



REPORT

Dialight, 1501 Route 34 South, Farmingdale, NJ 07727

Project No. G101527369

Date: June 16,2014

INTERTEK REPORT NO. 101527369CRT-001
DIALIGHT REPORT NO. L14022

TEST OF ONE WALL PACK

MODEL NO. WP4N3LNLGC
DRIVER MODEL NO. INTEGRATED DIALIGHT DRIVER
LED MODEL NO. CREE XTE

RENDERED TO

DIALIGHT COPORATION
1501 ROUTE 34 SOUTH
FARMINDALE, NJ 07727

TEST: Electrical and Photometric tests as required to the IESNA test standard.

STATEMENT OF LIMITATION: This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

AUTHORIZATION: The testing performed was authorized by signed quote number 500535778.

STANDARDS USED: The following American National Standards or Illuminating Engineering Society of North America Test Guides were used in part or totally to test each specimen:

IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting

ANSI NEMA ANSLG C78.377: 2012: Specifications of the Chromaticity of Solid State Lighting Products

Energy Star Version 1.2 (2012): Program Requirements for Luminaires (Light Fixtures)

Energy Star Manufacturer's Guide Version 2.1 (2010): Guide for Qualifying Solid State Lighting Luminaires

DESCRIPTION OF SAMPLE: The client submitted one production sample of model number WP4N3LNLGC. The sample was received by Dialight lab on June 10, 2014, in undamaged condition and one sample was tested as received. The sample designation was L14022.

DATES OF TESTS: June 10, 2014 through June 13, 2014.

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SUMMARY

Model No.:	WP4N3LNLGC
Description:	WALL PACK

Criteria	Result	
	Sphere	Goniometer
Total Lumen Output (Lumens)	2095	2077
Total Power (W)	30.59	30.62
Luminaire Efficacy (LPW)	68.49	67.83

Criteria	Result
Power Factor	0.982
Current ATHD %	12.93
Correlated Color Temperature (CCT - K)	4719
Color Rendering Index (CRI - Ra)	72.7
Color Rendering Index (CRI - R9)	-17.5
DUV	0.004
Chromaticity Coordinate (x)	0.355
Chromaticity Coordinate (y)	0.367
Chromaticity Coordinate (u')	0.212
Chromaticity Coordinate (v')	0.493
Maximum In-Situ Source Temperature Point (°C)	61.8

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Date Calibrated	Calibration Due Date
Elgar AC Power Supply	CW1251P	OP-014	VBU	VBU
Instrument System Spectrometer	CAS140B-151	OB-006	VBU	VBU
Sorensen DC Power Supply	XHR150-7	OP-016	VBU	VBU
Delta Elektronika DC Power Supply	SM300-5	OP-013	VBU	VBU
Volttech Universal Breakout Box	PM1000+	OP-012 (B)	VBU	VBU
Instrument System Lamps (Osram Sylvania)	STD-20WF-3	OP-007	04/17/14	04/17/15
Instrument System Sphere	ISP1500	OP-010	VBU	VBU
Fluke 52II Thermometer	51II	OP-019	03/06/14	03/06/15
Instek AC Power Supply	APS-9501	N/A	VBU	VBU
Volttech Power Analyzer	PM1000+	OP-012 (A)	04/17/14	04/17/15
Extech Hygro-Thermometer	445703	OP-017	06/30/13	06/30/14
LSI High Speed Mirror Goniometer	6240T	N/A	VBU	VBU
Elgar AC Power Supply	CW1251P	N/A	VBU	VBU
Yokogawa Power Analyzer	760401	OP-003	04/17/14	04/17/15
Omega TC	Dpi8	OP-001	03/07/14	03/07/15
Extech Hygro-Thermometer	445703	OP-018	04/22/13	04/22/14
Fluke 8808A Digital Multimeter	8808A	OP-002	04/17/14	04/17/15
Extech Hygro-Thermometer	445703	OP-017	06/01/13	06/01/14
Digital Thermometer 343	TPI 343	OP-011	03/06/14	03/06/15
LSI Standard Lamps	#30279	OP-004	04/17/14	04/17/15
Volttech Power Analyzer	PM1000+	OP-20(A)	04/17/14	04/17/15
Volttech Universal Breakout Box	PM1000+	OP-20(B)	VBU	VBU



TEST METHODS

Seasoning in Sample Orientation – LED Products

No seasoning was performed in accordance with IESNA LM-79.

Photometric and Electrical Measurements – Integrating Sphere Method

A Instrument System CAS 140B Array Spectroradiometer and 1.5 or Five Foot Sphere was used to measure correlated color temperature, chromaticity coordinates, and the color rendering index for each SSL unit.

Ambient temperature was measured at a position inside the sphere. Each SSL unit was operated on the client provided driver at the rated input voltage in its designated orientation. Each SSL unit was allowed to stabilize for at least thirty minutes before measurements were made. Electrical measurements including voltage, current, and power were measured using the Volttech Power Analyzer.

The calibration of the sphere photometer-spectroradiometer system is traceable to the National Institute of Standards and Technology.

Photometric and Electrical Measurements – Distribution Method

A LSI Type C High Speed Model 6240T Mirror Goniometer was used to measure the intensity (candelas) at each angle of distribution for each sample.

Ambient temperature was measured equal to the height of the sample mounted on the Goniometer equipment. Each sample was operated at input rated voltage in its designated orientation. Each sample was allowed to stabilize for at least thirty minutes before measurements were made. Electrical measurements including voltage, current, and power were measured using the Xitron or Yokogawa Power Analyzer.

Some graphics were created with Photometrics Plus software.

In-Situ Maximum Measured Power Supply Case and LED Source Point Temperature

Power supply case and/or LED source operating temperature measurements were taken on one test sample per model with a thermocouple and Fluke 87 temperature meter. The SSL sample was allowed to reach thermal equilibrium for seven and a half hours before measurements were taken. Power supply or source temperature measurements were measured at the TMPPS or TS point as indicated by the included diagram in accordance with manufacturers declared hot spot location, or at a hot spot location found with a thermal camera when no diagram from the manufacturer is given. The maximum temperature was recorded for the sample. A simulated ceiling or other enclosure may be used in accordance to UL 1598 or UL 153 as applicable.

RESULTS OF TEST

Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) - Integrating Sphere Method

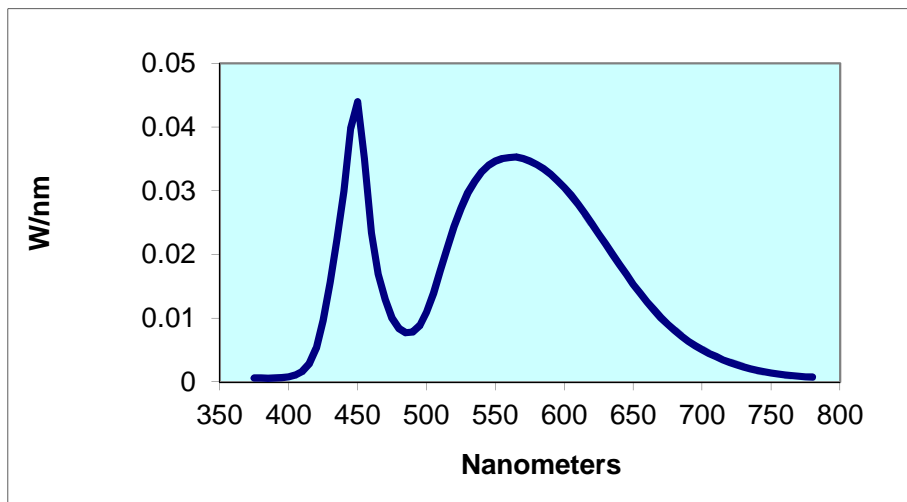
Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current t (A)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
L14022	UP	120.0	0.260	30.59	0.982	12.93	2095	68.49

Correlated Color Temperature (K)	CRI -Ra	CRI -R9	DUV	CIE 31' Chromaticity Coordinate	CIE 31' Chromaticity Coordinate (y)	CIE 76' Chromaticity Coordinate (u')	CIE 76' Chromaticity Coordinate (v')
4719	72.7	-17.5	0.004	0.355	0.367	0.212	0.493

Spectral Distribution over Visible Wavelengths

nm	W/nm	nm	W/nm	nm	W/nm	nm	W/nm	ni W/nm
375	0.001	465	0.017	555	0.035	645	0.017	0.002
380	0.001	470	0.013	560	0.035	650	0.015	0.002
385	0.001	475	0.010	565	0.035	655	0.014	0.002
390	0.001	480	0.008	570	0.035	660	0.013	0.001
395	0.001	485	0.008	575	0.035	665	0.011	0.001
400	0.001	490	0.008	580	0.034	670	0.010	0.001
405	0.001	495	0.009	585	0.033	675	0.009	0.001
410	0.002	500	0.011	590	0.033	680	0.008	0.001
415	0.003	505	0.014	595	0.032	685	0.007	0.001
420	0.005	510	0.018	600	0.031	690	0.006	0.001
425	0.010	515	0.021	605	0.029	695	0.006	
430	0.016	520	0.024	610	0.028	700	0.005	
435	0.022	525	0.027	615	0.026	705	0.004	
440	0.030	530	0.030	620	0.025	710	0.004	
445	0.040	535	0.031	625	0.023	715	0.003	
450	0.044	540	0.033	630	0.022	720	0.003	
455	0.035	545	0.034	635	0.020	725	0.003	
460	0.023	550	0.035	640	0.018	730	0.002	

Spectral Data Over Visible Wavelengths





RESULTS OF TEST (cont'd)

Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) – Distribution Method

Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (A)	Input Power (Watts)	Input Power Factor	Absolute Luminous Flux (Lumens)	Lumen Efficacy (Lumens Per Watt)
L14022	UP	120.0	0.260	30.62	0.979	2077	67.83

Intensity (Candlepower) Summary at 25°C - Candelas

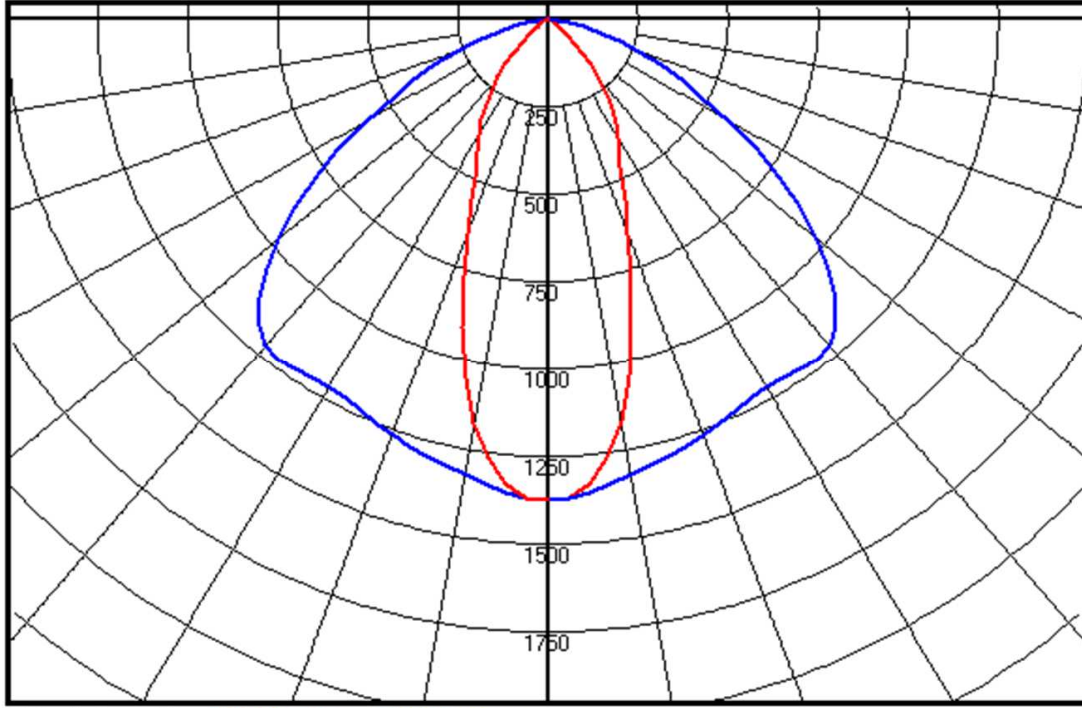
INTENSITY (CANDLEPOWER) SUMMARY

VERT. ANGLE	HORIZONTAL ANGLES - STREET SIDE									
	0.0	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0

0.0	1375	1375	1375	1375	1375	1375	1375	1375	1375	1375
2.5**	1372	1368	1368	1371	1377	1373	1376	1375	1372	1370
5.0	1334	1336	1338	1344	1355	1355	1363	1364	1362	1360
10.0	1168	1182	1191	1212	1240	1260	1290	1310	1321	1325
15.0	901	924	944	987	1050	1114	1186	1244	1281	1297
20.0	651	668	688	739	826	933	1055	1161	1233	1266
25.0	467	473	505	539	636	745	898	1059	1175	1231
30.0	392	399	408	439	500	583	748	952	1123	1211
35.0	309	317	325	361	411	484	627	859	1089	1212
40.0	220	229	243	283	334	404	530	771	1061	1210
45.0	139	147	165	206	263	341	445	692	987	1123
50.0	73	80	99	137	197	282	398	579	853	970
55.0	33	37	51	83	140	222	341	489	676	779
60.0	21	22	26	46	92	167	273	376	503	582
65.0	14	15	16	24	56	119	206	272	360	412
70.0	8	9	10	13	31	77	141	183	242	268
75.0	3	4	4	6	14	42	80	106	139	149
80.0	0	0	0	1	3	14	31	43	57	60
85.0	0	0	0	0	0	1	2	5	8	8
90.0	0	0	0	0	0	0	0	0	0	0

RESULTS OF TEST (cont'd)

Polar Graph



Bilaterally Symmetric 180-0 Degrees 90-270 Degrees

RESULTS OF TEST (cont'd)

In-Situ Maximum Measured LED Source Temperature
Manufacturer Supplied Documentation:

LED identified as CREE XTE



PRODUCT CHARACTERISTICS

Characteristics	Unit	Minimum	Typical	Maximum
Thermal resistance, junction to solder point	°C/W		5	
Viewing angle (FWHM) - white	degrees		115	
Viewing angle (FWHM) - royal blue	degrees		140	
Temperature coefficient of voltage	mV/°C		-2.5	
ESD classification (HBM per Mil-Std-883D)			Class 2	
DC forward current	mA			1500
Reverse voltage	V			5
Forward voltage (@ 350 mA, 85 °C)	V		2.85	3.4
LED junction temperature	°C			150

Maximum Junction Temperature from LED specification (Tj) = 150°C
 Thermal Resistance Formula from LED specification = 5°C/W
 Maximum Forward Voltage (Vf) from LED specification = 3.4V
 Measured LED Current = 333mA
 Calculated LED Wattage = Vf x Measured LED Current = 1.132W
 Maximum Source Temperature (Ts) = Tj - (LED Wattage x Thermal Resistance) = 144.3°C

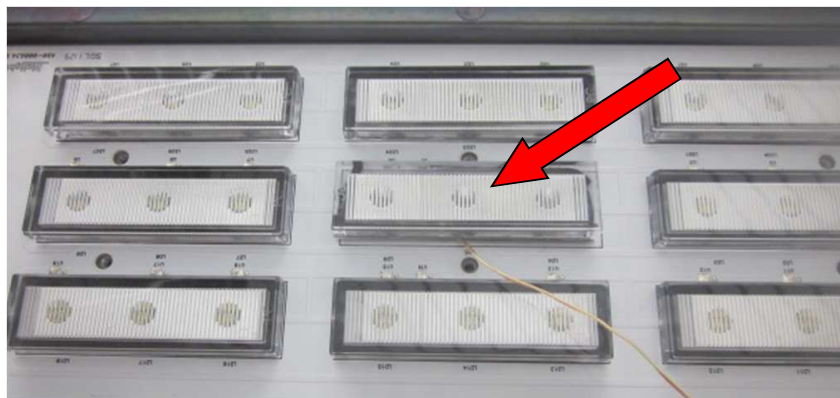
Maximum Measured Manufacturer Designated Source Temperature

Sample No.	Maximum Measured Source Temperature (°C)	Location	Maximum Rated Source Temperature (°C)
L14021	61.8	Per diagram	144.3

In-Situ Picture – Ts



In-Situ Picture – Ts locati



PICTURE (not to scale)



CONCLUSION

The results tabulated in this report are representative of the actual test samples submitted for this report only. The data is provided to the client for further evaluation. Compliance to the referenced specification requirements was not determined in this report.

In Charge Of Tests:

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