

Test Report

Report Number: L15111

Date: Aug 7, 2015

Issued by:

Dialight Optics Laboratory
1501 Route 34 South, Farmingdale, NJ 07727

Test of one 2' Gen II Linear
Unit manufacturer: Dialight Corporation
Unit model number: LTx3C4B2W

Issued to:

Dialight Corporation
1501 Route 34 South, Farmingdale, NJ 07727

Tests performed: Photometric characterization and temperature measurement per the described standards.

Dates of test: August 5, 2015 through August 7, 2015

Standards used: All tests are performed in accordance with procedures and guidelines prescribed by the American National Standards Institute (ANSI) or Illuminating Engineering Society of North America (IES):

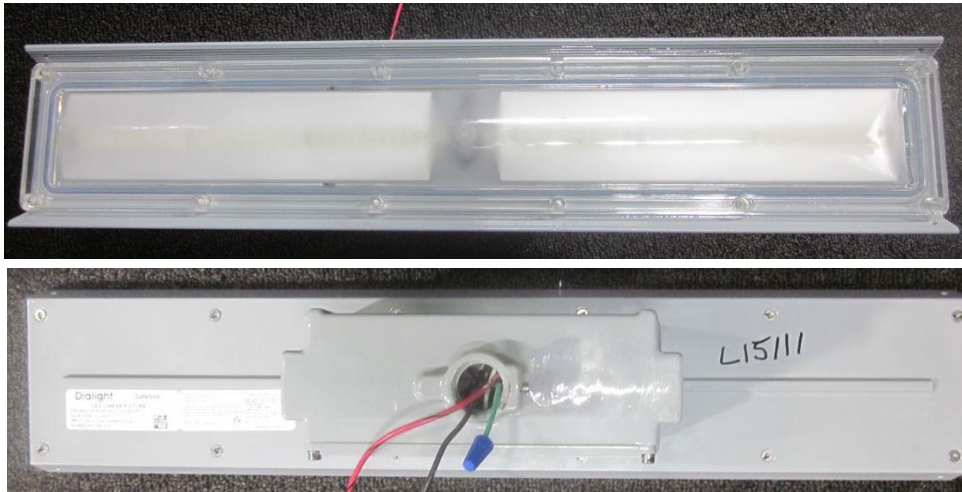
- IES LM-79:2008: Electrical and Photometric Measurements of Solid-State Lighting Products
- ANSI/UL 1598:2008: Underwriters Laboratories Inc. Standard for Safety: Luminaires
- ENERGY STAR Manufacturer's Guide for Qualifying Solid State Lighting Luminaires Version 2.1

Description of sample:

Sample Number: L15111
Manufacturer: Dialight Corporation
Product Name: 2' Gen II Linear
Description: 2' Gen II Linear
Model Number: LTx3C4B2W

Report Summary
Sample number L15111
Dialight unit model number LTx3C4B2W

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	3519 (lumens)	3471 (lumens)
Electrical Power:	33.5 (W)	33.7 (W)
Luminous Efficacy:	104.9 (lumens/W)	103 (lumens/W)

Electrical Measurements:

Input Power (277VAC): 33.5 (W)
 Power Factor (277VAC): 0.919
 Current ATHD % (277VAC): 16.76
 Input Power (120VAC): 32.3 (W)
 Power Factor (120VAC): 0.996
 Current ATHD % (120VAC): 11.38

Color Measurements:

Correlated Color Temperature (CCT): 4868
 Color Rendering Index (CRI): 74.5
 Chromaticity Coordinate (x): 0.349
 Chromaticity Coordinate (y): 0.357
 Chromaticity Coordinate (u'): 0.212
 Chromaticity Coordinate (v'): 0.325
 DUV: 0.00094

Temperature Measurements:

In Situ LED Source Temperature: 43.5 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L15111.
Dialight unit model number LTx3C4B2W

Test Conditions:

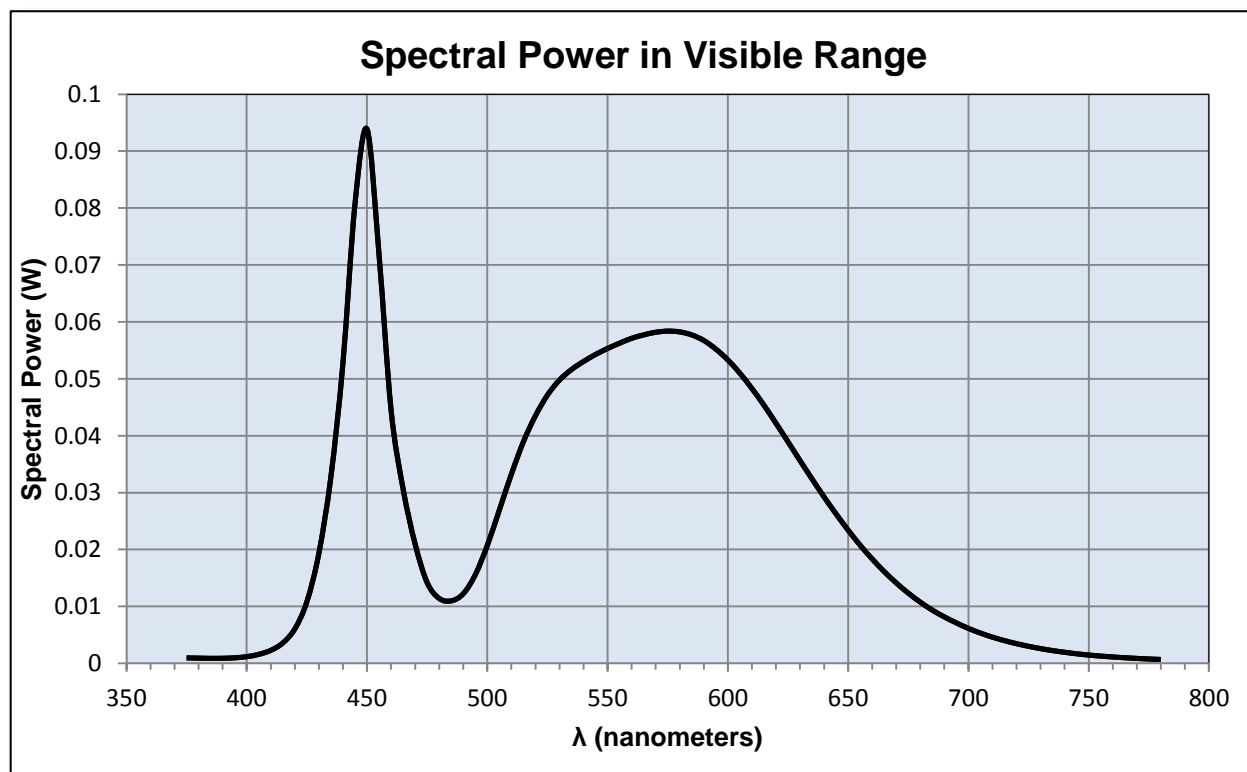
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 277 (VAC)
Input Current: 0.131 (A)
Input Power: 33.5 (W)
Input Power Factor: 0.919
Current ATHD: 16.76 (%)

Photometric measurements:

Luminous Flux: 3519 (lumens)
Luminous Efficacy: 104.9 (lumens/W)
Correlated Color Temperature (CCT): 4868 (K)
CRI -Ra: 74.5
CRI -R9: -16.7
DUV: 0.00094
CIE Coordinate (x): 0.349
CIE Coordinate (y): 0.357
CIE Coordinate (u'): 0.212
CIE Coordinate (v'): 0.325



Test Results: Integrating Sphere

Results continued from previous page.

Tabulated Spectral Power in Visible Range:

$\lambda(\text{nm})$	(W/nm)	$\lambda(\text{nm})$	(W/nm)	$\lambda(\text{nm})$	(W/nm)
375	1E-03	515	0.039	655	0.021
380	9E-04	520	0.043	660	0.018
385	9E-04	525	0.047	665	0.016
390	9E-04	530	0.05	670	0.014
395	1E-03	535	0.052	675	0.012
400	0.001	540	0.053	680	0.011
405	0.002	545	0.054	685	0.009
410	0.002	550	0.055	690	0.008
415	0.004	555	0.056	695	0.007
420	0.006	560	0.057	700	0.006
425	0.011	565	0.058	705	0.005
430	0.019	570	0.058	710	0.005
435	0.033	575	0.058	715	0.004
440	0.053	580	0.058	720	0.003
445	0.081	585	0.058	725	0.003
450	0.094	590	0.057	730	0.003
455	0.072	595	0.055	735	0.002
460	0.045	600	0.053	740	0.002
465	0.031	605	0.051	745	0.002
470	0.021	610	0.048	750	0.001
475	0.014	615	0.045	755	0.001
480	0.011	620	0.042	760	0.001
485	0.011	625	0.039	765	1E-03
490	0.012	630	0.036	770	9E-04
495	0.016	635	0.032	775	8E-04
500	0.021	640	0.029	780	7E-04
505	0.027	645	0.026		
510	0.033	650	0.023		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L15111.
Dialight unit model number LTx3C4B2W

Electrical Measurements:

Input Voltage: 277 (VAC)
Input current: 0.132 (A)
Input Power: 33.7 (W)
Power Factor: 0.918

Photometric measurements:

Absolute Luminous Flux: 3471 (lumens)
Luminous Efficacy: 103.0 (lumens/W)

Intensity Summary:

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	23	45	68	ACROSS	OUTPUT LUMENS
0	1824	1824	1824	1824	1824	
5	1811	1811	1811	1811	1811	68
15	1699	1699	1699	1699	1699	373
25	1429	1429	1429	1429	1429	609
35	1030	1030	1030	1030	1030	667
45	690	690	690	690	690	578
55	494	494	494	494	494	475
65	347	347	347	347	347	386
75	167	167	167	167	167	245
85	15	15	15	15	15	70
95	0	0	0	0	0	1
105	0	0	0	0	0	0
115	0	0	0	0	0	0
125	0	0	0	0	0	0
135	0	0	0	0	0	0
145	0	0	0	0	0	0
155	0	0	0	0	0	0
165	0	0	0	0	0	0
175	0	0	0	0	0	0
180	0	0	0	0	0	0

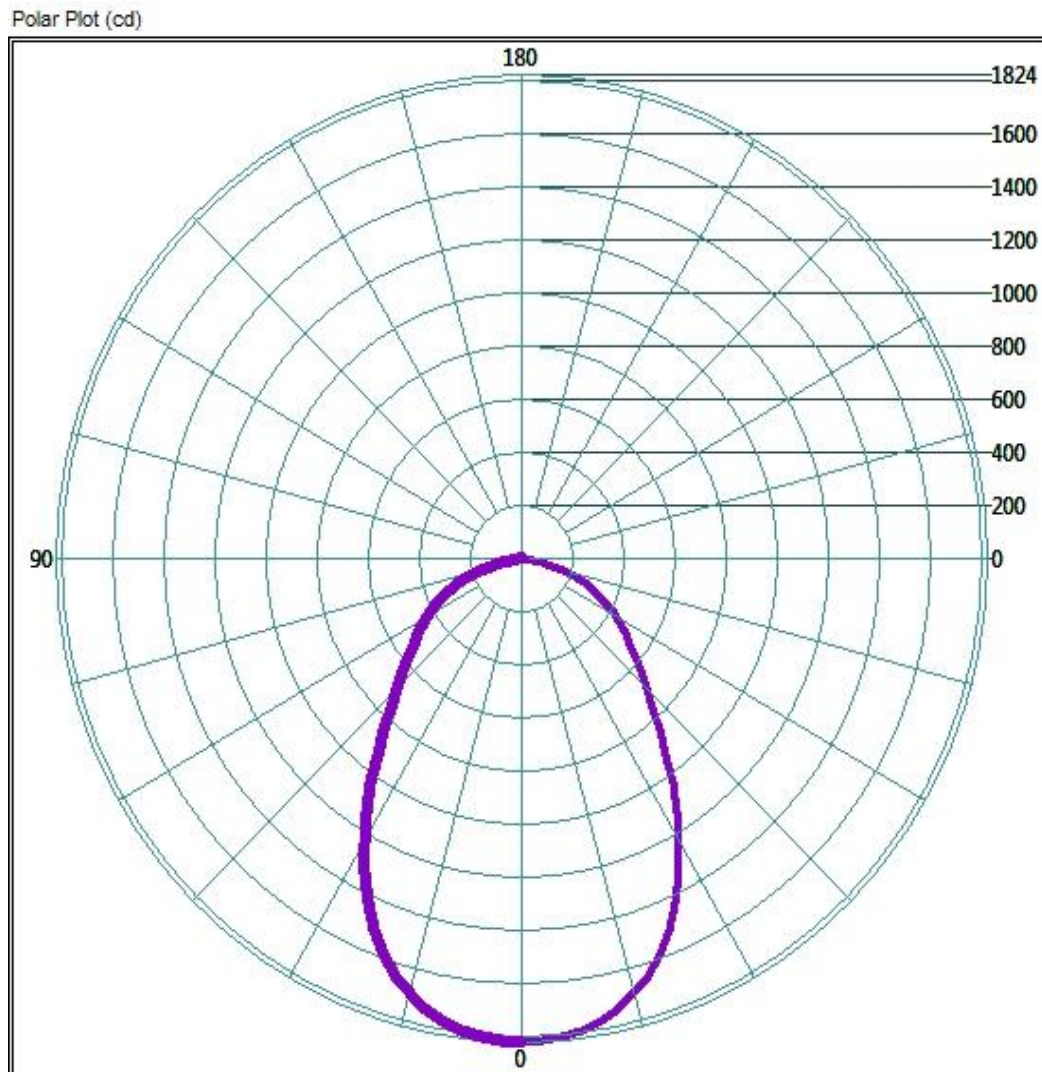
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	1387.2	40.0%
0-40	2019.36	58.2%
0-60	2974.72	85.7%
60-90	596.32	17.2%
0-90	3471.04	100.0%
90-180	0	0.0%
0-180	3471.04	100.0%

Test Results: Goniometer

Results continued from previous page.

Polar Plot:

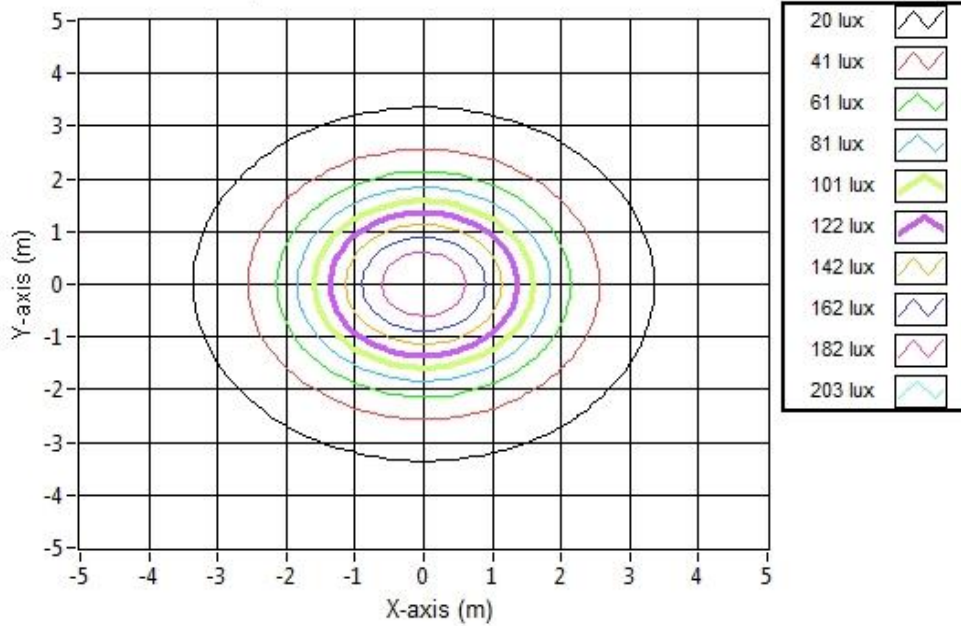


Test Results: Goniometer

Results continued from previous page.

Illuminance Plot:

Illuminance Contour Graph



Illuminance-Cone of Light:

Mounting Height (m)	Beam Cone Width (m)	Orthogonal Beam Cone Width (m)	Projected Illuminance (lux)
3.048	4.77	4.77	196.3
6.096	9.54	9.54	49.1
9.144	14.31	14.31	21.8
12.192	19.08	19.08	12.3
15.24	23.85	23.85	7.9
18.288	28.62	28.62	5.5
21.336	33.39	33.39	4.0
24.384	38.16	38.16	3.1
27.432	42.93	42.93	2.4
30.48	47.70	47.70	2.0

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L15111.
Dialight unit model number LTx3C4B2W

LED identified as Nichia part number NS2W757AT.

LED drive current (as indicated by customer): 77 (mA)

LED Specifications:

LED specifications are taken from LED manufacturer datasheet:

Maximum Forward Current (If): 180 (mA)
Maximum Rated Power Dissipation: 0.63 (W)
Maximum Junction Temp. (Tj): 120 (°C)
Thermal Resistance (Rth): 19 (°C/W)

Derived Specifications:

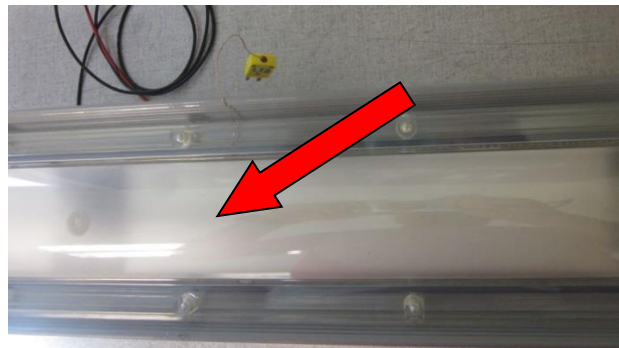
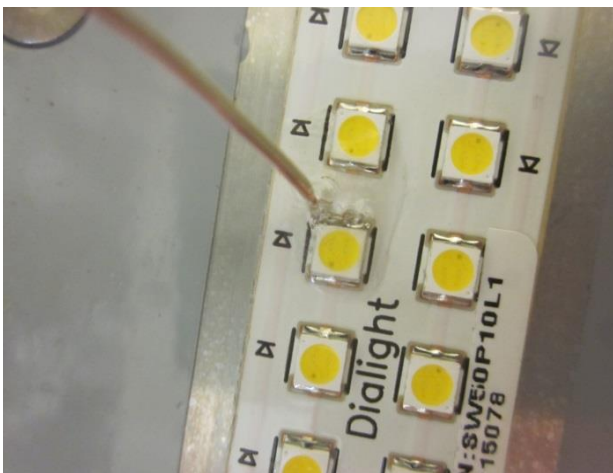
Maximum Power at Indicated Current: 0.27 (W)
Maximum Source Temperature: 114.9 (°C)

Test Conditions:

Temperature Measurement Location: See Photographs Below
Ambient Temperature: $25^{\circ} \pm 1^{\circ}$ (°C)
Ambient temperature at time of measurement: 25.6 (°C)
Relative humidity at time of measurement: 35%

Results:

Measured LED source temperature: 43.5 (°C)



Equipment Used:

Equipment Name	Model Number
Omega TC	Dpi8
Fluke 8808A Digit Multimeter	8808A
YOKOGAWA Digital Power Meter	11/26/3981
LSI High Speed Mirror Goniometer	6240T
Instrument System Spectrometer	CAS140B-151
Instrument System 1.5 Meter Sphere	ISP1500
Volttech Power Analyzer	PM1000+
Delta Elektronika DC Power Supply	SM.300-5
Elgar AC Power Supply	CW1251P
Instek AC Power Supply	APS-9501
Sorensen DC Power Supply	XHR150-7
Extech Hygro-Thermometer	4/16/3120
Extech Hygro-Thermometer	4/16/3120
Fluke 52II Thermometer	52II Thermometer
Volttech Power Analyzer	PM1000+
BK Precision	1715A
TDK-Lambda	GEN1500W
Fluke 8808A Digit Multimeter	8808A
TPI Digital Thermometer 343	TPI 343
TPI Digital Thermometer 343	TPI 343
Step-Up Transformer	
Omega TC	Dpi8-C24
Agilent True RMS OLED Multimeter	U1273A
Adaptive Power Systems AC Power Supply	FC-210
Xitron Power Analyzer	XT2640

Additional Notes:

Samples are received and tested in new and undamaged condition, unless otherwise noted. The results shown in this report are representative only of the test samples submitted. This data has been issued to the assignee for further evaluation. This report shall not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government. This report shall not be reproduced, except in full, without the express written permission of Dialight Optics Laboratory.

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Approved Signatory