

Test Report

Report Number: L16022

Date: Apr 6, 2016

Issued by:

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

Test of one 2ft End-to-End Linear With Diffused Lens

Unit manufacturer: Dialight Corporation

Unit model number: LAx6MB3BNxxxxN

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: April 4, 2016 through April 6, 2016

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: L16022

Manufacturer: Dialight Corporation

Product Name: 2ft End-to-End Linear

Description: 2ft End-to-End Linear With Diffused Lens

Model Number: LAx6MB3BNxxxxN

Report Summary
Sample number L16022
Dialight unit model number LAX6MB3BNxxxxN

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	3466 (lumens)	3450 (lumens)
Electrical Power:	32.5 (W)	32.5 (W)
Luminous Efficacy:	107 (lumens/W)	106 (lumens/W)

Electrical Measurements:

Input Power (277VAC): 32.5 (W)
 Power Factor (277VAC): 0.933
 Current ATHD % (277VAC): 16.09
 Input Power (120VAC): 31.4 (W)
 Power Factor (120VAC): 0.997
 Current ATHD % (120VAC): 9.22

Color Measurements:

Correlated Color Temperature (CCT): 4755
 Color Rendering Index (CRI): 85.2
 Chromaticity Coordinate (x): 0.353
 Chromaticity Coordinate (y): 0.362
 Chromaticity Coordinate (u'): 0.213
 Chromaticity Coordinate (v'): 0.327
 DUV: 0.002

Temperature Measurements:

In Situ LED Source Temperature: 42.5 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L16022.

Dialight unit model number LAX6MB3BNxxxxN

Test Conditions:

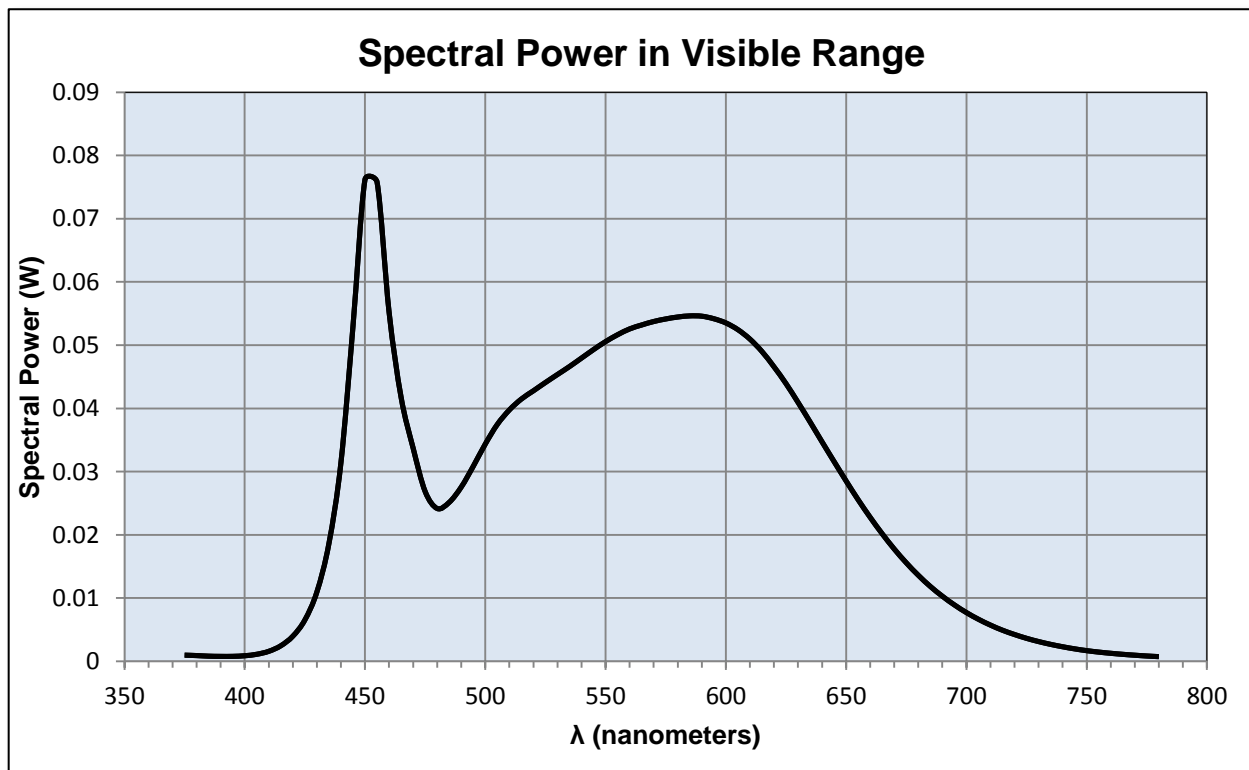
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 277 (VAC)
Input Current: 0.125 (A)
Input Power: 32.5 (W)
Input Power Factor: 0.933
Current ATHD: 16.09 (%)

Photometric measurements:

Luminous Flux: 3466 (lumens)
Luminous Efficacy: 107.0 (lumens/W)
Correlated Color Temperature (CCT): 4755 (K)
CRI -Ra: 85.2
CRI -R9: 20.5
DUV: 0.002
CIE Coordinate (x): 0.353
CIE Coordinate (y): 0.362
CIE Coordinate (u'): 0.213
CIE Coordinate (v'): 0.327



Test Results: Integrating Sphere

Results continued from previous page.

Tabulated Spectral Power in Visible Range:

λ (nm)	(W/nm)	λ (nm)	(W/nm)	λ (nm)	(W/nm)
375	0.001	515	0.041	655	0.026
380	0.001	520	0.043	660	0.023
385	0.001	525	0.044	665	0.020
390	0.001	530	0.045	670	0.018
395	0.001	535	0.047	675	0.016
400	0.001	540	0.048	680	0.014
405	0.001	545	0.049	685	0.012
410	0.002	550	0.051	690	0.010
415	0.002	555	0.052	695	0.009
420	0.004	560	0.053	700	0.008
425	0.007	565	0.053	705	0.007
430	0.011	570	0.054	710	0.006
435	0.019	575	0.054	715	0.005
440	0.031	580	0.054	720	0.004
445	0.053	585	0.055	725	0.004
450	0.076	590	0.055	730	0.003
455	0.076	595	0.054	735	0.003
460	0.055	600	0.054	740	0.002
465	0.042	605	0.052	745	0.002
470	0.034	610	0.051	750	0.002
475	0.027	615	0.049	755	0.001
480	0.024	620	0.047	760	0.001
485	0.025	625	0.044	765	0.001
490	0.028	630	0.041	770	0.001
495	0.031	635	0.038	775	0.001
500	0.034	640	0.035	780	0.001
505	0.037	645	0.032		
510	0.040	650	0.029		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L16022.
Dialight unit model number LAX6MB3BNxxxxN

Electrical Measurements:

Input Voltage: 277 (VAC)
Input current: 0.126 (A)
Input Power: 32.5 (W)
Power Factor: 0.931

Photometric measurements:

Absolute Luminous Flux: 3450 (lumens)
Luminous Efficacy: 106.0 (lumens/W)

Intensity Summary:

INTENSITY (CANDLEPOWER) SUMMARY						
ANGLE	ALONG	23	45	68	ACROSS	OUTPUT LUMENS
0	1781	1781	1781	1781	1781	
5	1770	1770	1770	1770	1770	66
15	1668	1668	1668	1668	1668	365
25	1442	1442	1442	1442	1442	607
35	1091	1091	1091	1091	1091	694
45	724	724	724	724	724	614
55	467	467	467	467	467	470
65	304	304	304	304	304	348
75	150	150	150	150	150	216
85	19	19	19	19	19	67
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

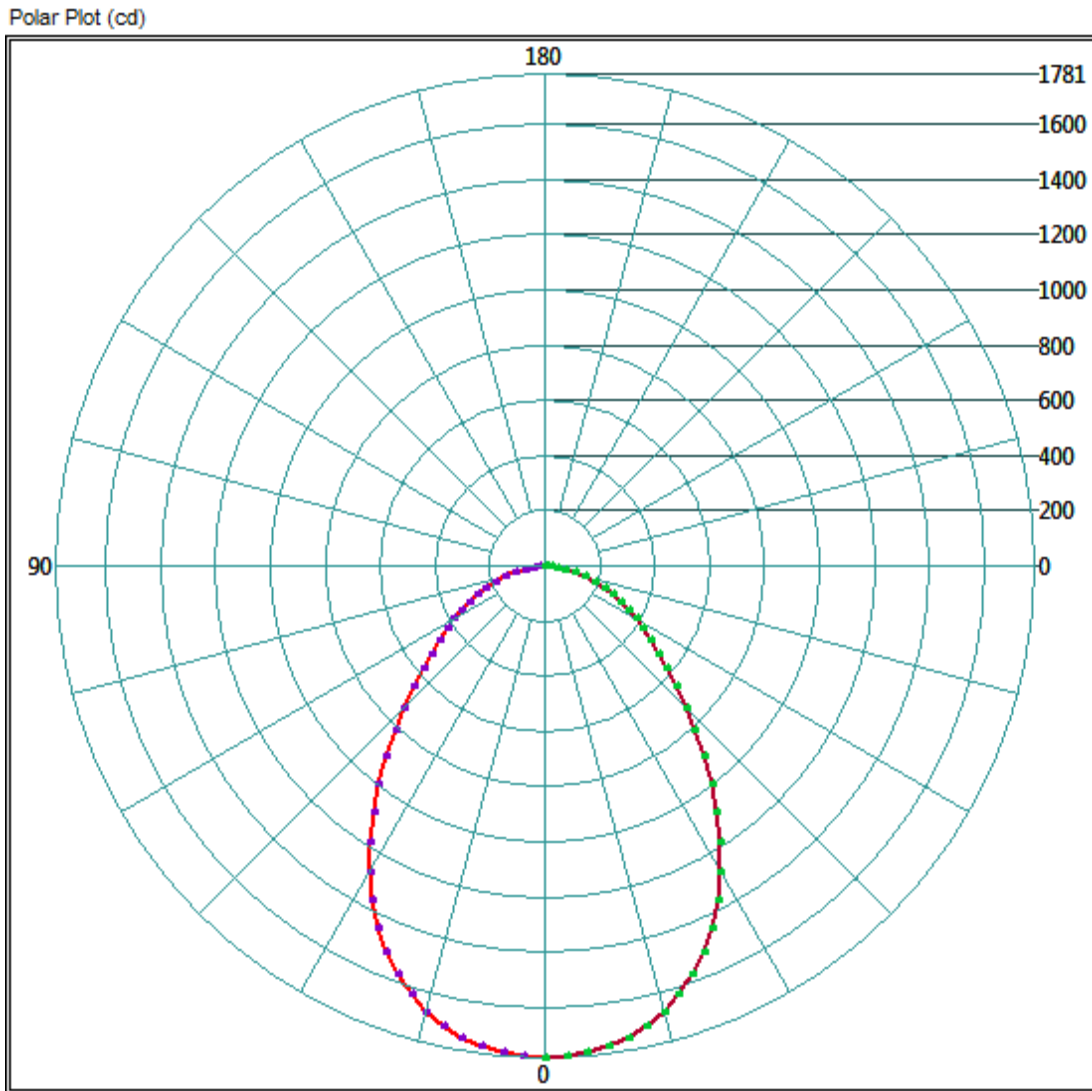
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	1385.92	40.2%
0-40	2056.64	59.6%
0-60	3005.76	87.1%
60-90	534.72	15.5%
0-90	3449.76	100.0%
90-180	0	0.0%
0-180	3449.76	100.0%

Test Results: Goniometer

Results continued from previous page.

Polar Plot:

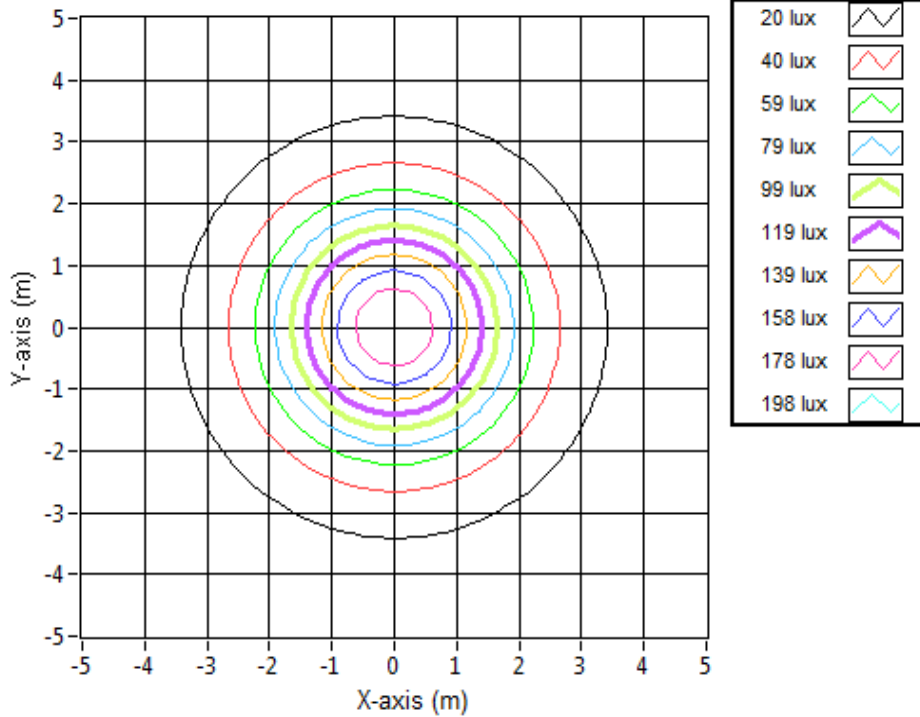


Test Results: Goniometer

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	5.16	5.16	191.7
6.096	10.31	10.31	47.9
9.144	15.47	15.47	21.3
12.192	20.62	20.62	12.0
15.24	25.78	25.78	7.7
18.288	30.94	30.94	5.3
21.336	36.09	36.09	3.9
24.384	41.25	41.25	3.0
27.432	46.40	46.40	2.4
30.48	51.56	51.56	1.9

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L16022.
Dialight unit model number LAX6MB3BNxxxxN

LED identified as Seoul part number STW8C2SA.

LED drive current (as indicated by customer): 45 (mA)

LED Specifications:

LED specifications are taken from LED manufacturer datasheet:

Maximum Forward Current (If): 200 (mA)
Maximum Rated Power Dissipation: 1.44 (W)
Maximum Junction Temp. (Tj): 125 (°C)
Thermal Resistance (Rth): 10 (°C/W)

Derived Specifications:

Maximum Power at Indicated Current: 0.324 (W)
Maximum Source Temperature: 121.8 (°C)

Test Conditions:

Temperature Measurement Location: See Photographs Below
Ambient Temperature: $25^{\circ} \pm 5^{\circ}$ (°C)
Ambient temperature at time of measurement: 23.9 (°C)
Relative humidity at time of measurement: 20%

Results:

Measured LED source temperature: 42.5 (°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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