

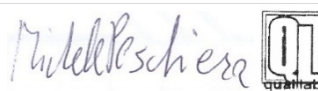


	Test report	827-QL20-R01 ver.0	
	Applicant	Lumenia d.o.o. Kandrše del 7 1252 - Vače - Slovenia	
	Type	H LUM	

## TEST REPORT 827-QL20-R01 ver. 0

<b>Addresses</b> Indirizzi		
Applicant Richiedente	Lumenia d.o.o. - Kandrše del 7 - 1252 - Vače - Slovenia	
Manufacturer Produttore	Strips d.o.o. - Kandrše del 7 - 1252 - Vače - Slovenia	
<b>Dates and authorization</b> Date e autorizzazioni		
Report Date Data emissione rapporto di prova	24/06/2020	
Written by Preparato da	Ing. Carsten Seyring	
Authorized by Autorizzato da	Ing. Michele Peschiera	
<b>Sample under test (data declared by the applicant and under applicant's responsibility)</b> Dispositivo sottoposto a prova (Dati forniti dal richiedente e sotto la sua responsabilità)		
Sample description Descrizione dispositivo	LED luminaire / Apparecchio di illuminazione a LED	
Type Modello	H LUM	
Light source Sorgente luminosa	LED LUMILED 5050 (no information about specific model available)	
Secondary optic Ottica secondaria	No information available	
Power supply Alimentazione	AC 230 V, 50 Hz	
Driver model Modello alimentatore	Philips Xitanium, 150W 0.2-0.7A Output current 680 mA	
Single led supply current Corrente sul singolo led	No information available	

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Applicable standards Norme applicabili	
	IEC TR 62778:2014 (application of IEC 62471 for the assessment of blue light hazard to light sources and luminaires)
Test Setup Setup di prova	
Test instrument Strumenti di misura	Spectrometer/Spettrometro Bentham IDR300-PSL ref. N° QL-IN-009 (spectrometer calibration lamps QL-IN-015, QL-IN-016, QL-IN-017) Multimeter /Multimetro ISOTECH IDM303 ref. N° QL-IN-085 Meter/Rotella metrica Stanley Fatmax ref. N° QL-IN-242 Temperature sensor/Sensore di temperatura TESTO 174T ref. N° QL-IN-021 Powermeter/ wattmetro Hioki 3333 int. n. QL-IN-182
Other test instrument used if risk group > 1 Altri Strumenti di misura utilizzati in caso di gruppo di rischio >1	Type C mirror photogoniometer / Fotogoniometro Tipo C LMT GO-DS 2000 ref. N° QL-IN-001 Temperature sensor / Sensore di temperatura TESTO 174H ref. N° QL-IN-181
Test ambient temperature Temperatura ambiente durante la prova	25,0 °C ± 1,0 °C. Ambient temperature registrations available on request Le registrazioni delle temperature ambientali sono disponibili su richiesta

Test Name Identificazione prova	Test Procedure Procedura di prova	Test Measurement Misure di prova	Overall risk group Gruppo di rischio complessivo
Blue Light Risk Group (distance 200 mm)	IEC TR 62778:2014	Blue light	<b>RISK GROUP 1 UNLIMITED</b>
Blue Light Risk Group 1 threshold distance of the tested version (For derived versions see formula in annex III)	IEC TR 62778:2014	Blue light	<b>Not applicable</b>

Uncertainty Incertezza	
Radiance Radianza	± 3,5 %
Irradiance Irradianza	± 3,4 %
Statement Dichiarazione	<p>The measured value (<math>y</math>) and the associated expanded uncertainty (<math>U</math>) represent the interval (<math>y \pm U</math>) which contains the value of the measured quantity with a probability of approximately 95 % and a coverage factor <math>k = 2</math>.</p> <p>If the limits are not breached by the measured result, extended by the expanded uncertainty interval, then the product is considered compliant with the specification.</p> <p>Il valore misurato (<math>y</math>) e l'incertezza estesa associata (<math>U</math>) rappresentano l'intervallo (<math>y \pm U</math>) che contiene il valore della grandezza misurata con una probabilità di circa il 95 % e un fattore di copertura <math>k = 2</math>.</p> <p>Il prodotto viene considerato conforme alle specifiche se i limiti non vengono superati dal risultato misurato, esteso dell'intervallo di incertezza estesa associata.</p>

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## ANNEX I Blue light risk group IEC TR 62778

Standard	IEC TR 62778:2014
Sample N°	827-QL20-S01
Place of test	Qualilab Srl - Via Trento, 87 - 25020 - Capriano del Colle (BS) - Italy
Date of test	23/06/2020
Test procedure	<p>In accordance to IEC TR 62778 figure 7 the sample was measured at a distance of 200 mm to the sensor and blue light evaluated.</p> <p>If blue light risk at 200 mm is <math>&gt; 1</math></p> <p>Out of <math>E_B</math> and <math>E</math> the factor <math>K_{B,v}</math> was calculated with <math>K_{B,v} = E_B/E</math></p> <p>The threshold illuminance <math>E_{thr}</math> was calculated with <math>E_{thr} = E_B/K_{B,v}</math>, with <math>E_B = 1 \text{ W/m}^2</math></p> <p>By measuring the luminous intensity distribution of the luminaire on a mirror based photogoniometer, the maximum intensity <math>I_{max}</math> was determined.</p> <p>With the photometric square law the threshold distance <math>d_{thr}</math> with <math>E_{thr}</math> was calculated.</p>



Test measurements			Sample at a distance of 200 mm:								
		Emission limits for risk groups of continuous wave lamps									
Risk	Action spectrum	Symbol	Units	Emission Measurement							
				Exempt – RG0		Low risk – RG1		Mod risk – RG2			
				Limit	Result	Limit	Result	Limit	Result		
Blue light	$B(\lambda)$	$L_B$	$\text{W}\cdot\text{m}^{-2}\cdot\text{sr}^{-1}$	<u>100</u>	<u>F</u>	<u>10000</u>	<u>1,61E+03</u>	4000000	-		
Blue light, small source	$B(\lambda)$	$E_B$	$\text{W}\cdot\text{m}^{-2}$	<u>0,01*</u>	<u>not applicable</u>	1,0	-	400	-		
* Small source defined as one with $\alpha < 0,011$ radian. Averaging field of view at 10000 s is 0,1 radian.											

\* Small source defined as one with  $\alpha < 0,011$  radian. Averaging field of view at 10000 s is 0,1 radian.

The following table is applicable only if Blue light risk at 200 mm is  $> 1$

$K_{B,v}$	$I_{max}$ [cd]	$E_{thr}$ [lx]	$d_{thr}$ [m]
-	-	-	-

TEST RESULT	<b>RISK GROUP 200 mm: RISK GROUP 1 UNLIMITED</b> <b>RISK GROUP THRESHOLD DISTANCE: not applicable</b>
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## ANNEX II

## Labeling in acc. with IEC 60598-1:2014+A1:2017

For complete and updated marking and labeling requirements please see IEC 60598-1:2014+A1:2017.

Example:

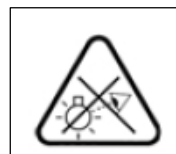
if Blue light risk at 200 mm is > 1:

For fixed luminaires the manufacturer's instructions provided with the luminaire shall give the following text:

The luminaire should be positioned so that prolonged staring into the luminaire at a distance of x m is not expected.

For portable and handheld luminaires and for fixed luminaires if the light source is directly visible during luminaire maintenance, the luminaire shall be marked with the following warning symbol:

Do not stare at the operating light source



## ANNEX III

## Extension of results on derived versions

if Blue light risk at 200 mm is  $\leq 1$ :  
see IEC TR 62778:2014 Annex D

if Blue light risk at 200 mm is > 1:  
applicable formula for derived versions

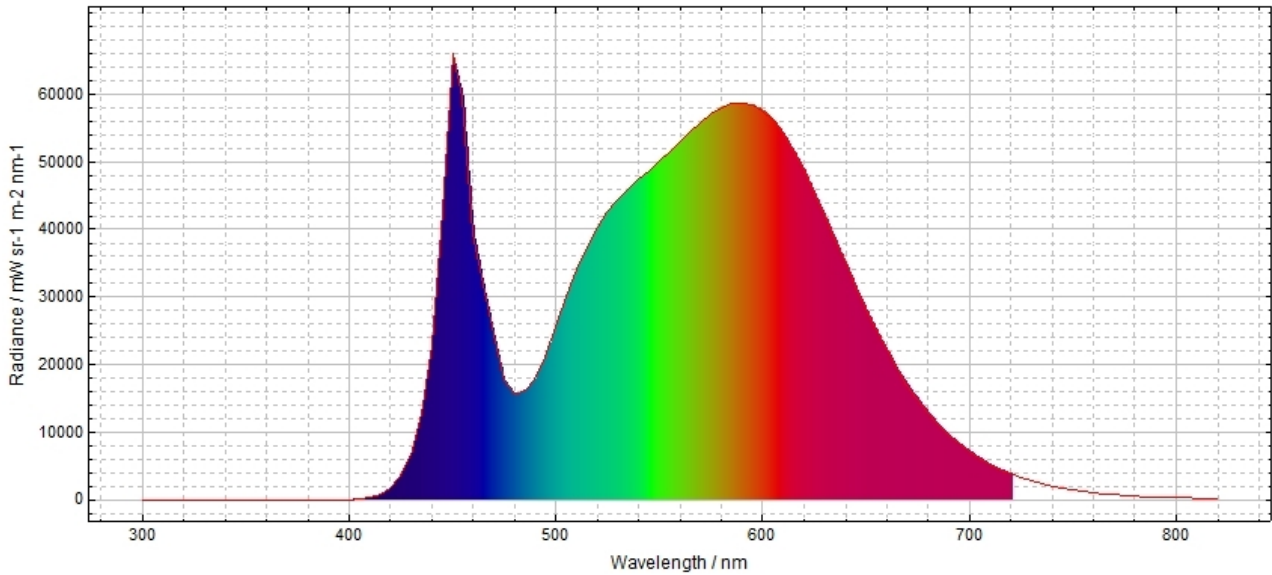
$$d_{thr}[m] = \sqrt{\frac{I_{d\_max}[cd]}{E_{thr}[lx]}}$$



where

$I_{d\_max}[cd]$  = Max luminous intensity in cd evaluated from the luminous intensity distribution of the derived version

## ANNEX IV

## Photograph



	Test report	827-QL20-R01 ver.0	 <small>LAB N° 1235 L</small> <small>Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC</small> <small>Signatory of EA, IAF and ILAC Mutual Recognition Agreements</small>
	Applicant	Lumenia d.o.o. Kandrše del 7 1252 - Vače - Slovenia	
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