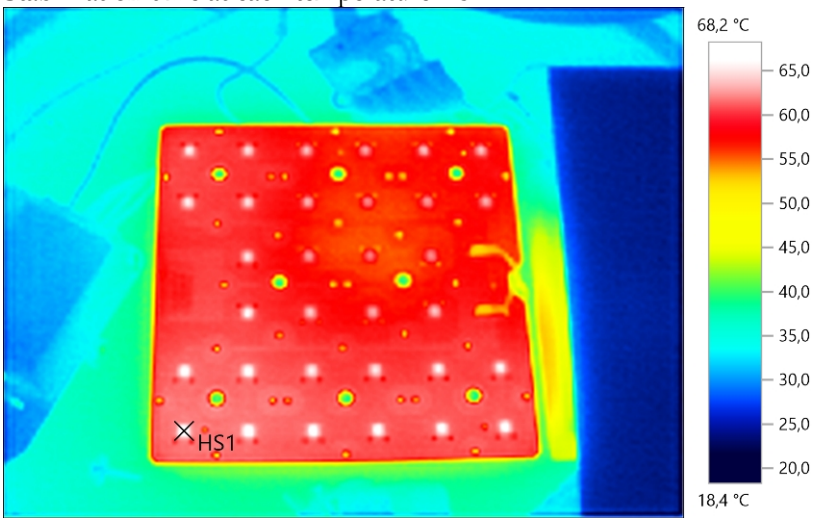
TEST REPORT 148-QL22-R11 ver. 0

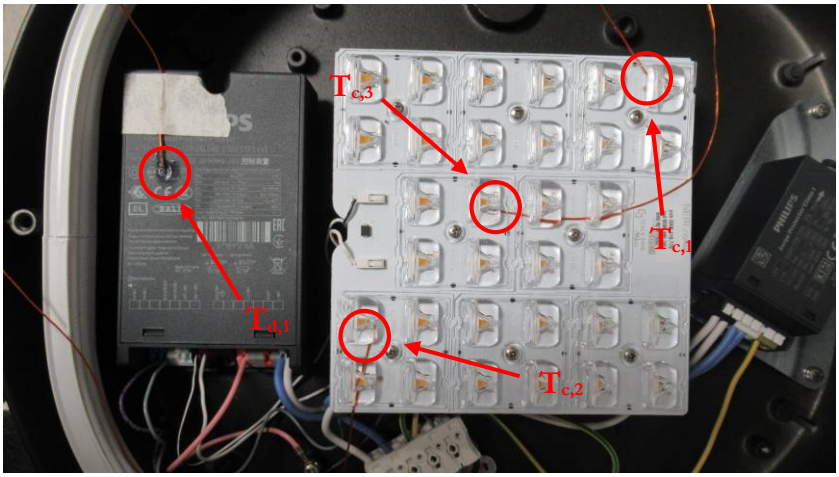
Dates and authorization Date e autorizzazioni		
Report Date Data emissione rapporto di prova	12/04/2022	
Written by Preparato da	Matteo Roncali	
Authorized by Autorizzato da	Ing. Michele Peschiera	
Data declared under the sole responsibility of the applicant Dati dichiarati dal richiedente e sotto la sua responsabilità		
Applicant Richiedente	Neri Spa - Via Emilia, 1622 - 47020 - Longiano (FC) - Italy	
Manufacturer Produttore	Neri Spa - Via delle Querce, 4 - 47020 - Longiano (FC) - Italy	
Sample description Descrizione dispositivo	LED luminaire/Apparecchio di illuminazione a LED	
Type Modello	LULYR 32 cl I	
Light source Sorgente luminosa	N°32 Leds Lumileds L150-30705006000S0 - 3000 K	
Secondary optic Ottica secondaria:	Ledil strada 2x2 ME-WIDE1	
Power supply Alimentazione	AC 230 V, 50 Hz	
Driver model Modello alimentatore	Philips Xi FP 75 W 0,3-1,05 A SNLDAE 230 V C133 sXt	
Output power supply current Corrente in uscita dall'alimentatore	830 mA	
Single led supply current Corrente sul singolo led	415 mA	
LM80 test report	CSA LM-80 test report number: LUMI012-A2-181 REV 1, 20-05-21 (accreditation NVLAP 500055-0)	
Applicable standards Norme applicabili		
	IES LM-82-12, UL 1598:2021, IES TM-21-11	

Test Name **Identificazione prova**	**Result** **Risultato**
IES LM-79-19 Test result	See test report QUALILAB 148-QL22-R02
IES LM-82-12, UL 1598:2021 par 19.7 (ISTMT)	See annex I
IES TM-21-11 Energy Star TM21 Calculator Rev 06-18-2018 (from calculation)	See annex II

Uncertainty Incertezza	
Photometric parameter Parametri fotometrici	Luminous flux and intensity= 2,5 % Luminous efficacy= 2,8 % Flusso e intensità luminosa, Efficacia luminosa
Temperature measurement Misure di temperatura	±2,0 °C
Electrical parameter Parametri elettrici	P= 0,13 % V= 0,05 % I_{AC}= 0,28 % I_{DC}= 0,08 % PF= 0,15 %
Statement Dichiarazione	The measured value (y) and the associated expanded uncertainty (U) represent the interval ($y \pm U$) which contains the value of the measured quantity with a probability of approximately 95 % and a coverage factor k = 2. Il valore misurato (y) e l'incertezza estesa associata (U) rappresentano l'intervallo ($y \pm U$) che contiene il valore della grandezza misurata con una probabilità di circa il 95 % e un fattore di copertura k = 2.

Photographs
Foto

ANNEX I	**Electrical And Photometric Properties As A Function Of Temperature**
Standards	IES LM-82-12, UL 1598:2021 par 19.7 (ISTMT)
Sample number	148-QL22-S02
Place of testing	Qualilab Srl - Via Trento, 87 - 25020 - Capriano del Colle (BS) - Italy
Date of testing	From 07/03/2022 to 09/03/2022
Environmental conditions	-
Instruments	Illuminance transmitter Delta OHM HD2021T QL-IN-203 Powermeter Hioki 3333 QL-IN-186 Datalogger HIOKI 8400/20LR QL-IN-096 Termocouple TERSID T HF-D-30-TT QL-IN-197 Thermal chamber QUALILAB QL-IN-196 AC power source Chroma 6415 QL-IN-011 Thermal imager camera TESTO 865 QL-IN-253
Test procedure	IES LM-82-12 §6 Directional measurement method used. T_b: according to applicant's request the air temperature of the chamber was taken $T_{d,1}$: driver temperature central power supply $T_{c,1}$: Led module (see figure) $T_{c,2}$: Led module (see figure) $T_{c,3}$: Led module (see figure) Temperature setup $T_{b,0}$ = 25,0 °C $T_{b,1}$ = $T_{b,0}$ + 25 °C = 50,0 °C $T_{b,2}$ = $T_{b,0}$ + 10 °C = 35,0 °C According to applicant's requirement the test was performed on a luminaire Stabilization time at each temperature >5 h  Only for the evaluation of the hot point position - Temperature value not validated



Test Measurement

$T_{b,x}$ [°C]	$T_{d,1}$ [°C]	$T_{c,1}$ [°C]	$T_{c,2}$ [°C]	$T_{c,3}$ [°C]	Flux [lm]	Input Power [W]	Input Voltage [V]	Input Current [A]	Luminous efficacy [lm/W]
25,0	66,5	58,2	56,0	56,9	10126	80,1	230,0	0,350	126
35,0	72,8	65,0	63,0	63,8	9814	79,7	230,0	0,349	123
50,0	82,1	75,1	73,0	73,9	9405	79,3	230,0	0,331	119

ANNEX II	**IES TM-21-11**
Standards	IES TM-21-11
Sample number	148-QL22-S02
Light source	N°32 Leds Lumileds L150-30705006000S0 - 3000 K
Single led supply current	415 mA
Test procedure	Energy Star TM21 Calculator Rev 06-18-2018
Statement	Calculation below based on test report CSA LM-80 test report number: LUMI012-A2-181 REV 1, 20-05-21 (accreditation NVLAP 500055-0)and measurement data from annex I
TM21 calculation	

LM-80 Test Inputs

Description of LED Light Source Tested (manufacturer, model, catalog number)
N°32 Leds Lumileds L150-30705006000S0 - 3000K

LM-80 Testing Details	
Total number of units tested per case temperature	24
Number of failures:	0
Number of units measured:	24
Test duration (hours):	17000
Tested drive current (mA):	500
Tested case temperature 1 (T_c, °C):	55
Tested case temperature 2 (T_c, °C):	85
Tested case temperature 3 (T_c, °C):	105

Test Data for 55ºC Case Temperature		Test Data for 85ºC Case Temperature		Test Data for 105ºC Case Temperature	
Time (hours)	Lumen Maintenance (%)	Time (hours)	Lumen Maintenance (%)	Time (hours)	Lumen Maintenance (%)
1000	100,00%	1000	99,50%	1000	98,60%
2000	99,90%	2000	99,20%	2000	98,00%
3000	99,90%	3000	99,10%	3000	97,70%
4000	99,80%	4000	98,80%	4000	97,30%
5000	99,70%	5000	98,70%	5000	97,00%
6000	99,60%	6000	98,50%	6000	96,70%
7000	99,70%	7000	98,40%	7000	96,50%
8000	99,70%	8000	98,30%	8000	96,40%
9000	99,70%	9000	98,20%	9000	96,30%
10000	99,70%	10000	98,20%	10000	96,30%
11000	99,60%	11000	98,10%	11000	96,10%
12000	99,60%	12000	98,00%	12000	95,90%
13000	99,50%	13000	97,90%	13000	95,70%
14000	99,50%	14000	97,90%	14000	95,60%
15000	99,40%	15000	97,80%	15000	95,50%
16000	99,20%	16000	97,80%	16000	95,20%
17000	98,90%	17000	97,70%	17000	94,80%

***In-Situ* Inputs**

Drive current for each LED package/array/module (mA):	415
In-situ case temperature (T_c, °C):	75,1
Percentage of initial lumens to project to (e.g. for L_{70}, enter 70):	90

Results

Time (t) at which to estimate lumen maintenance (hours):	100.000
Lumen maintenance at time (t) (%):	92,87%
Reported L90 (hours):	>102000

$T_{b,1}$ (50 °C)