

Test Report

Report Number: L18076

Date: Sep 14, 2018

Issued by:

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

Test of one 4' Linear Low Profile
Unit manufacturer: Dialight Corporation
Unit model number: LPx3C4H2W

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: September 12, 2018 through September 14, 2018

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

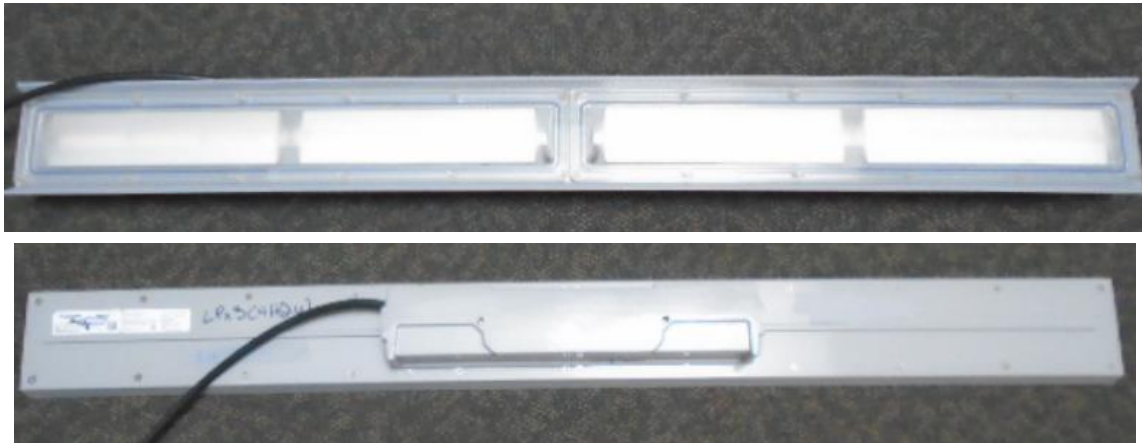
Description of sample:

Sample Number: L18076
Manufacturer: Dialight Corporation
Product Name: 4' Linear Low Profile
Description: 4' Linear Low Profile
Model Number: LPx3C4H2W

Report Summary

Sample number L18076
Dialight unit model number LPx3C4H2W

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	7045 (lumens)	7043 (lumens)
Electrical Power:	59.4 (W)	59.5 (W)
Luminous Efficacy:	118.6 (lumens/W)	118.5 (lumens/W)

Electrical Measurements:

Input Power (): 59.4 (W)
Power Factor (): 0.992
Current ATHD % (): 11.61
Input Power (120VAC): 59.2 (W)
Power Factor (120VAC): 0.938
Current ATHD % (120VAC): 16.64

Color Measurements:

Correlated Color Temperature (CCT): 5027
Color Rendering Index (CRI): 84
Chromaticity Coordinate (x): 0.344
Chromaticity Coordinate (y): 0.351
Chromaticity Coordinate (u'): 0.211
Chromaticity Coordinate (v'): 0.323
DUV: 0.0002

Temperature Measurements:

In Situ LED Source Temperature: 51.8 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L18076.

Dialight unit model number LPx3C4H2W

Test Conditions:

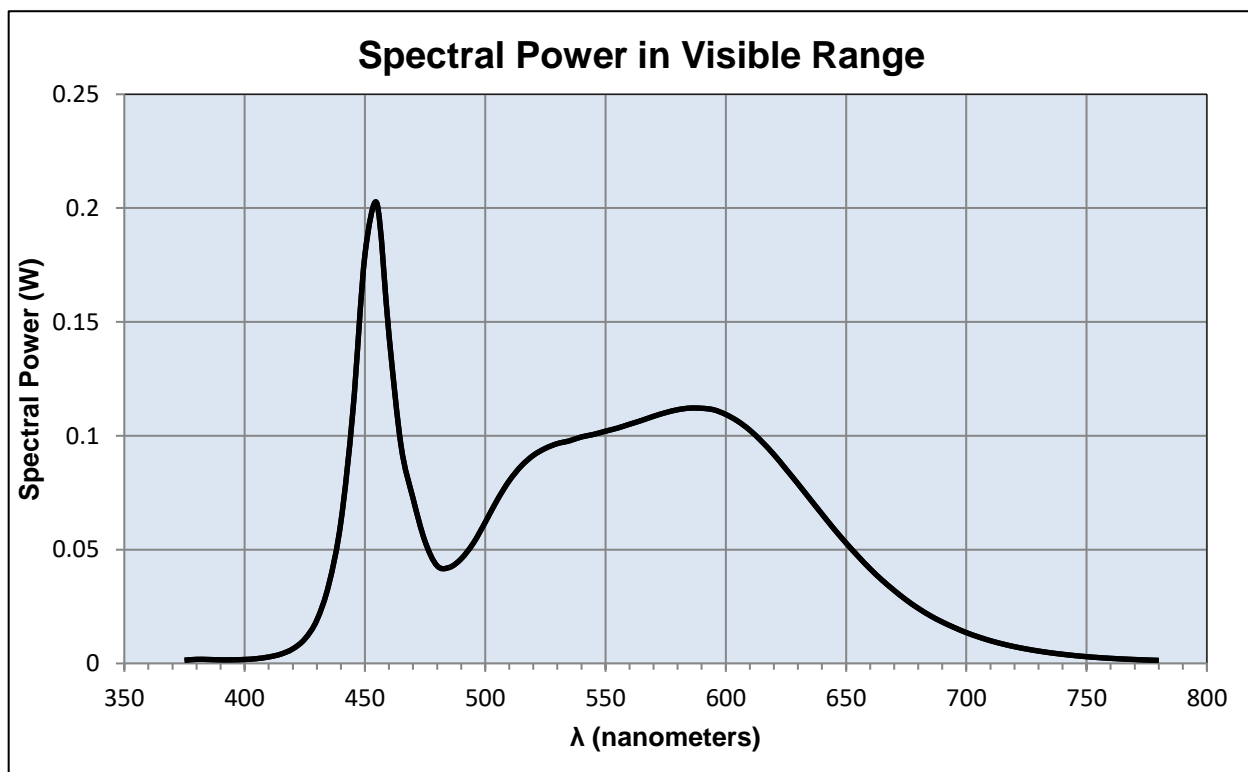
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
Input Current: 0.501 (A)
Input Power: 59.4 (W)
Input Power Factor: 0.992
Current ATHD: 11.61 (%)

Photometric measurements:

Luminous Flux: 7045 (lumens)
Luminous Efficacy: 118.6 (lumens/W)
Correlated Color Temperature (CCT): 5027 (K)
CRI -Ra: 84
CRI -R9: 12.7
DUV: 0.0002
CIE Coordinate (x): 0.344
CIE Coordinate (y): 0.351
CIE Coordinate (u'): 0.211
CIE Coordinate (v'): 0.323



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	0.001	515	0.087	655	0.047
380	0.002	520	0.091	660	0.042
385	0.002	525	0.094	665	0.037
390	0.002	530	0.097	670	0.032
395	0.002	535	0.098	675	0.028
400	0.002	540	0.099	680	0.024
405	0.002	545	0.101	685	0.021
410	0.003	550	0.102	690	0.018
415	0.004	555	0.103	695	0.016
420	0.006	560	0.105	700	0.014
425	0.011	565	0.107	705	0.012
430	0.019	570	0.109	710	0.010
435	0.035	575	0.110	715	0.009
440	0.062	580	0.111	720	0.007
445	0.111	585	0.112	725	0.006
450	0.179	590	0.112	730	0.005
455	0.202	595	0.111	735	0.005
460	0.144	600	0.109	740	0.004
465	0.096	605	0.106	745	0.003
470	0.073	610	0.102	750	0.003
475	0.054	615	0.097	755	0.003
480	0.043	620	0.092	760	0.002
485	0.042	625	0.085	765	0.002
490	0.046	630	0.079	770	0.002
495	0.053	635	0.072	775	0.001
500	0.062	640	0.066	780	0.001
505	0.072	645	0.059		
510	0.080	650	0.053		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L18076.
Dialight unit model number LPx3C4H2W

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 0.504 (A)
Input Power: 59.5 (W)
Power Factor: 0.982

Photometric measurements:

Absolute Luminous Flux: 7043 (lumens)
Luminous Efficacy: 118.5 (lumens/W)

Intensity Summary:

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	23	45	67.5	ACROSS	OUTPUT LUMENS
0	3749	3749	3749	3749	3749	
5	3722	3722	3722	3722	3722	139
15	3480	3480	3480	3480	3480	764
25	2910	2910	2910	2910	2910	1242
35	2083	2083	2083	2083	2083	1353
45	1375	1375	1375	1375	1375	1160
55	969	969	969	969	969	938
65	693	693	693	693	693	761
75	372	372	372	372	372	516
85	36	36	36	36	36	167
95	0	0	0	0	0	3
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

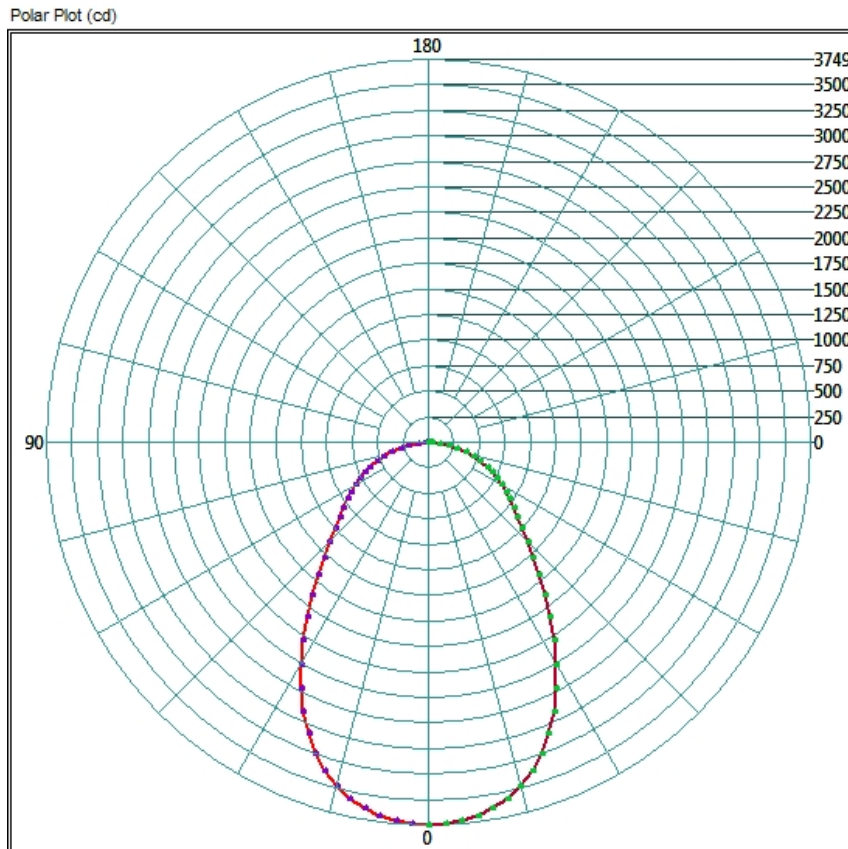
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	2833.12	40.2%
0-40	4110.4	58.4%
0-60	6000.16	85.2%
60-90	1239.36	17.6%
0-90	7043.04	100.0%
90-180	0	0.0%
0-180	7043.04	100.0%

Test Results: Goniometer

Results continued from previous page.

Polar Plot:

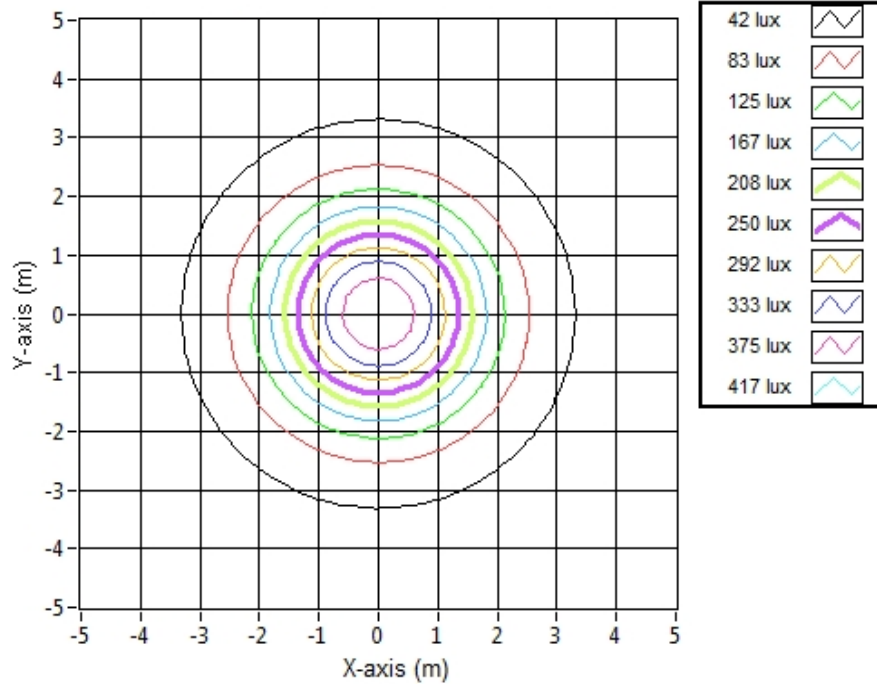


Test Results: Goniometer

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	4.69	4.69	403.6
6.096	9.38	9.38	100.9
9.144	14.07	14.07	44.8
12.192	18.75	18.75	25.2
15.24	23.44	23.44	16.1
18.288	28.13	28.13	11.2
21.336	32.82	32.82	8.2
24.384	37.51	37.51	6.3
27.432	42.20	42.20	5.0
30.48	46.88	46.88	4.0

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L18076.
Dialight unit model number LPx3C4H2W

LED identified as Nichia part number NFSL757GT-V1.

LED drive current (as indicated by customer): 69 (mA)

LED Specifications:

LED specifications are taken from LED manufacturer datasheet:

Maximum Forward Current (If): 180 (mA)
Maximum Rated Power Dissipation: 0.558 (W)
Maximum Junction Temp. (Tj): 120 (°C)
Thermal Resistance (Rth): 19 (°C/W)

Derived Specifications:

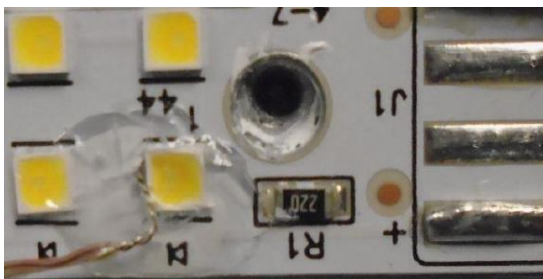
Maximum Power at Indicated Current: 0.214 (W)
Maximum Source Temperature: 115.9 (°C)

Test Conditions:

Temperature Measurement Location: See Photographs Below
Ambient Temperature: 25 ± 5 (°C)
Ambient temperature at time of measurement: 23 (°C)
Relative humidity at time of measurement: 57%

Results:

Measured LED source temperature: 51.8 (°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
Delta Elektronika DC Power Supply	SM.300-5
Instek AC Power Supply	APS-9501
Sorensen DC Power Supply	XHR150-7
TPI Digital Thermometer	TPI 343
Fluke 52II Thermometer	068158
Fluke 971 Humidity Meter	971
Volttech Power Analyzer	PM1000+
Volttech Universal Breakout Box	PM1000+
BK Precision	1715A
Step-Up Transformer	
Omega TC	Dpi8-C24
Agilent True RMS OLED Multimeter	U1273A
ITL Osram Calibraton lamps for Goniometer	J9a8
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ITL Osram Calibraton lamps for Goniometer	J9a8
Adaptive Power Systems AC Power Supply	FC-210
Xitron Power Analyzer	XT2640
GwINSTEK DC Power Supply	GEP172679
Osram Sylvania Calibration Lamp for Sphere	STD-20WF-3

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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