Schréder
Experts in lightability™

DECLARAȚIE DE CONFORMITATE

CE

SCHRÉDER ROMANIA S.R.L., cu sediul în Cluj - Napoca, str. Corneliu Coposu, nr. 167A, Jud. Cluj, România, înregistrată la Registrul Comerţului cu nr. J12/1759/1998, membră a SCHRÉDER GROUP, în calitate de furnizori de aparate de iluminat marca SCHRÉDER

Declarăm pe propria răspundere că aparatul de iluminat: **VOLTANA EVO**

Versiune: max. 16 LED-uri
Clasă electrică: I sau II
Tensiune nominală: 230V / 50Hz
Caracteristici: Max. 1400mA
Etanşeitate compartiment optic: IP 66
Etanşeitate compartiment aparataj: IP 66

Cu condiția ca acesta să fie instalat, întreținut și utilizat în conformtate cu standardele de instalare și instrucțiunile producătorului. Este în conformitate cu urmatoarele directive sau standarde:

- EN 60598-1 (2015 + A11 2009)
- EN 60598-2-3 (2016 + A1 2011)
- EN 61547 (2009)
- EN 55015 (2013)
- EN 61000-3-2 (2014) & 3-3 (2013)
- EN 62471 (2008)
- EN 62493 (2010)
- IEC 62722-1 (2016)
- IEC 62722-2-1 (2016)
- Directiva 2014/30/EU
- Directiva 2014/35/EU
- Directiva 2009/125/EC
- Directiva RoHS 2011/65/EU (RoHS 2)

SCHRÉDER ROMANIA S.R.L.
Director General,

Alexandru SIRCA

SCHREDER ROMANIA SRL 3 CLUJ NAPOCA

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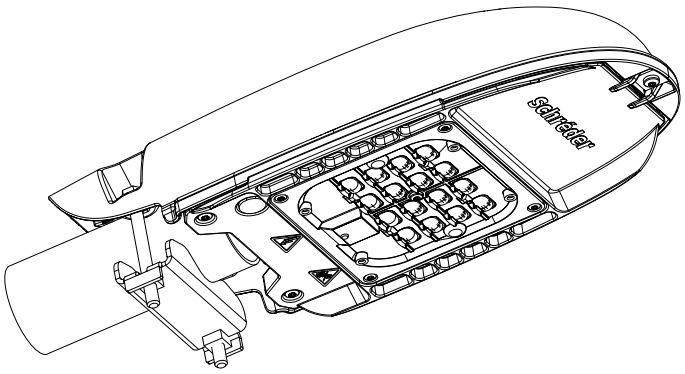
Date: 2022.09.15 20:26:55 EEST
Reason: MoldSign Signature
Location: Moldova

Eliberat,
Noiembrie 2021, Cluj-Napoca

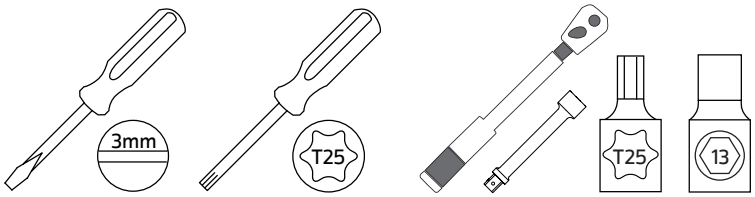


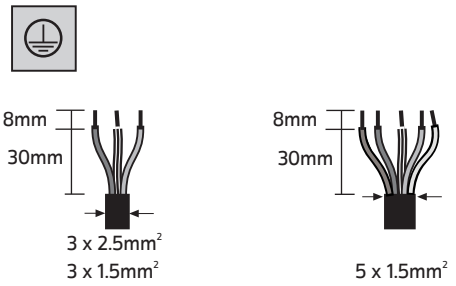
Schréder

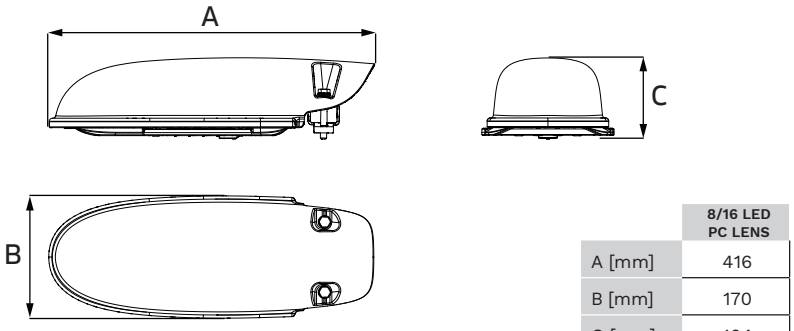
VOLTANA EVO 1

ENG	INSTALLATION INSTRUCTIONS	ITA	ISTRUZIONI DI INSTALLAZIONE	NLD	INSTALLATIE INSTRUCTIES	DAN	INSTALLATIONSVEJLEDNING	HUN	TELEPÍTÉSI ÚTMUTATÓ
DEU	INSTALLATIONSANLEITUNG	POL	INSTRUKCJE MONTAŻU	RUS	Инструкции по установке	RON	INSTRUCŢIUNI DE INSTALARE	CHI	安装说明
FRA	INSTRUCTIONS DE MONTAGE	SPA	INSTRUCCIONES DE INSTALACIÓN	POR	INSTRUÇÕES DE INSTALAÇÃO	SWE	INSTALLATIONSANVISNING	UKR	Інструкції з монтажу
SRP	UPUTSTVA ZA INSTALACIJU	AR	تعليمات التركيب						

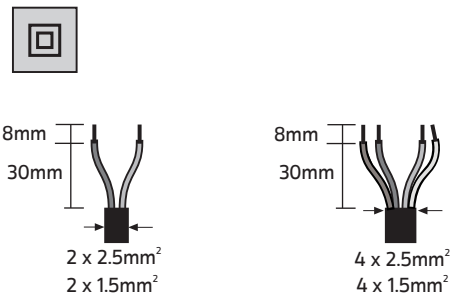
PLUS 02 | CE | IEC EN60598 | 4-8m ✓ 8-12m ✓ 12-15m ✓ 15m< ✓ | 200-1400mA 6-62W | 220-240V 50/60Hz | IP 66 | IK 10



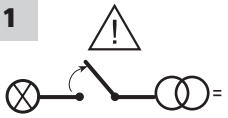




	8/16 LED PC LENS
A [mm]	416
B [mm]	170
C [mm]	104
[kg]	2.8
C_xS [m²]	0.013



1



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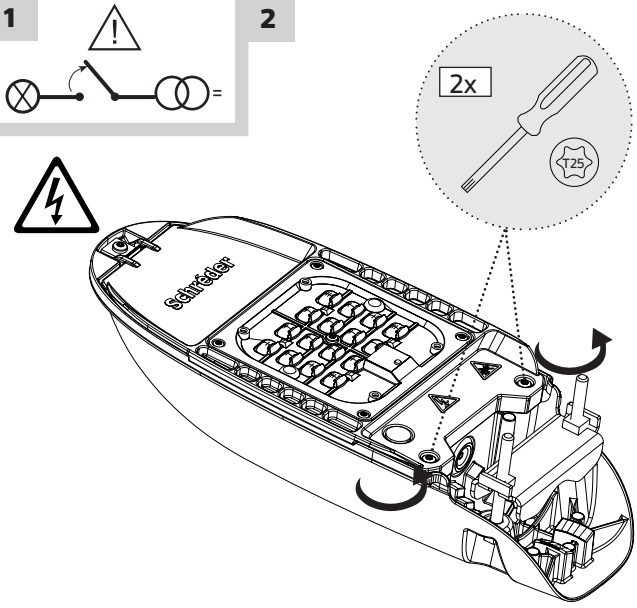

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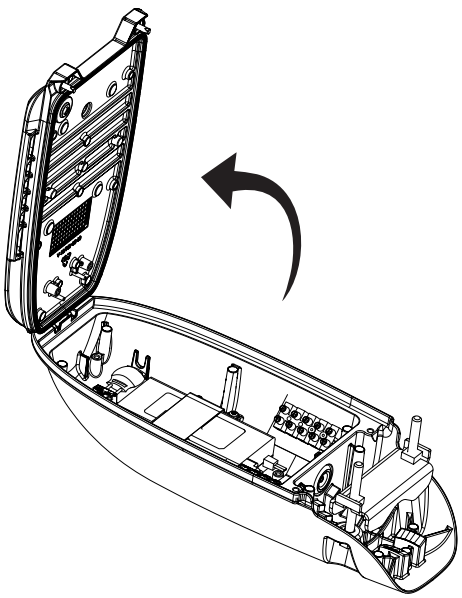

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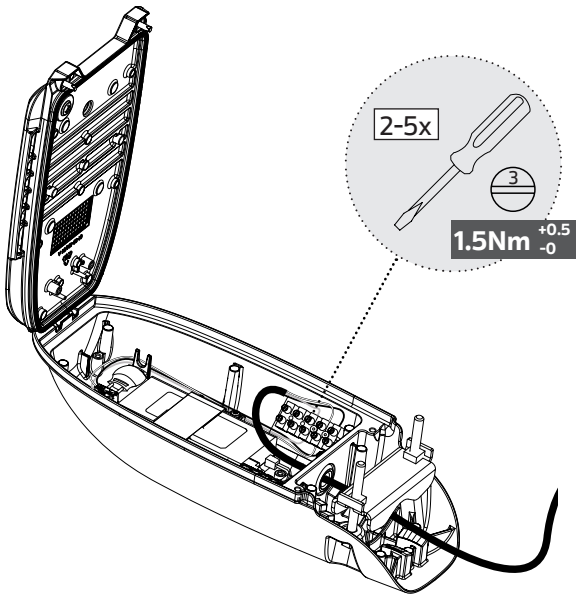
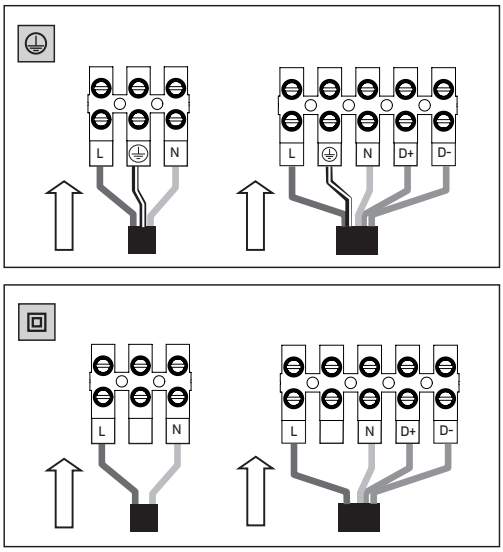
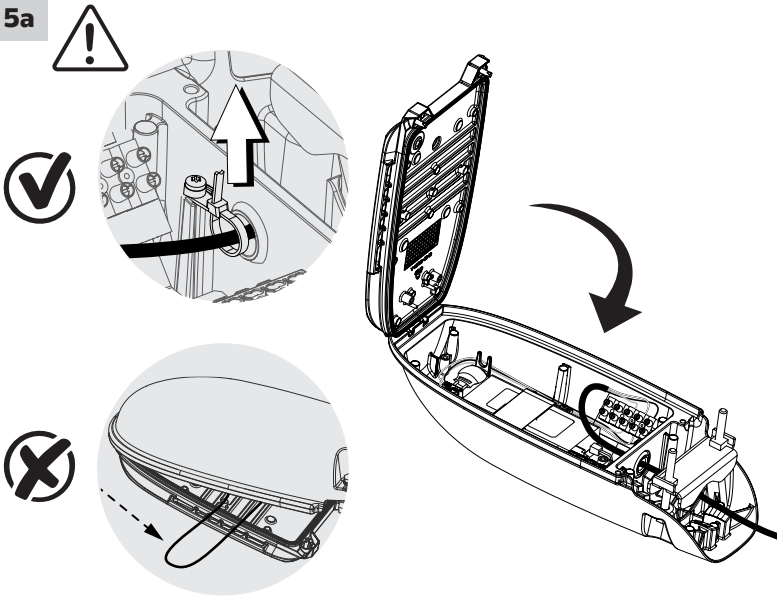
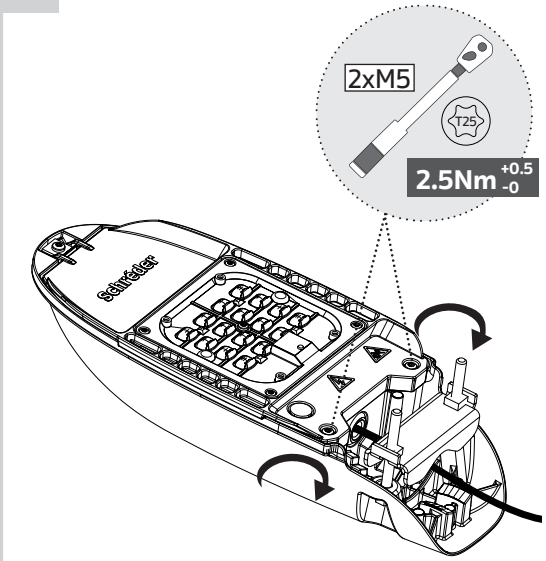




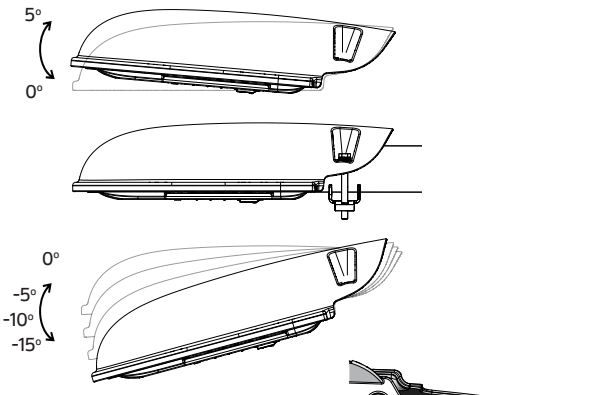
5a

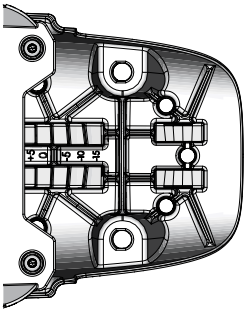


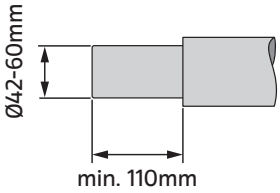
5b

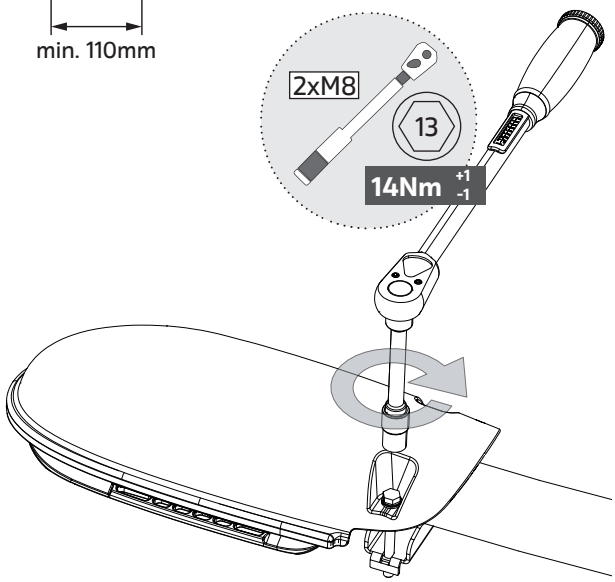


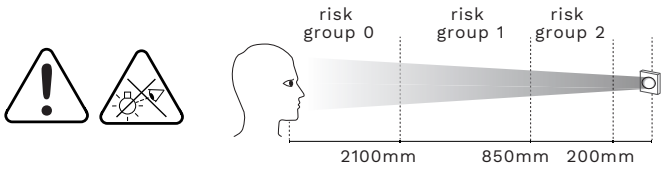
6











ENG

SAFETY INSTRUCTIONS
The light source contained in this luminaire shall only be replaced by the manufacturer or his service agent or a similar qualified person. Always switch off the power prior to installation, maintenance or repair activities.

RISK GROUP 2 - CAUTION! Hazardous optical radiation may be emitted from this product. Do not stare at the luminaire when operating as it may be harmful to the eyes. The luminaire should be positioned so that prolonged staring at the luminaire at a distance of less than 0.85m is not expected.

In case of PVC insulated mains cable, the installer MUST ensure that the WHOLE cable is protected against climatic conditions, especially UV rays and rain, by making sure that the cable is contained inside the luminaire and pole

Y-connection: In case of damage to the wire, it has to be replaced only by the manufacturer, distributor or by an expert, to avoid risks.

ITA

ISTRUZIONI DI SICUREZZA
La sorgente di luce contenuta in questo sistema di illuminazione dovrà essere sostituita solo dal produttore, dal suo agente di servizio o da una persona con qualifica similare.

Staccare sempre il filo della corrente prima di iniziare operazioni di installazione, manutenzione o riparazione.

GRUPPO DI RISCHIO 2 - ATTENZIONE! Questo prodotto può emettere radiazioni ottiche potenzialmente pericolose. Non fissare la sorgente accesa. Potrebbe essere dannoso per gli occhi. L'apparecchio dovrebbe essere posizionato in modo da non permettere di fissare a lungo l'apparecchio a una distanza inferiore di 0.85m.

In caso di cavo di alimentazione isolato in PVC, l'installatore DEVE garantire che il cavo INTERO sia protetto dalle condizioni climatiche, in particolare dai raggi UV e dalla pioggia, assicurandosi che il cavo sia contenuto all'interno del corpo illuminante e del palo

Collegamento Y: in caso di danneggiamento, il cavo deve essere sostituito esclusivamente dal costruttore, dal distributore o da un tecnico esperto per evitare rischi.

NLD

VEILIGHEIDSINSTRUCTIES
De lichtbron in deze armatuur dient uitsluitend door de fabrikant, diens
onderhoudsvertegenwoordiger of een persoon met vergelijkbare kwalificaties te worden vervangen.

Schakel altijd de stroom uit voordat u aan installatie, onderhoud of reparaties begint.

RISICOGROEP 2 - LET OP! Bij dit product kan eventueel gevaarlijke optische straling voorkomen. Staar niet in de brandende lamp. Dit kan schadelijk zijn voor de ogen. Het armatuur moet worden geplaatst zodat staren in het armatuur op een afstand kleiner dan 0.85meter niet verwacht wordt.

In het geval van PVC-geïsoleerde voedingskabels MOET de installateur ervoor zorgen dat de GEHELE kabel wordt beschermd tegen klimaatomstandigheden, met name UV-stralen en regen, door ervoor te zorgen dat de kabel zich in het armatuur en de paal bevindt

Y-verbinding: in geval van schade aan de draad dient deze te worden vervangen door de fabrikant, de distributeur of door een expert, om risico's te vermijden.

DAN

SIKKERHEDSINSTRUKTIONER
Lyskilden i dette armatur må kun udskiftes af producenten, af en vedligeholdelsesvirksomhed udpeget af producenten eller af en tilsvarende kvalificeret virksomhed.

Sluk altid for strømmen inden påbegyndelse af installation, vedligeholdelse eller reparation.

Risikogruppe 2 - ADVARSEL! Produktet kan muligvis udsende farlig optisk stråling. Kig ikke direkte ind i armaturet under drift, det kan være skadeligt for øjnene. Armaturet skal placeres således så langvarig stirren ind i armaturet, på en afstand der er tættere end 0.85m, undgås.

I tilfælde af PVC-isoleret ledning SKAL elektrikeren sikre, at HELE kablet er beskyttet mod klimatiske forhold, dette gælder især UV-stråler og regn. Elektrikeren skal derfor sørge for, at kablet forbliver inde i armaturet og masten.

Type Y montering: Hvis det eksterne kabel eller ledning på dette armatur er beskadiget, må det kun udskiftes af producenten
eller af en servicepartner til producenten eller tilsvarende kvalificeret person, for at undgå skader.

DEU

SICHERHEITSHINWEISE
Die Lichtquelle in dieser Leuchte darf nur vom Hersteller bzw. von dessen
Kundendienst oder einer ähnlich qualifizierten Person ausgetauscht werden.

Schalten Sie die Stromversorgung vor Installations-, Wartungs- und
Reparaturarbeiten stets ab.

Risikogruppe 2 - VORSICHT! Von diesem Produkt kann möglicherweise gefährliche optische Strahlung ausgehen. Es ist darauf zu achten, dass man im eingeschaltetem Zustand der Leuchte nicht innerhalb einer Distanz von 0.85m direkt in die Leuchte schaut. Dies könnte schädlich für Ihre Augen sein.

Bei Verwendung eines PVC-isolierten Netzkabels MUSS der Installateur sicherstellen, dass das GESAMTE Kabel vor klimatischen Bedingungen -insbesondere vor UV-Strahlen und Regen- geschützt ist, indem sichergestellt wird, dass das Kabel in der Leuchte und dem Mast verschlossen ist

Y-Verbindung: Falls die Leitung beschädigt ist, darf diese nur vom Hersteller, dem Händler oder einem Experten ersetzt werden, um Risiken zu vermeiden.

POL

INSTRUKCJA BEZPIECZEŃSTWA
źródło światła zamontowane w tej oprawie może być wymieniane wyłącznie przez producenta, pracownika serwisu lub inną wykwalifikowaną osobę.

Przed rozpoczęciem instalacji, konserwacji lub naprawy należy bezwzględnie odłączyć zasilanie elektryczne.

GRUPA RYZYKA 2 - OSTRZEŻENIE Produkt może emitować niebezpieczne
promieniowanie optyczne szkodliwe dla oczu. Nie należy patrzeć bezpośrednio na pracujące źródło światła. Oprawa powinna być tak zamontowana, aby jej długotrwała obserwacja była możliwa z odległości nie mniejszej niż 0.85m.

W przypadku kabla sieciowego izolowanego PCV instalator MUSI upewnić się, że kabel CAŁY jest chroniony przed warunkami klimatycznymi, w szczególności przed promieniowaniem UV i deszczem, upewniając się, że kabel znajduje się wewnątrz oprawy i słupa.

Połączenie Y: ze względów bezpieczeństwa uszkodzony przewód powinien zostać wymieniony wyłącznie przez producenta, dystrybutora lub wykwalifikowanego elektryka.

RUS

инструкция безопасности
замену источника света для этого светильника должен выполнять только произ водитель, сервисный агент производителя или специалист с аналогичной квалификацией.

Перед проведением установки, сервисного обслуживания или ремонта всегда отключайте питание устройства.

ГРУППА РИСКА 2 - ВНИМАНИЕ! Возможно опасное оптическое излучение от этого изделия. Не смотрите на источник света. Может быть вредно для глаз. Светильник должен быть расположен таким образом, чтобы было невозможно смотреть на него с расстояния менее 0.85м.

В случае кабеля питания с ПВХ изоляцией, монтажник ДОЛЖЕН обеспечить защиту ВСЕГО кабеля от воздействия климатических условий, особенно от ультрафиолетовых лучей и дождя, убедившись, что кабель находится внутри светильника и опоры.

Подключение Y: в случае повреждения кабеля его замена производится только производителем, дистрибьютором или экспертом.

RON

INSTRUCŢIUNI DE EXPLOATARE
Sursa de lumină din acest corp de iluminat trebuie înlocuită numai de producător sau de reprezentantul său de service sau o persoană ce deţine calificări similare.

Opriţi întotdeauna alimentarea electrică înainte de lucrările de instalare, întreţinere sau reparaţii.

GRUP DE RISC 2 - ATENŢIE! Este posibil ca acest produs să emită radiaţii optice periculoase. Nu priviţi direct înspre lampa aflată în stare de funcţionare. Acest lucru poate fi dăunător ochilor. Aparatul de iluminat trebuie să fie poziţionat astfel încât să nu fie posibil, în mod normal, privitul directă înspre lampă, la o distanţă mai mică de 0.85m.

În cazul cablului de alimentare cu izolaţie din PVC, instalatorul TREBUIE să se asigure că TOT cablul este protejat împotriva condiţiilor climatice, mai ales împotriva razelor UV şi a ploii, asigurându-se că acest cablu este plasat în interiorul aparatului de iluminat şi al stâlpului

Conexiune Y: În caz de deteriorare a firului, acesta trebuie înlocuit numai de către producător, distribuitor sau un expert, pentru evitarea riscurilor.

FRA

INSTRUCTIONS DE SECURITE
La source lumineuse contenue dans ce luminaire doit être uniquement remplacée par le fabricant, son agent de maintenance ou une autre personne disposant des qualifications appropriées.

Mettez toujours l'appareil hors tension avant toute opération d'installation, d'entretien ou de réparation.

RISQUE GROUPE 2 - ATTENTION ! Ce produit émet potentiellement des rayons dangereux pour la vue. Regarder directement la source lumineuse et de manière continue pourrait causer des lésions aux yeux. Le luminaire doit être installé de façon à ne pas pouvoir regarder la source lumineuse directement de manière continue à moins de 0.85m.

Dans le cas d'un câble secteur isolé en PVC, l'installateur DOIT s'assurer que le câble ENTIER est protégé contre les conditions climatiques, en particulier les rayons UV et la pluie, en s'assurant que le câble est contenu à l'intérieur du luminaire et du poteau

Connexion Y : si le câble est endommagé, il ne peut être remplacé que par le fabricant, par le distributeur ou par un expert, afin d'éviter tout risque.

SPA

INSTRUCCIONES DE SEGURIDAD
Solo el fabricante, un agente del servicio técnico o persona con cualificación similar puede sustituir la fuente de luz de este sistema de iluminación.

Apague siempre el interruptor de alimentación antes de realizar tareas de instalación, mantenimiento o reparación.

GRUPO DE RIESGO 2 - ¡PRECAUCIÓN! radiación óptica posiblemente peligrosa emitida por este producto. No mire a la lámpara en funcionamiento. Puede ser dañino para los ojos. El sistema de iluminación debe instalarse de modo que la mirada fija prolongada a la luminaria, a una distancia menor de 0.85m no se espere.

En el caso de un cable aislado de PVC, el instalador DEBE asegurarse de que todo el cable esté protegido contra las condiciones climáticas, especialmente los rayos UV y la lluvia, asegurándose de que el cable esté dentro de la luminaria y el poste

Conexión en Y: si el cable se daña, solo debe reemplazarlo el fabricante, un distribuidor o un experto para evitar riesgos.

POR

INSTRUÇÕES DE SEGURANÇA
A fonte de luz no interior deste candeeiro deve ser substituída apenas pelo
fabricante, pelo seu técnico de assistência ou por uma pessoa com qualificação equivalente.

Desligue sempre a alimentação antes de proceder a actividades de instalação, manutenção ou reparação.

GRUPO DE RISCO 2 - ATENÇÃO! Possível risco ótico por radiação emitida a partir deste produto. Não olhar para a luz em funcionamento. Pode ser prejudicial para os olhos. A luminária deve ser posicionada de modo a que não seja expectável um olhar prolongado para a luminária em funcionamento a uma distância inferior a 0.85m.

No caso de cabo de alimentação com isolamento em PVC, o instalador DEVE assegurar que TODO o cabo é protegido das condições climáticas, especialmente raios UV e chuva, certificando-se que o cabo está contido dentro da luminária e da coluna.

Ligação Y: em caso de danos no fio, este tem de ser substituído apenas pelo fabricante, distribuidor ou por um técnico especializado, para evitar riscos.

SWE

SÄKERHETSINSTRUKTIONER
Ljuskällan som monteras i denna armatur får endast ersättas av en Schréder-anställd eller annan kvalificerad person.

Stäng alltid av strömmen före installation, underhåll eller reparation.

Riskgrupp 2 - VARNING! Eventuellt farlig optisk strålning från denna produkt. Stirra ej på driftlampan. Kan vara skadligt för ögonen. Armaturen bör placeras så att långvarigt stirrande in i armaturen på ett avstånd som är närmare än 0.85m ej är möjligt.

Vid PVC-isolerad kabel måste installatören se till att hela kabeln är skyddad mot klimatförhållanden, särskilt UV-strålar och regn, genom att se till att kabeln monteras inuti armaturen och stolpen

Typ Y-anslutning:
Om den externa kabeln eller ledningen på denna armatur är skadad, får den endast bytas ut av tillverkaren eller av en servicepartner till tillverkaren eller motsvarande kvalificerad person, för att undvika skador

HUN

BIZTONSÁGI ÚTMUTATÓ
A lámpatestben található fényforrást kizárólag a gyártó, szervizképviselője vagy hivatalos szakszervíz szakembere cserélheti ki.

A szerelés, karbantartás és javítás előtt minden esetben végezzen áramtalanítást.

KOCKÁZATI CSOPORT 2 - VIGYÁZAT! A berendezés veszélyes optikai sugárzást bocsáthat ki! Ne nézzen bele a bekapcsolt lámpatestbe! Szemet károsító hatás léphet fel. A lámpatestet úgy ajánlott pozícionálni, hogy rálátás esetén a lámpatest ne legyen 0.85m-nél közelebb!

PVC szigetelésű tápkábel esetén a telepítőnek biztosítania KELL, hogy a TELJES kábel védett legyen az éghajlati viszonyoktól, különösen az UV sugárzástól és az esőtől, ügyelve arra, hogy a kábel a lámpatest és az oszlop belsejében legyen.

Y-csatlakozó: A sérült vezetéket kizárólag a gyártó, forgalmazó vagy szakember cserélheti ki a kockázatok elkerülése végett.

CHI

安全守则

该灯具内的光源仅可由施莱德员工、指定代理商或具备类似资质的人员进行更换。

在安装、维护和维修灯具之前必须首先切断电源。

风险群体 2 - 注意！有害的光学射线有可能从产品中发出。不要凝视正在工作的光源。有可能对眼睛产生危害。灯具应当选择合理位置安装，尽可能避免长时间在0.85米以内凝视。

如果选择PVC主电缆，必须确保整个电缆被很好的保护以抵御恶略气候状况，尤其是紫外线和雨水，而且要确保电缆被灯具和灯杆完全覆盖。

Y类附件：
如果灯具外部电缆被破坏，电缆必须被制造商或服务代理商或者有资质的人员及时更换从而避免伤害。

UKR

інструкція безпекі
Джерело світла, що міститься у цьому світильнику, повинен замінятн лише виробник, його сервісний агент або кваліфікована особа.

Завжди вимикайте живлення перед встановленням, доглядом або ремонтом.

ГРУПА РИЗИКУ 2 - УВАГА! Можливість небезпечного оптичного випромінювання від цього продукту. Уникайте прямого погляду на ввімкнене джерело світла. Може бути шкідливо для очей. Світильник має бути розташований так, щоб уникнути його тривалого споглядання з відстані ближче, ніж 0.85м.

У випадку кабелю живлення із ПВХ ізоляцією, монтажник ПОВИНЕН забезпечити захист ВСЬОГО кабелю від впливу кліматичних умов, особливо від ультрафіолетових променів та дощу, переконавшись, що кабель знаходиться всередині світильника та опори

У-з'єднання: у разі пошкодження дроту його має замінити лише виробник, дистриб`ютор чи експерт, щоб запобігти ризикам.

SRP

UPUTSTVA
Izvor svetla u ovom rasvetnom telu može da zameni samo proizvođač, njegov servisni agent ili na sličan način kvalifikovana osoba.

Uvek isključite napajanje pre instalacije, održavanja ili popravke.

GRUPA RIZIKA 2 - PAŽNJA! Proizvod može emitovati štetno optičko zračenje.
Izbegavati vizuelni kontakt sa svetlosnim izvorom dok je u radu. Moguće oštećenje vida. Svetiljku treba pozicionirati tako da se ne očekuje duži vizuelni kontakt sa izvorom sa razdaljine manje od 0.85m.

U slučaju napojnog kabla sa PVC izolacijom, izvođač MORA obezbediti zaštitu CELOG kabla od klimatskih uslova, posebno UV zračenja i kiše, tako što će osigurati da se kabal nalazi unutar svetiljke i stuba.

Y-veza: U slučaju oštećenja žice zamenu mora da obavi isključivo proizvođač, distributer ili stručnjak kako bi se izbegao rizik.

AR

تعليمات السلامه:
في حاله الحاجه لتغير مصدر الضوء، يتم ذلك من خلال الشركه المصنعه او الوكيل المخول لعمل ذلك او شخص موهل لذلك.
دائما افصل الدائره الكهربائيه قبل تركيب او صيانه الجهاز.
تحذير: هذا المنتج مصنف ضمن مجموعه المخاطر 2
.خطر انبعاث اشعاع ضوئي , لا تنظر مباشره الى الجهاز و هو مضاء لان ذلك مؤذي للعين. الجهاز يجب ان يركب بشكل يضمن ان التحديق بمصدر الضوء من مسافه اقل من 0.85 م غير متوقعه.
يجب على الشخص الذي يوصل الجهاز بالدائره الكهربائيه التاكد من ان محمي من التاثيرات المناخيه و خاصه الاشعه فوق البنفسجيه و المطر من خلال التاكد ان الكابل محوي بداخل العمود و الجهاز
في حاله الحاجه لتغير الاسلاك الداخليه , يتم ذلك من خلال الشركه المصنعه او الوكيل المخول لعمل ذلك او شخص مخول لذلك.
دائما افصل الدائره الكهربائيه قبل تركيب او صيانه الجهاز.

Laboratory
Test report

R-Tech
Rue de Mons 3 – B-4000 Liège – Belgium
Tel.: +32 4 224 71 40 – Fax: +32 4 224 25 90
Member of Schréder Group

FORM L-54 Edition 01 – Revision 04 – Date : 21/04/2021

Electrical measurements

General information

Subject : VOLTANA EVO 1 - 8 Oslon Square Giant - Meanwell 40W - 1400mA

Asked by : BEDŐ Péter

Created on : 19/04/2021

Started on : 20/04/2021

Test number : D210386

Sample(s) : E210200

Folder : P-F21002

Test conditions

Luminaire : VOLTANA EVO 1

Number of LED : 8

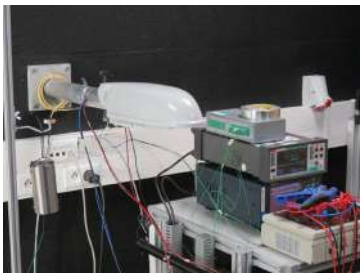
LED : Osram OSLON SQUARE GIANT

Driver : DRIVER_MEANWELL_PLD_40W_1400mA_220-277V_NONE_._. / 00-73-737

Number of driver(s) : 1

Driver current (mA) : 1400

Operator : CLOSSET Frédérick



lum

Conclusion

Informative

Conclusion :

PF : 0.97
Efficiency : 86.7%
THD : 15.8%
Harmonics : OK according to IEC 61000-3-2, Class C, P > 25 W (@100% dimming)

Validated by :

GHYSENS Gilles

Duplicate to : RACANELLI Frank, SZÜGYI János Péter, HORVÁTH Csaba, CSIKÓS Balázs, BEDŐ Péter

LAB : 23/04/2021

Test(s) details

Test(s)

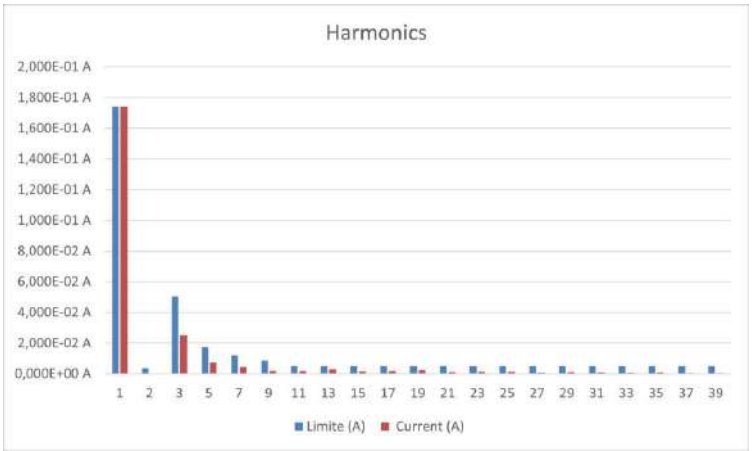
Name	Description	Verdict
Harmonics @ 1400mA	Measurement of the harmonic currents of the luminaire at thermal stabilization, according IEC 61000-3-2 - Class C (100% dimming).	Informative
Measurements @ 1400mA	Characterization of the electrical parameters of the luminaire at thermal stabilization.	Success

Harmonics @ 1400mA

Verdict(s)

Harmonic	Current (A)	Limite (A)
1	**1,742E-01 A**	1,742E-01 A
2	3,227E-04 A	3,483E-03 A
3	2,521E-02 A	5,054E-02 A
5	7,408E-03 A	1,742E-02 A
7	4,510E-03 A	1,219E-02 A
9	1,945E-03 A	8,709E-03 A
11	1,863E-03 A	5,225E-03 A
13	2,882E-03 A	5,225E-03 A
15	1,757E-03 A	5,225E-03 A
17	2,016E-03 A	5,225E-03 A
19	2,383E-03 A	5,225E-03 A
21	1,174E-03 A	5,225E-03 A
23	1,379E-03 A	5,225E-03 A
25	1,441E-03 A	5,225E-03 A
27	7,736E-04 A	5,225E-03 A
29	1,141E-03 A	5,225E-03 A
31	9,174E-04 A	5,225E-03 A
33	6,352E-04 A	5,225E-03 A
35	1,013E-03 A	5,225E-03 A
37	4,268E-04 A	5,225E-03 A
39	5,224E-04 A	5,225E-03 A

Annex(es)



Harmonics-D210386

Measurements @ 1400mA

Verdict(s)

input			output 1		
Urms	230,0 V		Urms	24,2 V	
Irms	0,176 A		Irms	1,418 A	
Prms	39,2 W		Prms	34,0 W	
S	40,6 VA				
Q	-10,3 VAR				
PF	0,9672				
$I_{(H01)}$	0,174 A		Uavg	24,2 V	
Cos j (H01)	0,9791		Iavg	1,406 A	
η rms	86,7%		Pavg	34,0 W	
η avg	86,5%				
THD	15,8%				

Test room temperature (°C) :

23.7

Measurement equipment :

Norma 4000 (E110)
APT (E102)

Quantities measured :

Qualification of the thermal limits and measurement of the electrical behavior of a luminaire according to PT-S-07

Uncertainties :

Statement of uncertainties (K=2, 95% of confidence level):
Temperature: 0,6 K
Voltage (AC): 0,33%
Current (AC): 0,33 %
Power (AC): 0,27%
Voltage (DC): 0,3 %
Current (DC): 0,3%
Power (DC): 0,23%
Anemometer: ± 0,27 m/s

Decision rules :

No pass/fail criteria applied on electrical measurements

End of test report :

R-Tech
Rue de Mons 3 – B-4000 Liège – Belgium
Tel.: +32 4 224 71 40 – Fax: +32 4 224 25 90
Member of Schréder Group

Thermal Test LED

General information

Subject : VOLTANA EVO 1 - 8 Oslon Square Giant - Meanwell 40W - 1400mA

Asked by : BEDŐ Péter

Created on : 19/04/2021

Started on : 19/04/2021

Test number : D210385

Reference norm : IEC/EN 60598-1; 60598-2-3; 60598-2-5 Standards

Sample(s) : E210200

Folder : P-F21002

Test conditions

Luminaire : VOLTANA EVO 1

Number of LED : 8

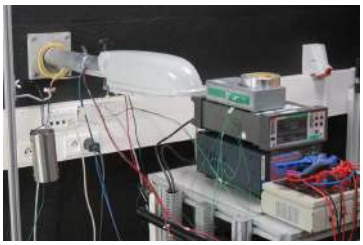
LED : Osram OSLON SQUARE GIANT

Driver : DRIVER_MEANWELL_PLD_40W_1400mA_220-277V_NONE_._. / 00-73-737

Number of driver(s) : 1

Driver current (mA) : 1400

Operator : CLOSSET Frédérick



lum

Conclusion

Informative

Conclusion :

ΔTs < 80°C no risk of solder crack

Ta: 55°C limited by driver; according IEC 60598-2-3 and IEC 60598-2-5 (outdoor use only)
Ta: 45°C limited by driver; indoor use and UL standard
Tq: 20°C limited by driver; according IEC 62722-2-1

Tq given for 100 khrs of lifetime

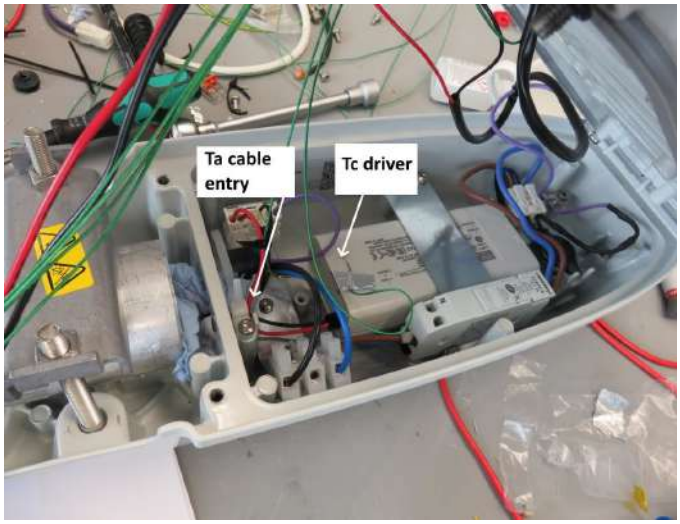
Test(s) details

Test(s)

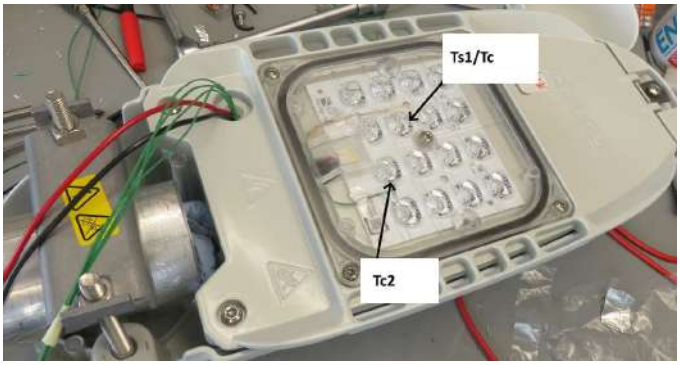
Name	Description	Verdict
Sensors positions	Disposition of the thermocouples on the DUT.	Informative
Test @ 1400mA	Test according section 12.4 of IEC 60598-1. The DUT is driven until all thermocouples reach thermal stabilization (i.e. variation = 1K/h).	Informative

Sensors positions

Annex(es)



pos_thermo2



pos_thermo1

Test @ 1400mA

Verdict(s)

	Ts1	Ts2	Driver1	Ta Cable entry1
Limit Ta	110,0 °C	110,0 °C	90,0 °C	90,0 °C
Limit Tq	90,0 °C	90,0 °C	65,0 °C	90,0 °C
Thermocouple T°	74,5 °C	68,2 °C	66,9 °C	39,3 °C
Room	24,1 °C	24,1 °C	24,1 °C	24,1 °C
E Led	3,0 V	3,0 V		
I Led	1,406 A	1,406 A		
P Led	4,2 W	4,2 W		
Heating	50,4 °C	44,1 °C	42,8 °C	15,2 °C
Ta Indoor	59,6 °C	65,9 °C	47,2 °C	74,8 °C
Tq	39,6 °C	45,9 °C	22,2 °C	74,8 °C
Solder point temperature used as the image of the lens temperature				
Primary EM		Secondary Em Dr1		
U	230,0 V	U	24,2 V	
I	0,176 A	I	1,406 A	
P	39,2 W	P	34,0 W	
PF	0,967			
Efficiency	86,5%			

Test room temperature (°C) :

23.7

Measurement equipment :

Keithley with thermocouples type K (E127)
Norma 4000 (E110)
APT (E102)

Quantities measured :

Qualification of the thermal limits and measurement of the electrical behavior of a luminaire according to PT-S-07

Uncertainties :

Statement of uncertainties (K=2, 95% of confidence level):
Temperature: 0,6 K
Voltage (AC): 0,33%
Current (AC): 0,33 %
Power (AC): 0,27%
Voltage (DC): 0,3 %
Current (DC): 0,3%
Power (DC): 0,23%
Anemometer: ± 0,27 m/s

Decision rules :

No pass/fail criteria applied on electrical measurements

No pass/fail criteria applied on thermal measurements when performed at 25°C (+/- 5°C), the Ta/Tq values are calculated according GDE-POL-001.

Pass/fail criteria on thermal qualification (test performed at announced Ta or Tq)
At the announced Ta, no component is above its maximum limit of operation reduced by the uncertainty on the temperature measurement: pass
At the announced Ta, at least 1 component is above its maximum limit of operation augmented by the uncertainty on the temperature measurement: fail
At the announced Ta, at least 1 component is at its maximum limit of operation ± the uncertainty on the temperature measurement and no other component is above its maximum limit of operation augmented by the uncertainty on the temperature measurement: pass with remark
According to IEC 60598-2-3 and IEC 60598-2-5 Standards, the maximum limit of every component can be augmented by 10 K provided that the luminaire is intended for outdoor use only.
At the announced Tq, no component is above its selected performance limit of operation reduced by the uncertainty on the temperature measurement: pass
At the announced Tq, at least 1 component is above its selected performance limit of operation augmented by the uncertainty on the temperature measurement: fail
At the announced Tq, at least 1 component is at its selected performance limit of operation ± the uncertainty on the temperature measurement and no other component is above its selected performance limit of operation augmented by the uncertainty on the temperature measurement: pass with remark
According to IEC 62722-2-1, the selected performance limit cannot be augmented by 10 K even if the luminaire is intended for outdoor use.
Any Ta/Tq defined value will be rounded down to the nearest multiple of 5.

In any case, test at 25°C or test at Ta or Tq, if delta Ts is above the recommended value of the GDE-POL-001, the test is failed.

End of accredited report :

Laboratory
Test report

R-Tech
Rue de Mons 3 – B-4000 Liège – Belgium
Tel.: +32 4 224 71 40 – Fax: +32 4 224 25 90
Member of Schréder Group

FORM L-54 Edition 01 – Revision 04 – Date : 21/04/2021

EMC test

General information

Subject : VOLTANA EVO 1 16 led's OSLON Square Giant - Signify 75W 1200 mA Class I

Asked by : GHYSENS Gilles

Created on : 24/09/2021

Started on : 24/09/2021

Test number : D211032

Reference norm : EN 55015 Standard

Folder : P-F21002

Test conditions

Luminaire : VOLTANA EVO 1

Operator : HUS

Electrical class : Class I EU

Number of LEDs : 16

LED Type : Osram OSLON SQUARE GIANT

Driver : DRIVER_SIGNIFY_FP_75W_500-1500mA_220-240V_DALI_C133_ / 00-49-491

Number of driver(s) : 1

Current setting (mA) : 1200

Dimming minimum value : 20 %

Dimming protocol : DALI

Overvoltage protection : VS Lighting Solutions SPC3/230/10K/i

Testing facility : HUS - Schréder Magyarország Zrt.

Conclusion

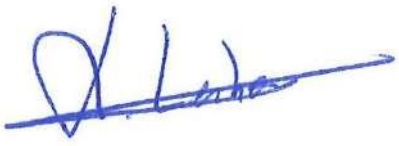
Success

Conclusion :

VOLTANA EVO1 Cl. I with SIGNIFY FP 75W driver complies with "Conducted emissions" & "CDNE method" tests (EN55015) in internal lab.

Validated by :

LERHO Xavier



Duplicate to : RACANELLI Frank, SZÜGYI János Péter, DJURETIC Andrej, HORVÁTH Csaba, CSIKÓS Balázs, BEDŐ Péter

LAB : 24/09/2021

Test(s) details

Test(s)

Name	Description	Verdict
EMC compliance in R-Tech lab - Class I	Emission measurements (EN 55015): - Radiated emissions - Conducted emissions	Success

EMC compliance in R-Tech lab - Class I

Verdict(s)

Internal reports (EMC Database): 210204, 210205, 210206 & 210207

Number of appendix pages : **13**

End of test report :

Laboratory
Test report

R-Tech
Rue de Mons 3 – B-4000 Liège – Belgium
Tel.: +32 4 224 71 40 – Fax: +32 4 224 25 90
Member of Schréder Group

FORM L-54 Edition 01 - Revision 03 - Date : 20/05/2020

Electrical measurements

General information

Subject : VOLTANA EVO 1 - 16 Oslon Square Giant - Philips FP 75W - 1200mA - CL I

Asked by : SZÜGYI János Péter

Created on : 08/01/2021

Started on : 19/01/2021

Test number : D210033

Sample(s) : E210030

Folder : P-F21002

Test conditions

Luminaire : VOLTANA EVO 1

Operator : Philippe Léonard

Number of LED : 16

LED : Osram OSLON SQUARE GIANT

Driver : DRIVER_SIGNIFY_FP_75W_500-1500mA_220-240V_DALI_C133_.
/ 01-50-749

Number of driver(s) : 1

Driver current (mA) : 1200

SPD : VS SP3/230/10K/i

Conclusion

Informative

Conclusion :

PF : 0.99
Efficiency : 90.2%
THD : 7.6%
Harmonics : OK according to IEC 61000-3-2, Class C, P > 25 W (@100% dimming)

Validated by :

GHYSENS Gilles

Duplicate to : RACANELLI Frank, SZÜGYI János Péter, HORVÁTH Csaba, CSIKÓS Balázs, BEDŐ Péter

LAB : 16/02/2021

Test(s) details

Test(s)

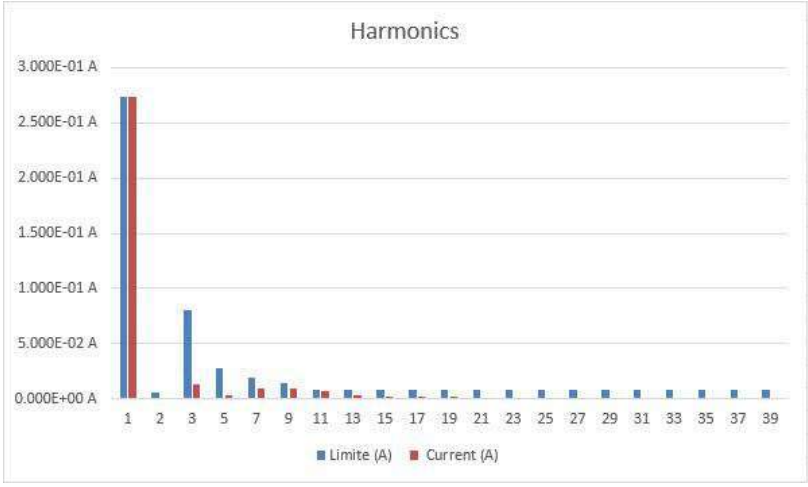
Name	Description	Result
Harmonics @ 1200mA	Measurement of the harmonic currents of the luminaire at thermal stabilization, according IEC 61000-3-2 - Class C (100% dimming).	Success
Measurements @ 1200mA	Characterization of the electrical parameters of the luminaire at thermal stabilization.	Informative

Harmonics @ 1200mA

Result(s)

Harmonic	Current (A)	Limite (A)
1	**2.732E-01 A**	2.732E-01 A
2	5.961E-04 A	5.464E-03 A
3	1.252E-02 A	8.084E-02 A
5	2.674E-03 A	2.732E-02 A
7	9.190E-03 A	1.912E-02 A
9	9.689E-03 A	1.366E-02 A
11	6.447E-03 A	8.196E-03 A
13	3.378E-03 A	8.196E-03 A
15	2.213E-03 A	8.196E-03 A
17	2.458E-03 A	8.196E-03 A
19	2.355E-03 A	8.196E-03 A
21	9.062E-04 A	8.196E-03 A
23	3.354E-04 A	8.196E-03 A
25	4.861E-04 A	8.196E-03 A
27	2.587E-04 A	8.196E-03 A
29	4.195E-04 A	8.196E-03 A
31	6.745E-04 A	8.196E-03 A
33	6.244E-04 A	8.196E-03 A
35	4.716E-04 A	8.196E-03 A
37	5.700E-04 A	8.196E-03 A
39	3.956E-04 A	8.196E-03 A

Annex(es)



Measurements @ 1200mA

Result(s)

input			output 1		
Urms	230.0 V		Urms	46.6 V	
Irms	0.274 A		Irms	1.203 A	
Prms	62.2 W		Prms	56.1 W	
S	63.0 VA				
Q	-10.4 VAR				
PF	0.9863				
$I_{(H01)}$	0.273 A		Uavg	46.6 V	
Cos j (H01)	0.9893		Iavg	1.203 A	
η rms	90.2%		Pavg	56.1 W	
η avg	90.2%				
THD	7.6%				

Test room temperature (°C) :

26.3

Measurement equipment :

Norma 4000 (E110)
APT (E102)

Quantities measured :

Qualification of the thermal limits and measurement of the electrical behavior of a luminaire according to PT-S-07

Uncertainties :

Statement of uncertainties (K=2, 95% of confidence level):
Temperature: 0,6 K
Voltage (AC): 0,33%
Current (AC): 0,33 %
Power (AC): 0,27%
Voltage (DC): 0,3 %
Current (DC): 0,3%
Power (DC): 0,23%
Anemometer: ± 0,27 m/s

Decision rules :

No pass/fail criteria applied on electrical measurements

End of test report :

R-Tech
Rue de Mons 3 – B-4000 Liège – Belgium
Tel.: +32 4 224 71 40 – Fax: +32 4 224 25 90
Member of Schréder Group

Thermal Test LED

General information

Subject : VOLTANA EVO 1 - 16 Oslon Square Giant - Philips FP 75W - 1200mA - CL I

Asked by : SZÜGYI János Péter
Created on : 08/01/2021
Started on : 19/01/2021
Test number : D210032
Reference norm : IEC/EN 60598-1; 60598-2-3; 60598-2-5 Standards
Sample(s) : E210030
Folder : P-F21002

Test conditions

Luminaire : VOLTANA EVO 1

Number of LED : 16

LED : Osram OSLON SQUARE GIANT

Driver : DRIVER_SIGNIFY_FP_75W_500-1500mA_220-240V_DALI_C133_. / 01-50-749

Number of driver(s) : 1

Driver current (mA) : 1200

SPD : VS SP3/230/10K/i

Operator : Philippe Léonard

IMG_7625

Conclusion

Informative

Conclusion :

ΔTs < 80°C no risk of solder crack

Ta: 40°C limited by driver; according IEC 60598-2-3 and IEC 60598-2-5 (outdoor use only)
Ta: 30°C limited by driver; indoor use and UL standard
Tq: 20°C limited by driver; according IEC 62722-2-1

Tq given for 100 khrs of lifetime

Validated by :

GHYSENS Gilles

Duplicate to : SZÜGYI János Péter, HORVÁTH Csaba, CSIKÓS Balázs, BEDŐ Péter

LAB : 16/02/2021

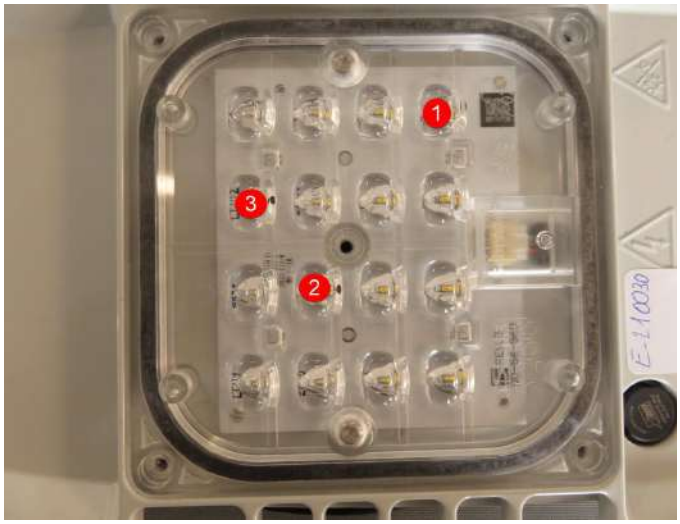
Test(s) details

Test(s)

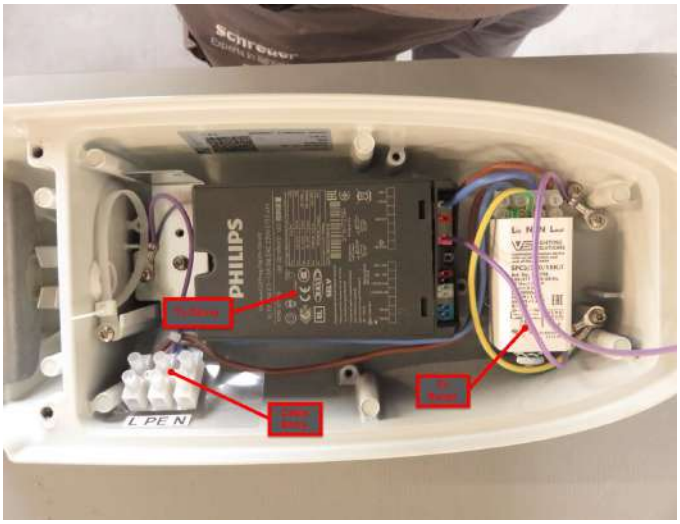
Name	Description	Result
Sensors positions	Disposition of the thermocouples on the DUT.	Informative
Test @ 1200mA	Test according section 12.4 of IEC 60598-1. The DUT is driven until all thermocouples reach thermal stabilization (i.e. variation = 1K/h).	Informative

Sensors positions

Annex(es)



IMG_7605(a)



IMG_7612(a)

Test @ 1200mA

Result(s)

	Ts1	Ts2+Tp	Ts3	Driver1	SPD1	Ta Cable entry1
Limit Ta	110.0 °C	110.0 °C	110.0 °C	80.0 °C	80.0 °C	90.0 °C
Limit Tq	90.0 °C	90.0 °C	90.0 °C	70.0 °C	80.0 °C	90.0 °C
Thermocouple T°	81.6 °C	85.1 °C	86.1 °C	73.6 °C	49.0 °C	53.8 °C
Room	26.3 °C	26.3 °C	26.3 °C	26.3 °C	26.3 °C	26.3 °C
E Led	2.9 V	2.9 V	2.9 V			
I Led	1.203 A	1.203 A	1.203 A			
P Led	3.5 W	3.5 W	3.5 W			
Heating	55.3 °C	58.8 °C	59.8 °C	47.3 °C	22.7 °C	27.5 °C
Ta Indoor	54.7 °C	51.2 °C	50.2 °C	32.7 °C	57.3 °C	62.5 °C
Tq	34.7 °C	31.2 °C	30.2 °C	22.7 °C	57.3 °C	62.5 °C
Solder point temperature used as the image of the lens temperature						
Primary EM		Secondary Em Dr1				
U	230.0 V	U	46.6 V			
I	0.274 A	I	1.203 A			
P	62.2 W	P	56.1 W			
PF	0.986					
Efficiency	90.2%					

Test room temperature (°C) :

26.3

Measurement equipment :

Keithley with thermocouples type K (E097)
Norma 4000 (E110)
APT (E102)

Quantities measured :

Qualification of the thermal limits and measurement of the electrical behavior of a luminaire according to PT-S-07

Uncertainties :

Statement of uncertainties (K=2, 95% of confidence level):
Temperature: 0,6 K
Voltage (AC): 0,33%
Current (AC): 0,33 %
Power (AC): 0,27%
Voltage (DC): 0,3 %
Current (DC): 0,3%
Power (DC): 0,23%
Anemometer: ± 0,27 m/s

Decision rules :

No pass/fail criteria applied on electrical measurements

No pass/fail criteria applied on thermal measurements when performed at 25°C (+/- 5°C), the Ta/Tq values are calculated according GDE-POL-001.

Pass/fail criteria on thermal qualification (test performed at announced Ta or Tq)
At the announced Ta, no component is above its maximum limit of operation reduced by the uncertainty on the temperature measurement: pass
At the announced Ta, at least 1 component is above its maximum limit of operation augmented by the uncertainty on the temperature measurement: fail
At the announced Ta, at least 1 component is at its maximum limit of operation ± the uncertainty on the temperature measurement and no other component is above its maximum limit of operation augmented by the uncertainty on the temperature measurement: pass with remark
According to IEC 60598-2-3 and IEC 60598-2-5 Standards, the maximum limit of every component can be augmented by 10 K provided that the luminaire is intended for outdoor use only.
At the announced Tq, no component is above its selected performance limit of operation reduced by the uncertainty on the temperature measurement: pass
At the announced Tq, at least 1 component is above its selected performance limit of operation augmented by the uncertainty on the temperature measurement: fail
At the announced Tq, at least 1 component is at its selected performance limit of operation ± the uncertainty on the temperature measurement and no other component is above its selected performance limit of operation augmented by the uncertainty on the temperature measurement: pass with remark
According to IEC 62722-2-1, the selected performance limit cannot be augmented by 10 K even if the luminaire is intended for outdoor use.
Any Ta/Tq defined value will be rounded down to the nearest multiple of 5.

In any case, test at 25°C or test at Ta or Tq, if delta Ts is above the recommended value of the GDE-POL-001, the test is failed.

End of accredited report :

Laboratory
Test report

R-Tech
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Member of Schréder Group

FORM L-54 Edition 01 - Revision 03 - Date : 20/05/2020

Electrical safety

General information

Subject : VOLTANA EVO 1 - 16 Oslon Square Giant - Philips 75W - 1200mA - CL I

Asked by : SZÜGYI János Péter

Created on : 12/01/2021

Started on : 27/01/2021

Test number : D210052

Reference norm : IEC/EN 60598-1 Standard

Sample(s) : E210037

Folder : P-F21002

Test conditions

Luminaire : VOLTANA EVO 1

Number of LED : 16

LED : Osram OSLON SQUARE GIANT

Electrical class : Class I EU

Driver : DRIVER_SIGNIFY_FP_75W_500-1500mA_220-240V_DALI_C133_ / 00-49-491

Number of driver(s) : 1

SPD : VS SPC3/230/10K/i

Operator : CLOSSET Frédérick

IMG_7897-1200

Conclusion

Success

Conclusion :

Conformity Statement:
Protective conductor current (§ 10.3 of IEC 60598-1) : passed
Earth continuity (§ 7.2.3 of IEC 60598-1) : passed
Insulation resistance for basic insulation other than SELV (§10.2.1 of IEC 60598-1) : passed
Electric strength for basic insulation other than SELV (§10.2.2 of IEC 60598-1) : passed

Creepage and clearances according IEC 60598-1:2014, AMD1:2017 : passed

Validated by :

GHYSENS Gilles

Duplicate to : RACANELLI Frank, SZÜGYI János Péter, HORVÁTH Csaba, CSIKÓS Balázs, BEDŐ Péter

LAB : 15/03/2021

Test(s) details

Test(s)

Name	Description	Result
Cl I	Protective conductor current (§ 10.3 of IEC 60598-1) Earth continuity (§ 7.2.3 of IEC 60598-1) Insulation resistance for basic insulation other than SELV (§10.2.1 of IEC 60598-1) Electric strength for basic insulation other than SELV (§10.2.2 of IEC 60598-1)	Success
Creepage and clearances	Evaluation of the creepage and clearances according IEC 60598-1:2014, AMD1:2017.	Success

Cl I

Result(s)

Date: 27.01.2021											
Time: 11:39											
Test: FCT											
Test plan name: ELECTRICAL SAFETY CL1											
Worksation: ATS400_SN20221505190454											
Carried out tests:											
Testindex	Testname	Test time	Test statistic	Min	Reading	Max	Test Number	IO	NIO	error	Result
1	Data input				d210052		1	1	0	None	Passed
2	Leakage current	20.0s	239.30 V	0.000 mA	151.72 µA	3.500 mA	1	1	0	None	Passed
3	Protective earth	60.0 s	10.0 A		55 mΩ	500 mΩ	1	1	0	None	Passed
4	Insulation	60.0 s	500.0 V	4.0 MΩ	400 MΩ		1	1	0	None	Passed
5	High voltage AC	60.0 s	1.50 kV	0.0 mA	1.0 mA	100.0 mA	1	1	0	None	Passed
6	Insulation	60.0 s	500.0 V	4.0 MΩ	400 MΩ		1	1	0	None	Passed

Annex(es)

tested

Creepage and clearances

Result(s)

TABLES: Creepage distances and clearances (mm)				
RMS working voltage (V) not exceeding 250V	**Criteria**		**Measurement**	
	Cl I	**Cl II**	**Cl I**	**Cl II**
Live parts of different polarity	≥ 1,5	≥ 1,5	≥ 1,5	
Live parts and accessible metal parts	≥ 1,5	≥ 5 (creepage) ≥ 3 (clearances)	≥ 1,5	
Live parts with single insulation and accessible metal parts	≥ 0	≥ 1,5	≥ 0	

Annex(es)

creep02

creep03

creep01

Test room temperature (°C) :

25

Measurement equipment :

ETL ATS400 (E133) with connecting box
Thermometer (A039/4)

Quantities measured :

Earth continuity test:
Resistance of the earth connection between accessible metal parts and the earth terminal according PT-S-18.

Insulation resistance test:
Resistance of the insulating materials for use in a luminaire according PT-S-19.

Dielectric strength test:
Dielectric strength of materials for use in a luminaire according PT-S-20.

Uncertainties :

Statement of uncertainties (K=2, 95% of confidence level):

Temperature: 0,6 K

Earth continuity test:
Current (10A) : 0.47A
Resistance (500mΩ) : 9.87mΩ

Insulation resistance test:
Resistance (1MΩ): 0.05MΩ
Resistance (2MΩ): 0.16MΩ
Resistance (4MΩ): 0.30MΩ
Voltage (0.5kV): 0.01kV

Dielectric strength test:
Voltage (1,5kV): 0.05kV
Voltage (3kV): 0.07kV
Leakage current (100mA): 1.70mA

Decision rules :

Pass/fail criteria according IEC 60598-1:

Earth continuity test:
By resistance measurement:
Resistance of the earth connection between all accessible metal parts of the DUT and the earth terminal below or equal to 0.5Ω : Pass
Otherwise : Fail

Insulation resistance test:
By resistance measurement:
Resistance of the insulating materials in line with the requirements of table 10.1 of IEC 60598-1 : Pass
Otherwise : Fail

Dielectric strength test:
By current measurement and visual inspection :
No flashover, breakdown, nor tripping of the 100mA relay when applying the requirements of table 10.2 of IEC 60598-1 : Pass
Otherwise : Fail

End of test report :

Laboratory
Test report

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Tel.: +32 4 224 71 40 – Fax: +32 4 224 25 90
Member of Schréder Group

FORM L-54 Edition 01 - Revision 03 - Date : 20/05/2020

Electrical safety

General information

Subject : VOLTANA EVO 1 - 16 Oslon Square Giant - Philips 75W - 1200mA - CL II

Asked by : SZÜGYI János Péter

Created on : 12/01/2021

Started on : 27/01/2021

Test number : D210051

Reference norm : IEC/EN 60598-1 Standard

Sample(s) : E210036

Folder : P-F21002

Test conditions

Luminaire : VOLTANA EVO 1

Number of LED : 16

LED : Osram OSLON SQUARE GIANT

Electrical class : Class II EU

Driver : DRIVER_SIGNIFY_FP_75W_500-1500mA_220-240V_DALI_C133_ / 00-49-491

Number of driver(s) : 1

Operator : CLOSSET Frédérick

IMG_7886-1200

Conclusion

Success

Conclusion :

Conformity statement:
Touch current (§ 10.3 of IEC 60598-1) : passed
Insulation resistance for double insulation other than SELV (§10.2.1 of IEC 60598-1) : passed
Electric strength for double insulation other than SELV (§10.2.2 of IEC 60598-1) : passed

Creepage and clearances according IEC 60598-1:2014, AMD1:2017 : passed

Validated by :

GHYSENS Gilles

Duplicate to : RACANELLI Frank, SZÜGYI János Péter, HORVÁTH Csaba, CSIKÓS Balázs, BEDŐ Péter

LAB : 15/03/2021

Test(s) details

Test(s)

Name	Description	Result
Cl II	Touch current (§ 10.3 of IEC 60598-1) Insulation resistance for double insulation other than SELV (§10.2.1 of IEC 60598-1) Electric strength for double insulation other than SELV (§10.2.2 of IEC 60598-1)	Informative
Creepage and clearances	Evaluation of the creepage and clearances according IEC 60598-1:2014, AMD1:2017.	Informative

Cl II

Result(s)

Date: 27.01.2021											
Time: 09:22											
Test: NOUS											
Test plan name: EL SAFE CL2											
Worksation: ATS400_SN20221505190454											
Carried out tests:											
Testindex	Testname	Test time	Test statistic	Min	Reading	Max	Test Number	IO	NIO	error	Result
1	Data input				d210051		1	1	0	None	Passed
5	Leakage current	10.0s	239.40 V	0.000 mA	645.00 µ	0.700 mA	1	1	0	None	Passed
6	Insulation	60.0 s	500.0 V	4.0 MΩ	400 MΩ		1	1	0	None	Passed
7	High voltage AC	60.0 s	3.00 kV	0.0 mA	1.4 mA	100.0 mA	1	1	0	None	Passed
8	Insulation	60.0 s	500.0 V	4.0 MΩ	400 MΩ		1	1	0	None	Passed

Creepage and clearances

Result(s)

TABLES: Creepage distances and clearances (mm)				
RMS working voltage (V) not exceeding 250V	**Criteria**		**Measurement**	
	Cl I	**Cl II**	**Cl I**	**Cl II**
Live parts of different polarity	≥ 1,5	≥ 1,5		≥ 1,5
Live parts and accessible metal parts	≥ 1,5	≥ 5 (creepage)		≥ 5 (creepage)
		≥ 3 (clearances)		≥ 3 (clearances)
Live parts with single insulation and accessible metal parts	≥ 0	≥ 1,5		≥ 0

Annex(es)

creep02

creep03

creep04

creep01

Test room temperature (°C) :

25

Measurement equipment :

ETL ATS400 (E133) with connecting box
Thermometer (A039/4)

Quantities measured :

Earth continuity test:
Resistance of the earth connection between accessible metal parts and the earth terminal according PT-S-18.

Insulation resistance test:
Resistance of the insulating materials for use in a luminaire according PT-S-19.

Dielectric strength test:
Dielectric strength of materials for use in a luminaire according PT-S-20.

Uncertainties :

Statement of uncertainties (K=2, 95% of confidence level):

Temperature: 0,6 K

Earth continuity test:
Current (10A) : 0.47A
Resistance (500mΩ) : 9.87mΩ

Insulation resistance test:
Resistance (1MΩ): 0.05MΩ
Resistance (2MΩ): 0.16MΩ
Resistance (4MΩ): 0.30MΩ
Voltage (0.5kV): 0.01kV

Dielectric strength test:
Voltage (1,5kV): 0.05kV
Voltage (3kV): 0.07kV
Leakage current (100mA): 1.70mA

Decision rules :

Pass/fail criteria according IEC 60598-1:

Earth continuity test:
By resistance measurement:
Resistance of the earth connection between all accessible metal parts of the DUT and the earth terminal below or equal to 0.5Ω : Pass
Otherwise : Fail

Insulation resistance test:
By resistance measurement:
Resistance of the insulating materials in line with the requirements of table 10.1 of IEC 60598-1 : Pass
Otherwise : Fail

Dielectric strength test:
By current measurement and visual inspection :
No flashover, breakdown, nor tripping of the 100mA relay when applying the requirements of table 10.2 of IEC 60598-1 : Pass
Otherwise : Fail

End of test report :

Laboratory
Test report

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Member of Schréder Group

FORM L-54 Edition 01 - Revision 03 - Date : 20/05/2020

Electrical measurements

General information

Subject : VOLTANA EVO 1 - 16 Oslon Square Giant - Mean Well PLD 60W - 1050mA - CL I

Asked by : SZÜGYI János Péter

Created on : 11/01/2021

Started on : 19/01/2021

Test number : D210037

Sample(s) : E210027

Folder : P-F21002

Test conditions

Luminaire : VOLTANA EVO 1

Operator : Philippe Léonard

Number of LED : 16

LED : Osram OSLON SQUARE GIANT

Driver : DRIVER_MEANWELL_PLD_60W_1050mA_220-277V_NONE_._. / 00-69-365

Number of driver(s) : 1

Driver current (mA) : 1050

SPD : VS SP3/230/10K/i

Conclusion

Informative

Conclusion :

PF : 0.97
Efficiency : 88.1%
THD : 15.1%
Harmonics : OK according to IEC 61000-3-2, Class C, P > 25 W (@100% dimming)

Validated by :

GHYSENS Gilles

Duplicate to : RACANELLI Frank, SZÜGYI János Péter, HORVÁTH Csaba, CSIKÓS Balázs, BEDŐ Péter

LAB : 15/02/2021

Test(s) details

Test(s)

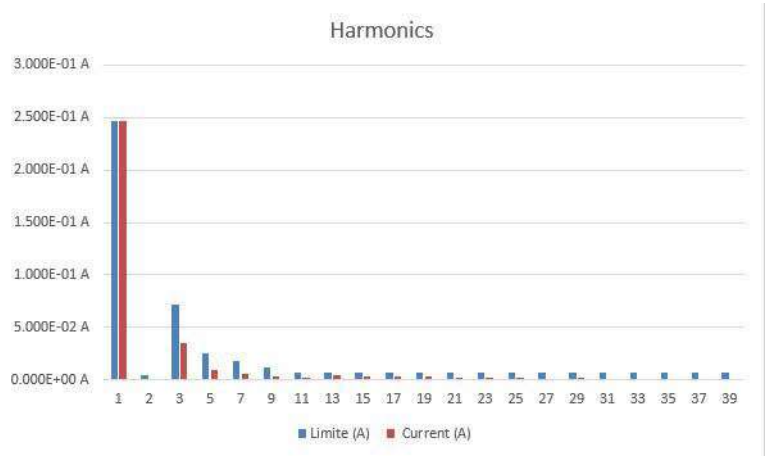
Name	Description	Result
Harmonics @ 1050mA	Measurement of the harmonic currents of the luminaire at thermal stabilization, according IEC 61000-3-2 - Class C (100% dimming).	Success
Measurements @ 1050mA	Characterization of the electrical parameters of the luminaire at thermal stabilization.	Informative

Harmonics @ 1050mA

Result(s)

Harmonic	Current (A)	Limite (A)
1	**2.461E-01 A**	2.461E-01 A
2	4.842E-04 A	4.923E-03 A
3	3.443E-02 A	7.188E-02 A
5	9.561E-03 A	2.461E-02 A
7	5.237E-03 A	1.723E-02 A
9	2.794E-03 A	1.231E-02 A
11	2.435E-03 A	7.384E-03 A
13	3.808E-03 A	7.384E-03 A
15	2.636E-03 A	7.384E-03 A
17	2.658E-03 A	7.384E-03 A
19	3.076E-03 A	7.384E-03 A
21	1.850E-03 A	7.384E-03 A
23	2.231E-03 A	7.384E-03 A
25	1.910E-03 A	7.384E-03 A
27	1.214E-03 A	7.384E-03 A
29	1.491E-03 A	7.384E-03 A
31	1.070E-03 A	7.384E-03 A
33	8.259E-04 A	7.384E-03 A
35	1.142E-03 A	7.384E-03 A
37	5.081E-04 A	7.384E-03 A
39	5.049E-04 A	7.384E-03 A

Annex(es)



Harmonics

Measurements @ 1050mA

Result(s)

input			output 1		
Urms	230.0 V		Urms	46.3 V	
Irms	0.249 A		Irms	1.078 A	
Prms	55.8 W		Prms	49.1 W	
S	57.3 VA				
Q	-13.1 VAR				
PF	0.9734				
$I_{(H01)}$	0.246 A		Uavg	46.3 V	
Cos j (H01)	0.9845		Iavg	1.056 A	
η rms	88.1%		Pavg	48.9 W	
η avg	87.8%				
THD	15.1%				

Test room temperature (°C) :

25.6

Measurement equipment :

Norma 4000 (E110)
APT (E102)

Quantities measured :

Qualification of the thermal limits and measurement of the electrical behavior of a luminaire according to PT-S-07

Uncertainties :

Statement of uncertainties (K=2, 95% of confidence level):
Temperature: 0,6 K
Voltage (AC): 0,33%
Current (AC): 0,33 %
Power (AC): 0,27%
Voltage (DC): 0,3 %
Current (DC): 0,3%
Power (DC): 0,23%
Anemometer: ± 0,27 m/s

Decision rules :

No pass/fail criteria applied on electrical measurements

End of test report :

Laboratory
Test report

226-TEST

NBN EN ISO/IEC 17025 :2017

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Member of Schréder Group

FORM L-54 Edition 01 - Revision 03 - Date : 20/05/2020

Thermal Test LED

General information

Subject : VOLTANA EVO 1 - 16 Oslon Square Giant - Mean Well PLD 60W - 1050mA - CL I

Asked by : SZÜGYI János Péter
Created on : 11/01/2021
Started on : 19/01/2021
Test number : D210036
Reference norm : IEC/EN 60598-1; 60598-2-3; 60598-2-5 Standards
Sample(s) : E210027
Folder : P-F21002

Test conditions

Luminaire : VOLTANA EVO 1

Number of LED : 16

LED : Osram OSLON SQUARE GIANT

Driver : DRIVER_MEANWELL_PLD_60W_1050mA_220-277V_NONE_._. / 00-69-365

Number of driver(s) : 1

Driver current (mA) : 1050

SPD : VS SP3/230/10K/i

Operator : Philippe Léonard

IMG_7625

Conclusion

Informative

Conclusion :

ΔTs < 80°C no risk of solder crack

Ta: 45°C limited by driver; according IEC 60598-2-3 and IEC 60598-2-5 (outdoor use only)
Ta: 35°C limited by driver; indoor use and UL standard
Tq: 10°C limited by driver; according IEC 62722-2-1 for 50 khrs of lifetime
Tq: 20°C limited by driver; according IEC 62722-2-1 for 30 khrs of lifetime

Validated by :

GHYSENS Gilles

Duplicate to : SZÜGYI János Péter, HORVÁTH Csaba, CSIKÓS Balázs, BEDŐ Péter

LAB : 15/02/2021

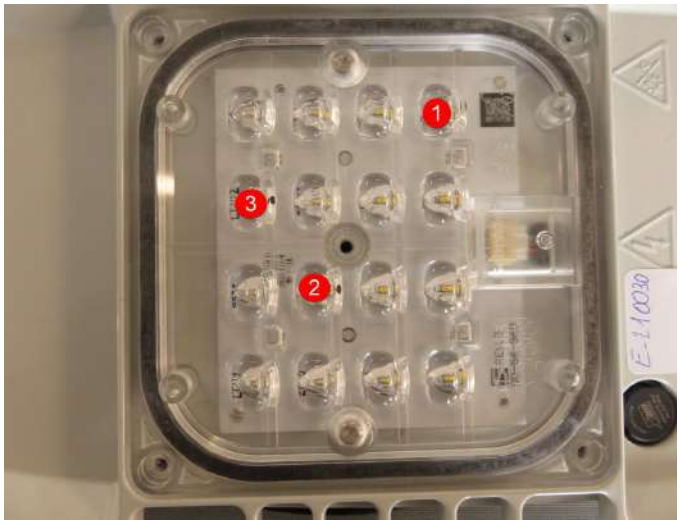
Test(s) details

Test(s)

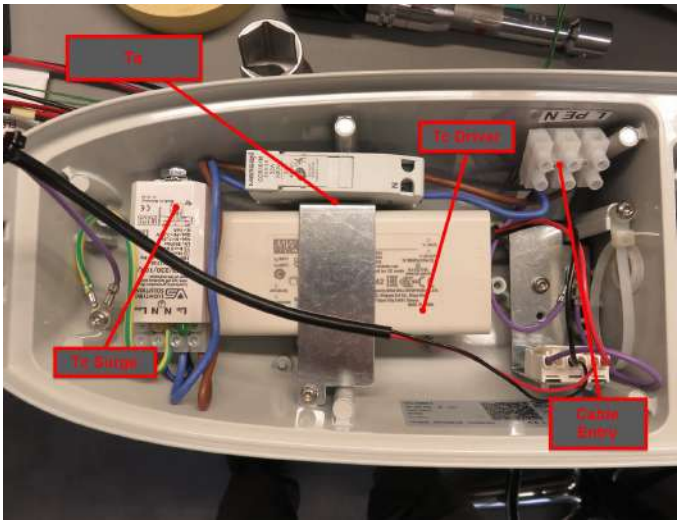
Name	Description	Result
Sensors positions	Disposition of the thermocouples on the DUT.	Informative
Test @ 1050mA	Test according section 12.4 of IEC 60598-1. The DUT is driven until all thermocouples reach thermal stabilization (i.e. variation = 1K/h).	Informative

Sensors positions

Annex(es)



IMG_7605(a)



IMG_7626(a)

Test @ 1050mA

Result(s)

	Ts1	Ts2 + Tp	Ts3	Tc Driver1	Tc SPD1	Ta Cable entry1	Ta Fuse1
Limit Ta	110.0 °C	110.0 °C	110.0 °C	90.0 °C	80.0 °C	90.0 °C	90.0 °C
Limit Tq	90.0 °C	90.0 °C	90.0 °C	65.0 °C	80.0 °C	90.0 °C	90.0 °C
Thermocouple T°	70.9 °C	74.1 °C	75.0 °C	78.4 °C	45.9 °C	46.6 °C	57.7 °C
Room	25.6 °C	25.6 °C	25.6 °C	25.6 °C	25.6 °C	25.6 °C	25.6 °C
E Led	2.9 V	2.9 V	2.9 V				
I Led	1.056 A	1.056 A	1.056 A				
P Led	3.1 W	3.1 W	3.1 W				
Heating	45.3 °C	48.5 °C	49.4 °C	52.8 °C	20.3 °C	21.0 °C	32.1 °C
Ta Indoor	64.7 °C	61.5 °C	60.6 °C	37.2 °C	59.7 °C	69.0 °C	57.9 °C
Tq	44.7 °C	41.5 °C	40.6 °C	12.2 °C	59.7 °C	69.0 °C	57.9 °C
Solder point temperature used as the image of the lens temperature							
Primary EM		Secondary Em Dr1					
U	230.0 V	U	46.3 V				
I	0.249 A	I	1.056 A				
P	55.8 W	P	48.9 W				
PF	0.973						
Efficiency	87.8%						

Test room temperature (°C) :

25.6

Measurement equipment :

Keithley with thermocouples type K (E097)
Norma 4000 (E110)
APT (E102)

Quantities measured :

Qualification of the thermal limits and measurement of the electrical behavior of a luminaire according to PT-S-07

Uncertainties :

Statement of uncertainties (K=2, 95% of confidence level):
Temperature: 0,6 K
Voltage (AC): 0,33%
Current (AC): 0,33 %
Power (AC): 0,27%
Voltage (DC): 0,3 %
Current (DC): 0,3%
Power (DC): 0,23%
Anemometer: ± 0,27 m/s

Decision rules :

No pass/fail criteria applied on electrical measurements

No pass/fail criteria applied on thermal measurements when performed at 25°C (+/- 5°C), the Ta/Tq values are calculated according GDE-POL-001.

Pass/fail criteria on thermal qualification (test performed at announced Ta or Tq)
At the announced Ta, no component is above its maximum limit of operation reduced by the uncertainty on the temperature measurement: pass
At the announced Ta, at least 1 component is above its maximum limit of operation augmented by the uncertainty on the temperature measurement: fail
At the announced Ta, at least 1 component is at its maximum limit of operation ± the uncertainty on the temperature measurement and no other component is above its maximum limit of operation augmented by the uncertainty on the temperature measurement: pass with remark
According to IEC 60598-2-3 and IEC 60598-2-5 Standards, the maximum limit of every component can be augmented by 10 K provided that the luminaire is intended for outdoor use only.
At the announced Tq, no component is above its selected performance limit of operation reduced by the uncertainty on the temperature measurement: pass
At the announced Tq, at least 1 component is above its selected performance limit of operation augmented by the uncertainty on the temperature measurement: fail
At the announced Tq, at least 1 component is at its selected performance limit of operation ± the uncertainty on the temperature measurement and no other component is above its selected performance limit of operation augmented by the uncertainty on the temperature measurement: pass with remark
According to IEC 62722-2-1, the selected performance limit cannot be augmented by 10 K even if the luminaire is intended for outdoor use.
Any Ta/Tq defined value will be rounded down to the nearest multiple of 5.

In any case, test at 25°C or test at Ta or Tq, if delta Ts is above the recommended value of the GDE-POL-001, the test is failed.

End of accredited report :
