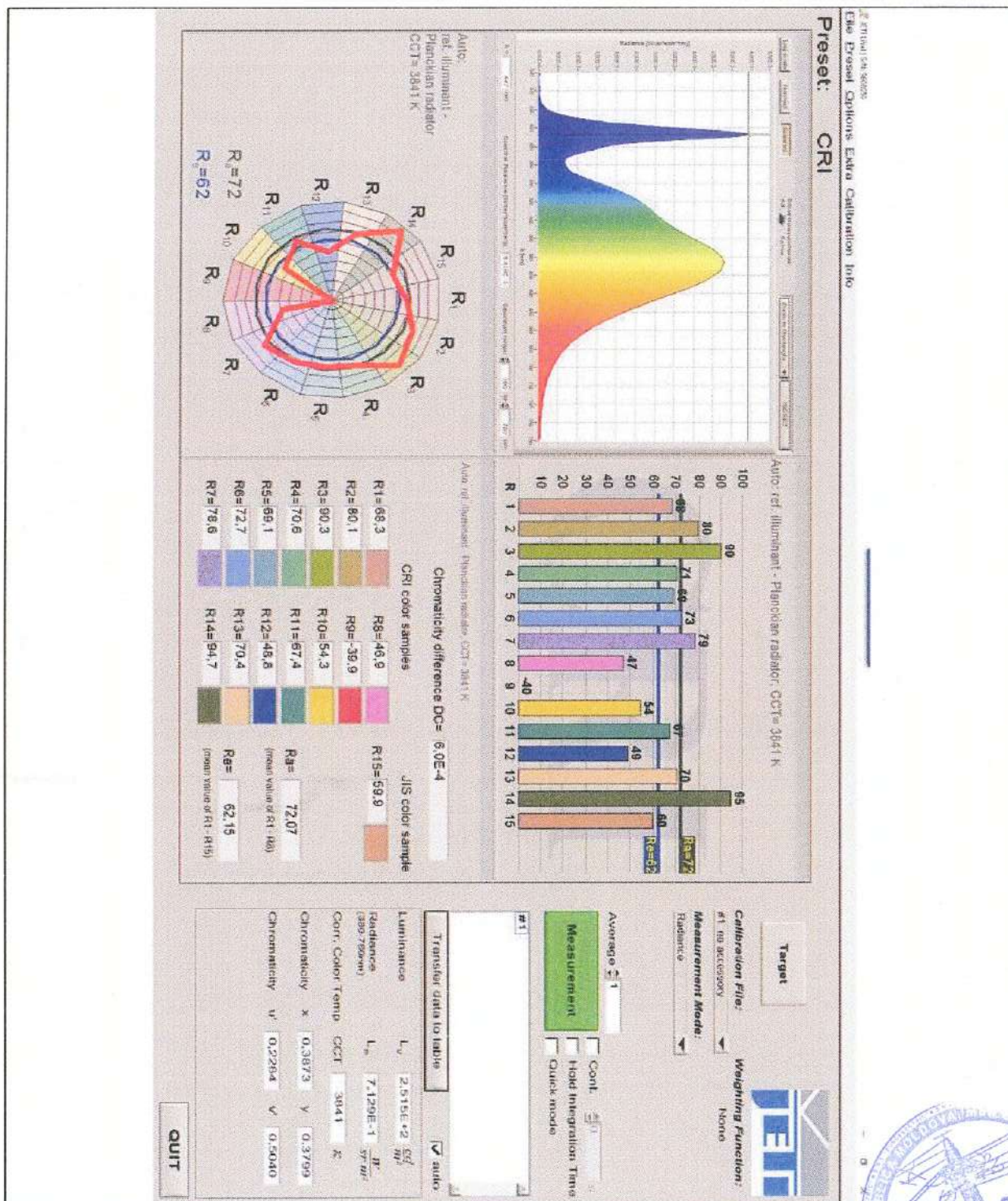
Approved by :

FORM-L-41 ED1 REV 2



LED 2019/58 2/3

Colorimetry



RTECH-PHOTOMETRY LABORATORY

Testreport : Measurement of luminous intensity distribution related to the standard
NBN-EN 13032-1; NBN-EN 13032-4; CIE 121-1996; CIE S 025/E; IES LM-79-08 and procedures PT-P-01
and PT-P-02

rue de Mons, 3 B-4000 LIEGE - Tel : 04/224.71.40 - Fax : 04/224.25.90
Measurement for Schröder group.

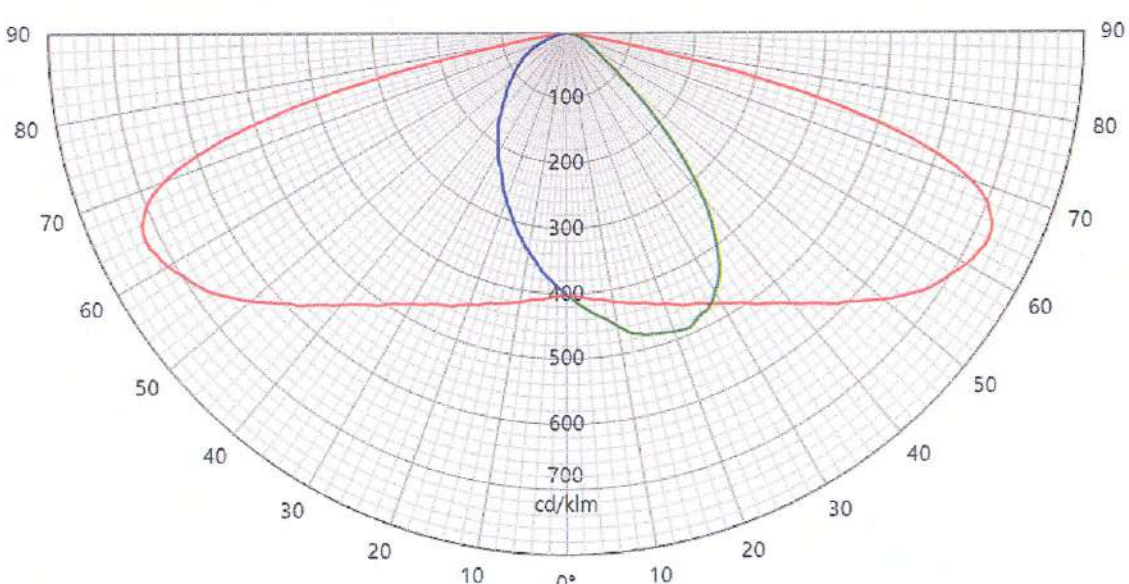
LED

Origin TUNGSRAM-Schröder Zrt. Hungary	Production TUNGSRAM-Schröder Zrt. Hungary	Luminaire VOLTANA 0	Inclination 0°	Request # FD39019
Type LED	BIN 40-70M-4-TB-RB	Source Trademark Samsung	Reference LH351C	# LEDs 8
Reflector No	Schreder Led assembly Medium Assembled 0.0° 5137			
Protector Refractor Lens Protector Glass Extra Clear Flat Smooth Lens Gaggione 5137 PMMA				
Laboratory observation VOLTANA 0 with 8 SAMSUNG LH351C Used flux for efficiency matrix calculation = 1538 lm - CCT = 3841 K - CRI = 72,07 (see sphere test report 2019/58 on appendix).				
Purpose DOC	Sample date 08-01-2019		Sample # 39R005	
Observation DOC VOLTANA 0 with lenses 5137 Flux coefficient multiplicator (only for efficiency matrix): From 350 to 500 mA : 1,379 From 350 to 700 mA : 1,849 From 350 to 1000 mA : 2,474 Fixture powered with driver Philips Xi FP 22W 0,3-1,0A SNLDAE 230V S175 sXt DALI for matrix @350/500/700mA Fixture powered with driver Philips Xi FP 40W 0,3-1,0A SNLDAE 230V S175 sXt DALI for matrix @1000mA				
Notes The publication of this report in another form than the original one is not allowed without agreement of the laboratory. This report concerns type tests on one or a series of specimens.				



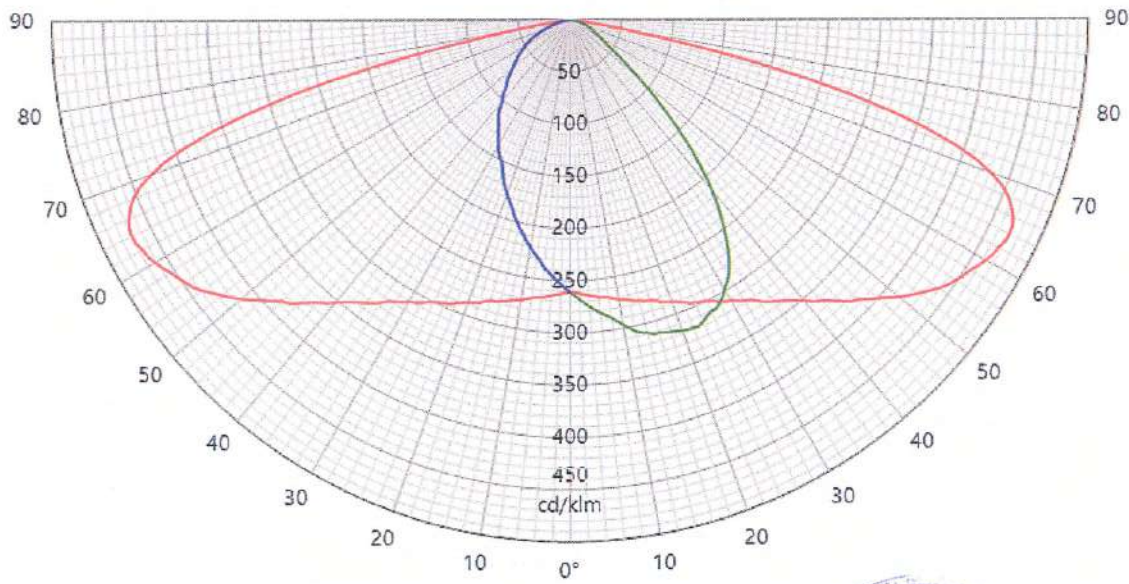
Asked by RCA	Measured by CLD	Approved by RLABO	Appendix 1	  226-TEST NBN EN ISO/IEC 17025 : 2005	42552
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LUMINOUS INTENSITY DIAGRAM

Origin TUNGSRAM-Schröder Zrt. Hungary		Production TUNGSRAM-Schröder Zrt. Hungary		Luminaire VOLTANA 0		Inclination 0°		Request # FD39019	
Source	Type LED	BIN 40-70M-4-TB-RB		Trademark Samsung		Reference LH351C		# LEDs 8	Reflector 5137
Reflector	Schreder Led assembly Medium Assembled 0.0°							No	5137
Matrices	425521 Φ 0-90° = 1336lm - 90-180° = 0lm Absolute measurement								
Protector Refractor Lens	Protector Glass Extra Clear Flat Smooth - VOLTANA 1 Lens 8 x Gaggione 5137 PMMA								
Observation	Matrix in total flux @350 mA Light losses due to thermal stabilization: 1 % Electrical measurement on LED (#1): Voltage = 22.32 V Current = 0.350 A Power = 7.81 W Electrical measurement on driver (#1): Voltage = 230.00 V Current = 0.046 A Power = 10.19 W PF = 0.957 Total luminaire power = 10.19 W : Lm/Watt = 131.13 lm/W Driver #1 : See observations for driver details - PCB 00-71-636 A								
Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date			
15 - 165	724	64	S	401	25.1°	06-02-2019			
90	491	23	D						
270	401	0	G						
									
									42552



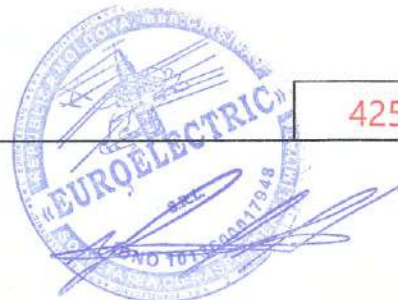
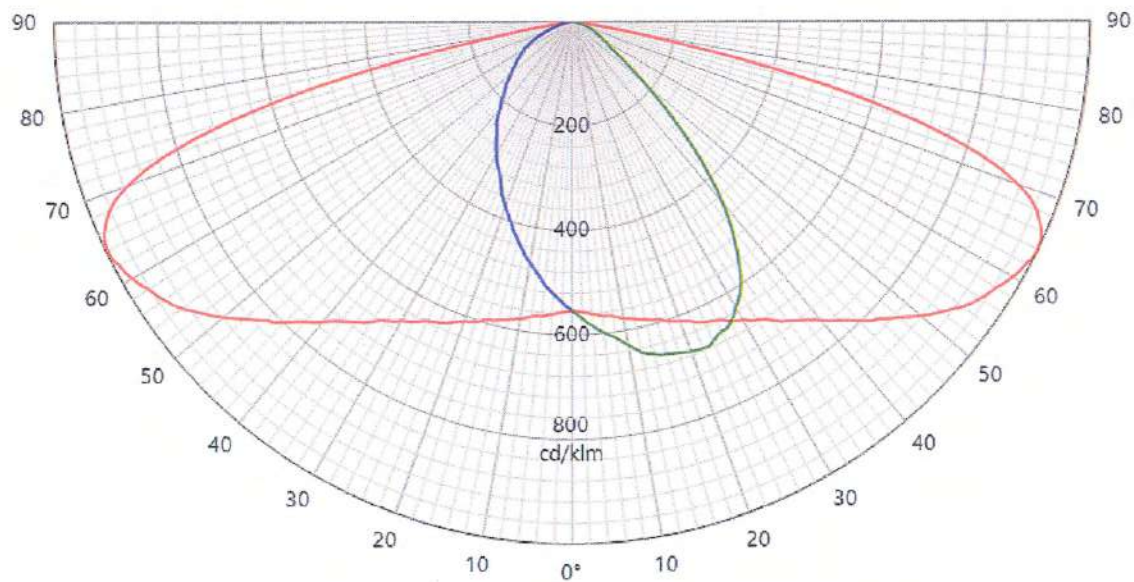
LUMINOUS INTENSITY DIAGRAM

Origin TUNGSRAM-Schröder Zrt. Hungary		Production TUNGSRAM-Schröder Zrt. Hungary		Luminaire VOLTANA 0		Inclination 0°		Request # FD39019	
Source	Type LED	BIN 40-70M-4-TB-RB	Trademark Samsung		Reference LH351C	# LEDs 8	Reflector 5137		
Reflector	Schreder Led assembly Medium Assembled 0.0°					No	5137		
Matrices	425522 η 0-90° = 86.9% - 90-180° = 0.0%					Relative measurement			
Protector Refractor Lens	Protector Glass Extra Clear Flat Smooth - VOLTANA 1 Lens 8 x Gaggione 5137 PMMA								
Observation	Matrix in efficiency @350 mA Light losses due to thermal stabilization: 1 % Electrical measurement on LED (#1): Voltage = 22.32 V Current = 0.350 A Power = 7.81 W Electrical measurement on driver (#1): Voltage = 230.00 V Current = 0.046 A Power = 10.19 W PF = 0.957 Total luminaire power = 10.19 W Driver #1 : See observations for driver details - PCB 00-71-636 A								
Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date			
15 - 165	471	64	S	261	25.1°	06-02-2019			
90	319	23	D						
270	261	0	G						
									
									42552



LUMINOUS INTENSITY DIAGRAM

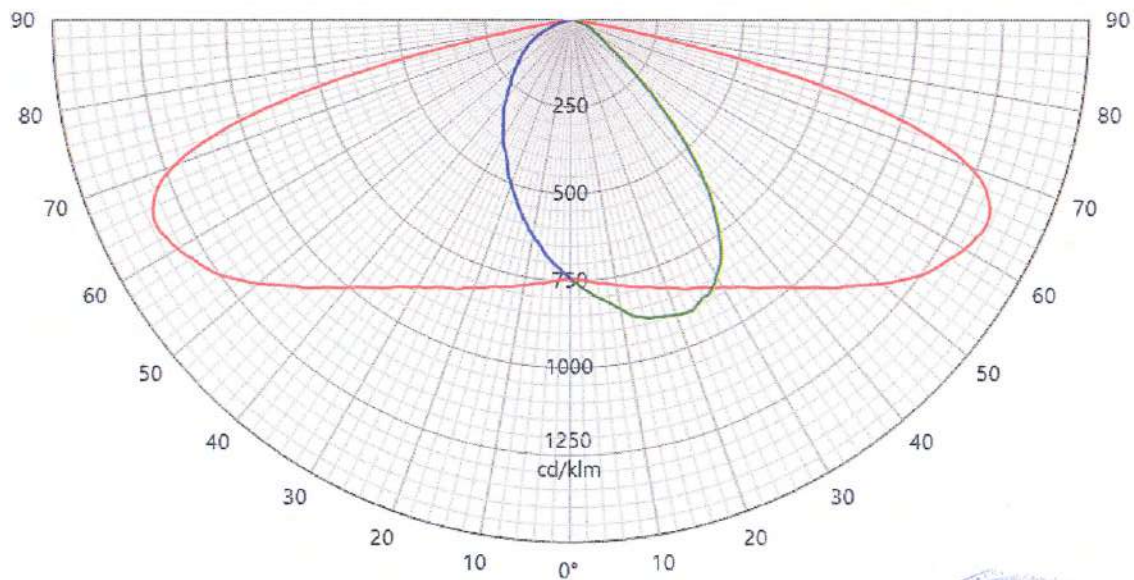
Origin TUNGSRAM-Schröder Zrt. Hungary		Production TUNGSRAM-Schröder Zrt. Hungary		Luminaire VOLTANA 0		Inclination 0°		Request # FD39019	
Source	Type LED	BIN 40-70M-4-TB-RB	Trademark Samsung		Reference LH351C	# LEDs 8	Reflector 5137		
Reflector	Schröder Led assembly Medium Assembled 0.0°						No	5137	
Matrices	425523		Φ 0-90° = 1843lm - 90-180° = 0lm				Absolute measurement		
Protector Refractor Lens	Protector Glass Extra Clear Flat Smooth - VOLTANA 1 Lens 8 x Gaggione 5137 PMMA								
Observation	Matrix in total flux @500 mA Light losses due to thermal stabilization: 1,5 % Electrical measurement on LED (#1): Voltage = 22.76 V Current = 0.500 A Power = 11.38 W Electrical measurement on driver (#1): Voltage = 230.00 V Current = 0.063 A Power = 14.16 W PF = 0.974 Total luminaire power = 14.16 W : Lm/Watt = 130.13 lm/W Driver #1 : See observations for driver details - PCB 00-71-636 A								
Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date			
15 - 165	998	64	S	553	25.1°	06-02-2019			
90	677	23	D						
270	553	0	G						



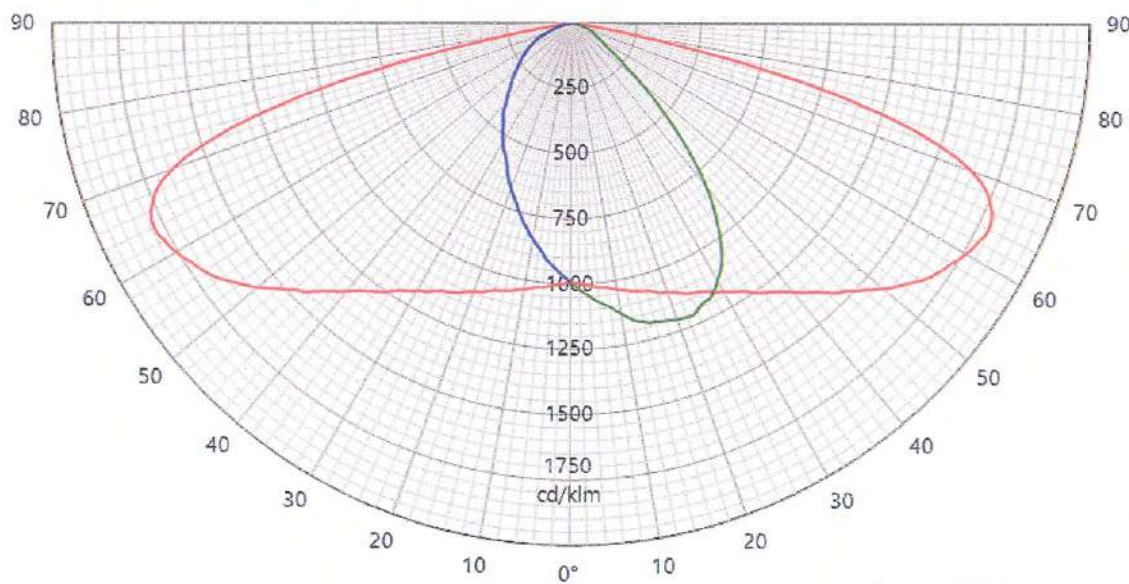
42552

LUMINOUS INTENSITY DIAGRAM

Origin TUNGSRAM-Schröder Zrt. Hungary		Production TUNGSRAM-Schröder Zrt. Hungary		Luminaire VOLTANA 0		Inclination 0°		Request # FD39019	
Source	Type LED	BIN 40-70M-4-TB-RB	Trademark Samsung		Reference LH351C	# LEDs 8	Reflector 5137		
Reflector	Schröder Led assembly Medium Assembled 0.0°					No	5137		
Matrices	425524 Φ 0-90° = 2471lm - 90-180° = 0lm					Absolute measurement			
Protector Refractor Lens	Protector Glass Extra Clear Flat Smooth - VOLTANA 1 Lens 8 x Gaggione 5137 PMMA								
Observation	Matrix in total flux @700 mA Light losses due to thermal stabilization: 2 % Electrical measurement on LED (#1): Voltage = 23.26 V Current = 0.700 A Power = 16.29 W Electrical measurement on driver (#1): Voltage = 230.00 V Current = 0.087 A Power = 19.79 W PF = 0.985 Total luminaire power = 19.79 W : Lm/Watt = 124.84 lm/W Driver #1 : See observations for driver details - PCB 00-71-636 A								
Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date			
15 - 165	1338	64	S	742	25.1°	06-02-2019			
90	907	23	D						
270	742	0	G						



LUMINOUS INTENSITY DIAGRAM

Origin TUNGSRAM-Schröder Zrt. Hungary		Production TUNGSRAM-Schröder Zrt. Hungary		Luminaire VOLTANA 0		Inclination 0°		Request # FD39019	
Source	Type LED	BIN 40-70M-4-TB-RB		Trademark Samsung	Reference LH351C	# LEDs 8	Reflector 5137		
Reflector	Schröder Led assembly Medium Assembled 0.0°						No	5137	
Matrices	425525 Φ 0-90° = 3306lm - 90-180° = 0lm						Absolute measurement		
Protector Refractor Lens	Protector Glass Extra Clear Flat Smooth - VOLTANA 1 Lens 8 x Gaggione 5137 PMMA								
Observation	Matrix in total flux @1000 mA Light losses due to thermal stabilization: 2.5 % Electrical measurement on LED (#1): Voltage = 23.93 V Current = 1.000 A Power = 23.93 W Electrical measurement on driver (#1): Voltage = 230.00 V Current = 0.128 A Power = 28.74 W PF = 0.978 Total luminaire power = 28.74 W : Lm/Watt = 115.02 lm/W Driver #1 : See observations for driver details - PCB 00-71-636 A								
Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date			
15 - 165	1791	64	S	992	25.1°	11-02-2019			
90	1214	23	D						
270	992	0	G						
									
									42552



CONFORMITY STATEMENT

Measurement fulfil Standards:

NBN-EN 13032-1
NBN-EN 13032-4
NBN-EN 17025:2005
CIE 121-1996
LM79-08
CIE S 025

Measurement quantities measured:

Light distribution in relative or absolute photometry
Led alone cold lumen package
Led CCT and CRI
Power consumption of the fitting
Lm/watt

Electrical measurement, if not specified:

Primary values are AC with 50Hz frequency
Secondary values on SSL are DC

CCT, CRI and chromaticity coordinates: are measured in Ulbricht sphere.
If specified Main test report refer to sphere extra test report.

Light distribution are measured on gonio. If not otherwise specified, measurement is done at 50 Hz

Number of hours operated prior to measurement: if not otherwise specified, 0 hours (no aging).

Stabilization time: If not otherwise specified, a minimal stabilization time of 0.5 hour is applied; and measurement will start when it exists no more variation above 0.5% in 15 minutes

Total operating time of the product including stabilization:
45 minutes have to be added by measurement.
Minimal operating time is 75 minutes

Luminous intensity distribution: available on electronic file with
.mat format (internal Schröder format)
.ldt format (European standard)
.IES format (American standard)

Statement of uncertainties (K=2, 95% of confidence level):
Uncertainties calculated based on a typical Schröder fitting and PCBA

Intensity measurement: +/- 3%
Angle: +/- 0.5°
Flux: +/- 2.5%
Electrical DC
Power: +/- 0.25%
Voltage: +/- 0.15%
Current: +/- 0.15%
Electrical AC
Power: +/- 0.15%
Voltage: +/- 0.3%
Current: +/- 0.3%
Temperature: +/- 0.65%



ISP2000 JETI

CCT: $\pm 5\%$ $\pm 7.5\%$
 CRI: $\pm 2\%$ $\pm 2.75\%$
 x/y: $\pm 2\%$ $\pm 4.6\%$

lm/Watt: $\pm 3.5\%$

Measuring instruments in use:

Gonio 1

Type C with Moving mirror

Manufacturer: LMT Lichtmesstechnik GmbH Berlin, Helmholtzstrasse 9 10587 Berlin, Germany

Type: GO-DS 2000

Calibration: traceable to PTB (Physikalisch-Technische Bundesanstalt D-Braunschweig) and METAS (Federal Institute of Metrology, CH-Bern)

Photometric test distance: By default 10 meter, on request 30 meter.

Gonio 2

Type C

Manufacturer: Technoteam Bildverarbeitung, Werner-von-Siemens-Strasse 5 98693 Ilmenau, Germany

Calibration: traceable to BIPM (Bureau International des Poids et Mesures F-Sèvres)

Photometric test distance: Near Field

Sphere n°1

4p geometry

Manufacturer: LMT Lichtmesstechnik GmbH, Helmholtzstrasse 9 10587 Berlin, Germany

Type: UL2000 + U1000 V-Lambda photometer

Calibration: traceable to BIPM (Bureau International des Poids et Mesures F-Sèvres)

Sphere n°2

4p geometry

Manufacturer: Instrument Systems GmbH, Neumarkter Str. 83, 81673 Muenchen, Germany

Type: ISP2000 + Spectroradiometer CAS120 and CAS140

Calibration: traceable to NIST

Colorimetric portable spectroradiometer

Manufacturer: JETI Technische Instrumente GmbH, Tatzendpromenade 2 07745 Jena

Type: SPECBOS 1201

Calibration: traceable to NIST

Multimeters

Manufacturer: Agilent

Type: 34401A

Calibration: traceable to BIPM (Bureau International des Poids et Mesures F-Sèvres)

Wattmeters

Manufacturer: Yokogawa

Type: WT210 and WT310

Calibration: traceable to BIPM (Bureau International des Poids et Mesures F-Sèvres)

Thermometers

Amarell Precision

Type: Liquid in glass N63833

Calibration: traceable to LBT (Laboratoire Belge de Thermométrie)



RTECH-PHOTOMETRY LABORATORY

Testreport : Measurement of luminous intensity distribution related to the standard
NBN-EN 13032-1; NBN-EN 13032-4; CIE 121-1996; CIE S 025/E; IES LM-79-08 and procedures PT-P-01
and PT-P-02

rue de Mons, 3 B-4000 LIEGE - Tel : 04/224.71.40 - Fax : 04/224.25.90
Measurement for Schröder group.

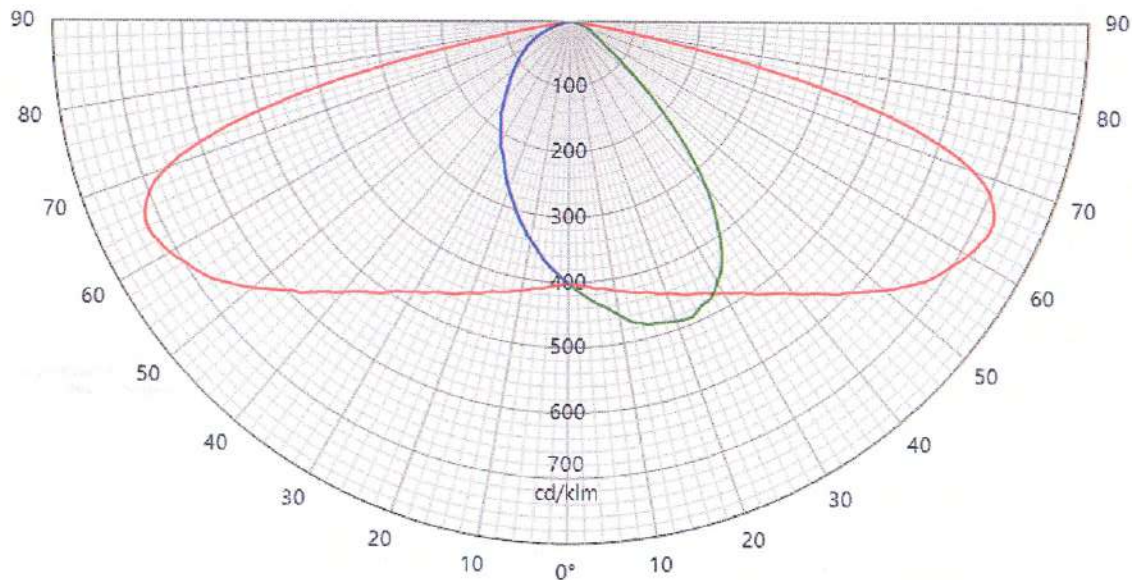
LED

Origin TUNGSRAM-Schröder Zrt. Hungary	Production TUNGSRAM-Schröder Zrt. Hungary	Luminaire VOLTANA 0	Inclination 0°	Request # FD39019
Type LED	BIN 40-70M-4-TB-RB	Source Trademark Samsung	Reference LH351C	# LEDs 8
Reflector No	Schreder Led assembly Medium Assembled 0.0°			
Protector Refractor Lens	Protector Glass Extra Clear Flat Smooth Lens Gaggione 5137 PMMA			
Laboratory observation VOLTANA 0 with 8 SAMSUNG LH351C Used flux for efficiency matrix calculation = 1538 lm - CCT = 3841 K - CRI = 72,07 (see sphere test report 2019/58 on appendix).				
Purpose DOC	Sample date 08-01-2019		Sample # 39R005	
Observation DOC VOLTANA 0 with lenses 5137 Flux coefficient multiplier (only for efficiency matrix): From 350 to 500 mA : 1,379 From 350 to 700 mA : 1,849 From 350 to 1000 mA : 2,474 Fixture powered with driver Philips Xi FP 22W 0,3-1,0A SNLDAE 230V S175 sXt DALI for matrix @350/500/700mA Fixture powered with driver Philips Xi FP 40W 0,3-1,0A SNLDAE 230V S175 sXt DALI for matrix @1000mA				
Notes The publication of this report in another form than the original one is not allowed without agreement of the laboratory. This report concerns type tests on one or a series of specimens.				

Asked by RCA	Measured by CLD	Approved by RLABO	Appendix 1	  226-TEST NBN EN ISO/IEC 17025:2005	42552
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LUMINOUS INTENSITY DIAGRAM

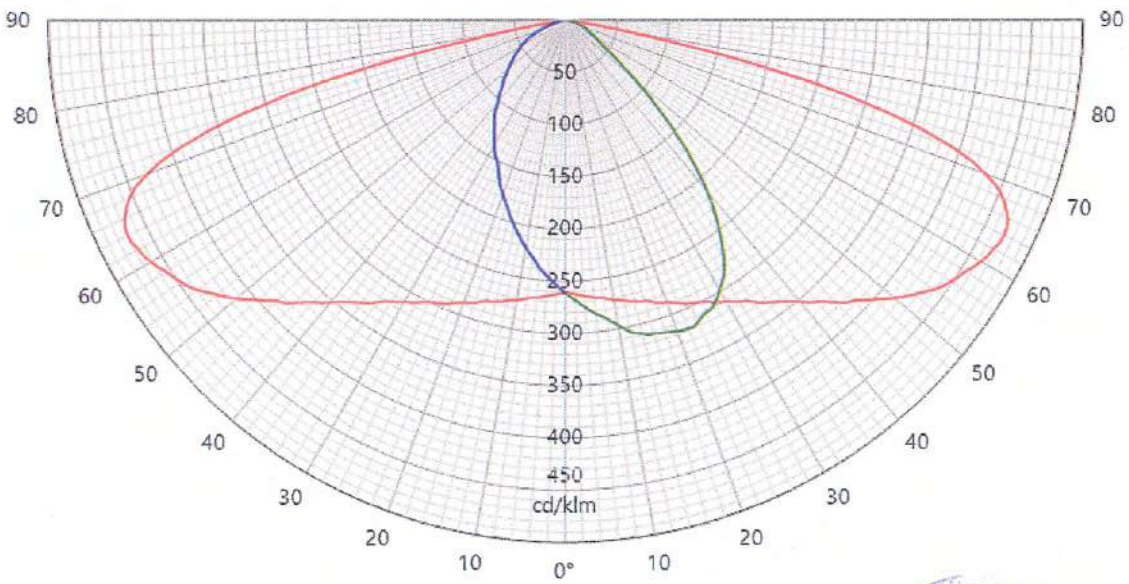
Origin TUNGSRAM-Schröder Zrt. Hungary		Production TUNGSRAM-Schröder Zrt. Hungary		Luminaire VOLTANA 0		Inclination 0°		Request # FD39019	
Source	Type LED	BIN 40-70M-4-TB-RB	Trademark Samsung		Reference LH351C	# LEDs 8	Reflector 5137		
Reflector	Schröder Led assembly Medium Assembled 0.0°					No	5137		
Matrices	425521 Φ 0-90° = 1336lm - 90-180° = 0lm					Absolute measurement			
Protector Refractor Lens	Protector Glass Extra Clear Flat Smooth - VOLTANA 1 Lens 8 x Gaggione 5137 PMMA								
Observation	Matrix in total flux @350 mA Light losses due to thermal stabilization: 1 % Electrical measurement on LED (#1): Voltage = 22.32 V Current = 0.350 A Power = 7.81 W Electrical measurement on driver (#1): Voltage = 230.00 V Current = 0.046 A Power = 10.19 W PF = 0.957 Total luminaire power = 10.19 W : Lm/Watt = 131.13 lm/W Driver #1 : See observations for driver details - PCB 00-71-636 A								
Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date			
15 - 165	724	64	S	401	25.1°	06-02-2019			
90	491	23	D						
270	401	0	G						



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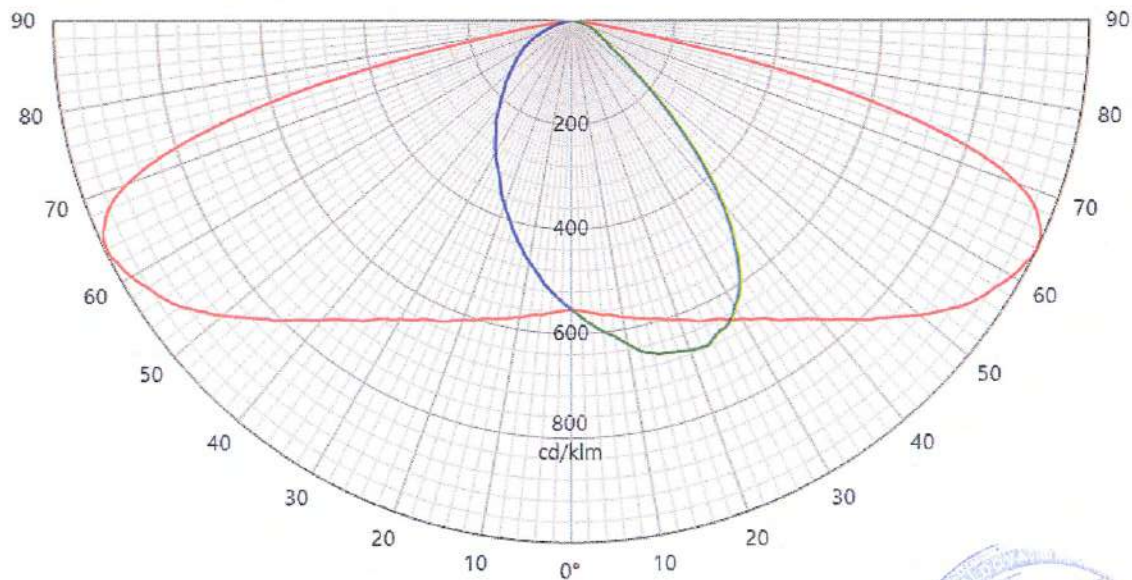
LUMINOUS INTENSITY DIAGRAM

Origin TUNGSRAM-Schröder Zrt. Hungary		Production TUNGSRAM-Schröder Zrt. Hungary		Luminaire VOLTANA 0		Inclination 0°		Request # FD39019	
Source	Type LED	BIN 40-70M-4-TB-RB	Trademark Samsung		Reference LH351C	# LEDs 8	Reflector 5137		
Reflector	Schreder Led assembly Medium Assembled 0.0°					No	5137		
Matrices	425522 η 0-90° = 86.9% - 90-180° = 0.0%					Relative measurement			
Protector Refractor Lens	Protector Glass Extra Clear Flat Smooth - VOLTANA 1 Lens 8 x Gaggione 5137 PMMA								
Observation	Matrix in efficiency @350 mA Light losses due to thermal stabilization: 1 % Electrical measurement on LED (#1): Voltage = 22.32 V Current = 0.350 A Power = 7.81 W Electrical measurement on driver (#1): Voltage = 230.00 V Current = 0.046 A Power = 10.19 W PF = 0.957 Total luminaire power = 10.19 W Driver #1 : See observations for driver details - PCB 00-71-636 A								
Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date			
15 - 165	471	64	S	261	25.1°	06-02-2019			
90	319	23	D						
270	261	0	G						
									



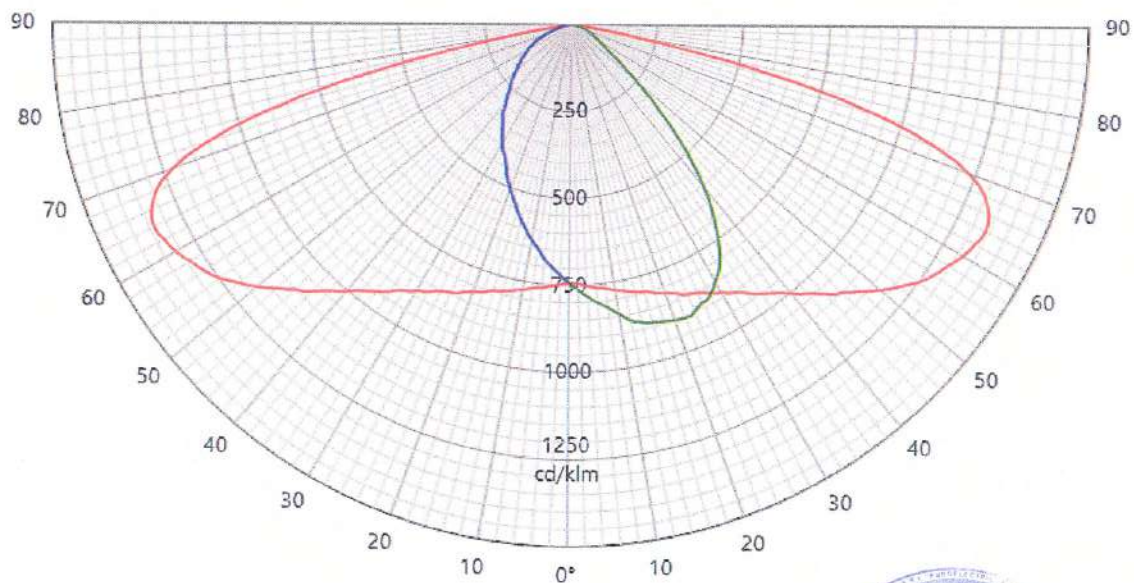
LUMINOUS INTENSITY DIAGRAM

Origin TUNGSRAM-Schröder Zrt. Hungary		Production TUNGSRAM-Schröder Zrt. Hungary		Luminaire VOLTANA 0		Inclination 0°		Request # FD39019							
Source		Type LED		BIN 40-70M-4-TB-RB		Trademark Samsung		Reference LH351C		# LEDs 8		Reflector 5137			
Reflector		Schreder Led assembly Medium Assembled 0.0°										No		5137	
Matrices		425523 Φ 0-90° = 1843lm - 90-180° = 0lm										Absolute measurement			
Protector Refractor Lens		Protector Glass Extra Clear Flat Smooth - VOLTANA 1 Lens 8 x Gaggione 5137 PMMA													
Observation		Matrix in total flux @500 mA Light losses due to thermal stabilization: 1,5 % Electrical measurement on LED (#1): Voltage = 22.76 V Current = 0.500 A Power = 11.38 W Electrical measurement on driver (#1): Voltage = 230.00 V Current = 0.063 A Power = 14.16 W PF = 0.974 Total luminaire power = 14.16 W : Lm/Watt = 130.13 lm/W Driver #1 : See observations for driver details - PCB 00-71-636 A													
Plane		I Peak		Peak position		Index		I zero		Laboratory ambient t°		Measurement date			
15 - 165		998		64		S		553		25.1°		06-02-2019			
90		677		23		D									
270		553		0		G									



LUMINOUS INTENSITY DIAGRAM

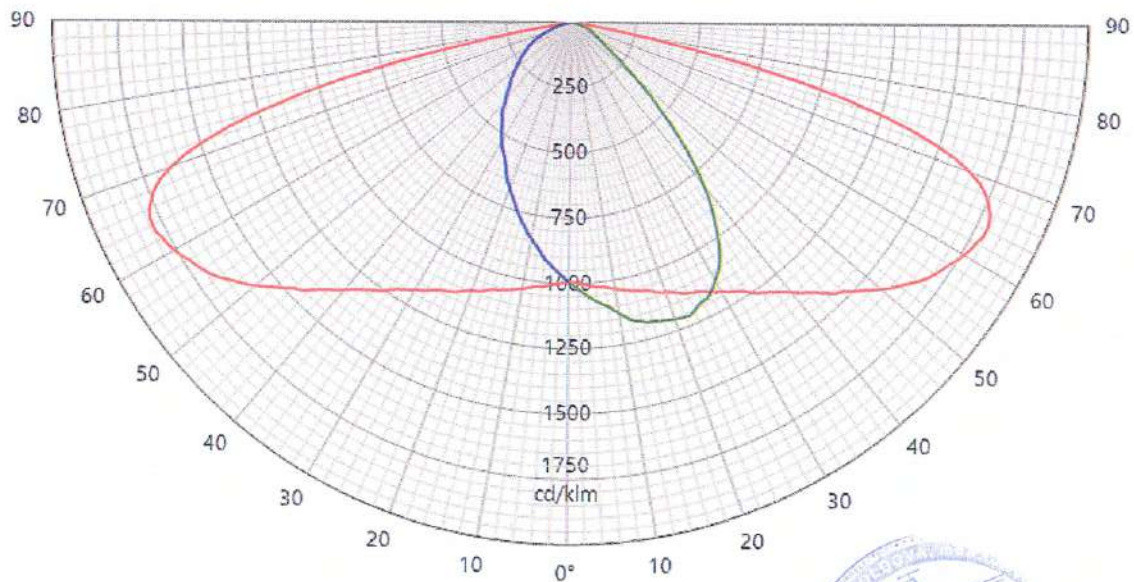
Origin TUNGSRAM-Schröder Zrt. Hungary		Production TUNGSRAM-Schröder Zrt. Hungary		Luminaire VOLTANA 0		Inclination 0°		Request # FD39019	
Source	Type LED	BIN 40-70M-4-TB-RB	Trademark Samsung		Reference LH351C	# LEDs 8	Reflector 5137		
Reflector	Schröder Led assembly Medium Assembled 0.0°					No	5137		
Matrices	425524 Φ 0-90° = 2471lm - 90-180° = 0lm					Absolute measurement			
Protector Refractor Lens	Protector Glass Extra Clear Flat Smooth - VOLTANA 1 Lens 8 x Gaggione 5137 PMMA								
Observation	Matrix in total flux @700 mA Light losses due to thermal stabilization: 2 % Electrical measurement on LED (#1): Voltage = 23.26 V Current = 0.700 A Power = 16.29 W Electrical measurement on driver (#1): Voltage = 230.00 V Current = 0.087 A Power = 19.79 W PF = 0.985 Total luminaire power = 19.79 W : Lm/Watt = 124.84 lm/W Driver #1 : See observations for driver details - PCB 00-71-636 A								
Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date			
15 - 165	1338	64	S	742	25.1°	06-02-2019			
90	907	23	D						
270	742	0	G						



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LUMINOUS INTENSITY DIAGRAM

Origin TUNGSRAM-Schröder Zrt. Hungary		Production TUNGSRAM-Schröder Zrt. Hungary		Luminaire VOLTANA 0		Inclination 0°		Request # FD39019	
Source	Type LED	BIN 40-70M-4-TB-RB	Trademark Samsung		Reference LH351C	# LEDs 8	Reflector 5137		
Reflector	Schröder Led assembly Medium Assembled 0.0°					No	5137		
Matrices	425525 Φ 0-90° = 3306lm - 90-180° = 0lm					Absolute measurement			
Protector Refractor Lens	Protector Glass Extra Clear Flat Smooth - VOLTANA 1 Lens 8 x Gaggione 5137 PMMA								
Observation	Matrix in total flux @1000 mA Light losses due to thermal stabilization: 2,5 % Electrical measurement on LED (#1): Voltage = 23.93 V Current = 1.000 A Power = 23.93 W Electrical measurement on driver (#1): Voltage = 230.00 V Current = 0.128 A Power = 28.74 W PF = 0.978 Total luminaire power = 28.74 W : Lm/Watt = 115.02 lm/W Driver #1 : See observations for driver details - PCB 00-71-636 A								
Plane	I Peak	Peak position	Index	I zero	Laboratory ambient t°	Measurement date			
15 - 165	1791	64	S	992	25.1°	11-02-2019			
90	1214	23	D						
270	992	0	G						



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CONFORMITY STATEMENT

Measurement fulfil Standards:

NBN-EN 13032-1
NBN-EN 13032-4
NBN-EN 17025:2005
CIE 121-1996
LM79-08
CIE S 025

Measurement quantities measured:

Light distribution in relative or absolute photometry
Led alone cold lumen package
Led CCT and CRI
Power consumption of the fitting
Lm/watt

Electrical measurement, if not specified:

Primary values are AC with 50Hz frequency
Secondary values on SSL are DC

CCT, CRI and chromaticity coordinates: are measured in Ulbricht sphere.
If specified Main test report refer to sphere extra test report.

Light distribution are measured on gonio. If not otherwise specified, measurement is done at 50 Hz

Number of hours operated prior to measurement: if not otherwise specified, 0 hours (no aging).

Stabilization time: If not otherwise specified, a minimal stabilization time of 0.5 hour is applied; and measurement will start when it exists no more variation above 0.5% in 15 minutes

Total operating time of the product including stabilization:
45 minutes have to be added by measurement.
Minimal operating time is 75 minutes

Luminous intensity distribution: available on electronic file with
.mat format (internal Schröder format)
.ldt format (European standard)
.IES format (American standard)

Statement of uncertainties (K=2, 95% of confidence level):
Uncertainties calculated based on a typical Schröder fitting and PCBA

Intensity measurement: +/- 3%
Angle: +/- 0.5°
Flux: +/- 2.5%
Electrical DC
Power: +/- 0.25%
Voltage: +/- 0.15%
Current: +/- 0.15%
Electrical AC
Power: +/- 0.15%
Voltage: +/- 0.3%
Current: +/- 0.3%
Temperature: +/- 0.65%



ISP2000	JETI	
CCT:	+/- 5%	+/-7.5%
CRI:	+/- 2%	+/-2.75%
x/y:	+/- 2%	+/-4.6%

lm/Watt: +/-3.5%

Measuring instruments in use:

Gonio 1

Type C with Moving mirror

Manufacturer: LMT Lichtmesstechnik GmbH Berlin, Helmholtzstrasse 9 10587 Berlin, Germany

Type: GO-DS 2000

Calibration: traceable to PTB (Physikalisch-Technische Bundesanstalt D-Braunschweig) and METAS (Federal Institute of Metrology, CH-Bern)

Photometric test distance: By default 10 meter, on request 30 meter.

Gonio 2

Type C

Manufacturer: Technoteam Bildverarbeitung, Werner-von-Siemens-Strasse 5 98693 Ilmenau, Germany

Calibration: traceable to BIPM (Bureau International des Poids et Mesures F-Sèvres)

Photometric test distance: Near Field

Sphere n°1

4p geometry

Manufacturer: LMT Lichtmesstechnik GmbH, Helmholtzstrasse 9 10587 Berlin, Germany

Type: UL2000 + U1000 V-Lambda photometer

Calibration: traceable to BIPM (Bureau International des Poids et Mesures F-Sèvres)

Sphere n°2

4p geometry

Manufacturer: Instrument Systems GmbH, Neumarkter Str. 83, 81673 Muenchen, Germany

Type: ISP2000 + Spectroradiometer CAS120 and CAS140

Calibration: traceable to NIST

Colorimetric portable spectroradiometer

Manufacturer: JETI Technische Instrumente GmbH, Tatzendpromenade 2 07745 Jena

Type: SPECBOS 1201

Calibration: traceable to NIST

Multimeters

Manufacturer: Agilent

Type: 34401A

Calibration: traceable to BIPM (Bureau International des Poids et Mesures F-Sèvres)

Wattmeters

Manufacturer: Yokogawa

Type: WT210 and WT310

Calibration: traceable to BIPM (Bureau International des Poids et Mesures F-Sèvres)

Thermometers

Amarell Precision

Type: Liquid in glass N63833

Calibration: traceable to LBT (Laboratoire Belge de Thermométrie)

