

# Test Report

Report Number: L16079

Date: Oct 12, 2016

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: LTx3B4B2W

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:** October 11, 2016 through October 11, 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

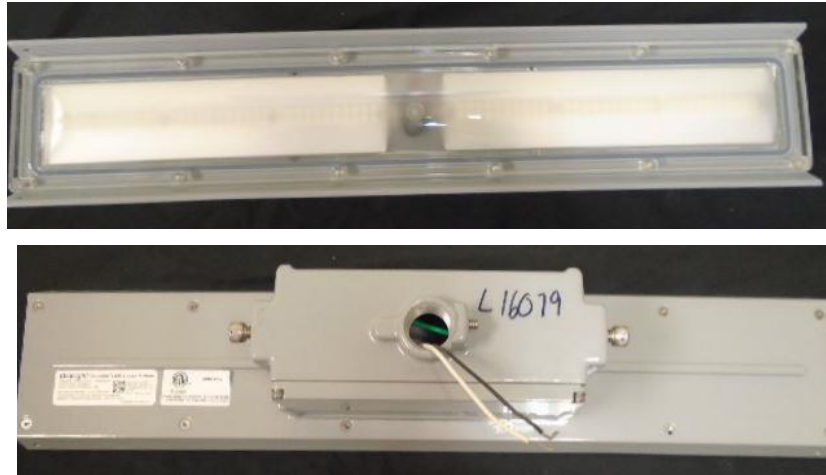
**Description of sample:**

Sample Number: L16079  
Manufacturer: Dialight Corporation  
Product Name: 2' Gen II Linear  
Description: 2' Gen II Linear  
Model Number: LTx3B4B2W

## Report Summary

Sample number L16079  
Dialight unit model number LTx3B4B2W

### Photograph(s) of sample:



\*Photographs not to scale. For reference only.

### Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	3351 (lumens)	3298 (lumens)
Electrical Power:	34.7 (W)	34.8 (W)
Luminous Efficacy:	96.85 (lumens/W)	94.86 (lumens/W)

### Electrical Measurements:

Input Power (277VAC): 34.7 (W)  
 Power Factor (277VAC): 0.926  
 Current ATHD % (277VAC): 17.42  
 Input Power (120VAC): 33.7 (W)  
 Power Factor (120VAC): 0.997  
 Current ATHD % (120VAC): 11.74

### Color Measurements:

Correlated Color Temperature (CCT): 4937  
 Color Rendering Index (CRI): 83.9  
 Chromaticity Coordinate (x): 0.348  
 Chromaticity Coordinate (y): 0.359  
 Chromaticity Coordinate (u'): 0.21  
 Chromaticity Coordinate (v'): 0.326  
 DUV: 0.0027

### Temperature Measurements:

In Situ LED Source Temperature: 41.3 (°C)

## Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L16079.

Dialight unit model number LTx3B4B2W

### Test Conditions:

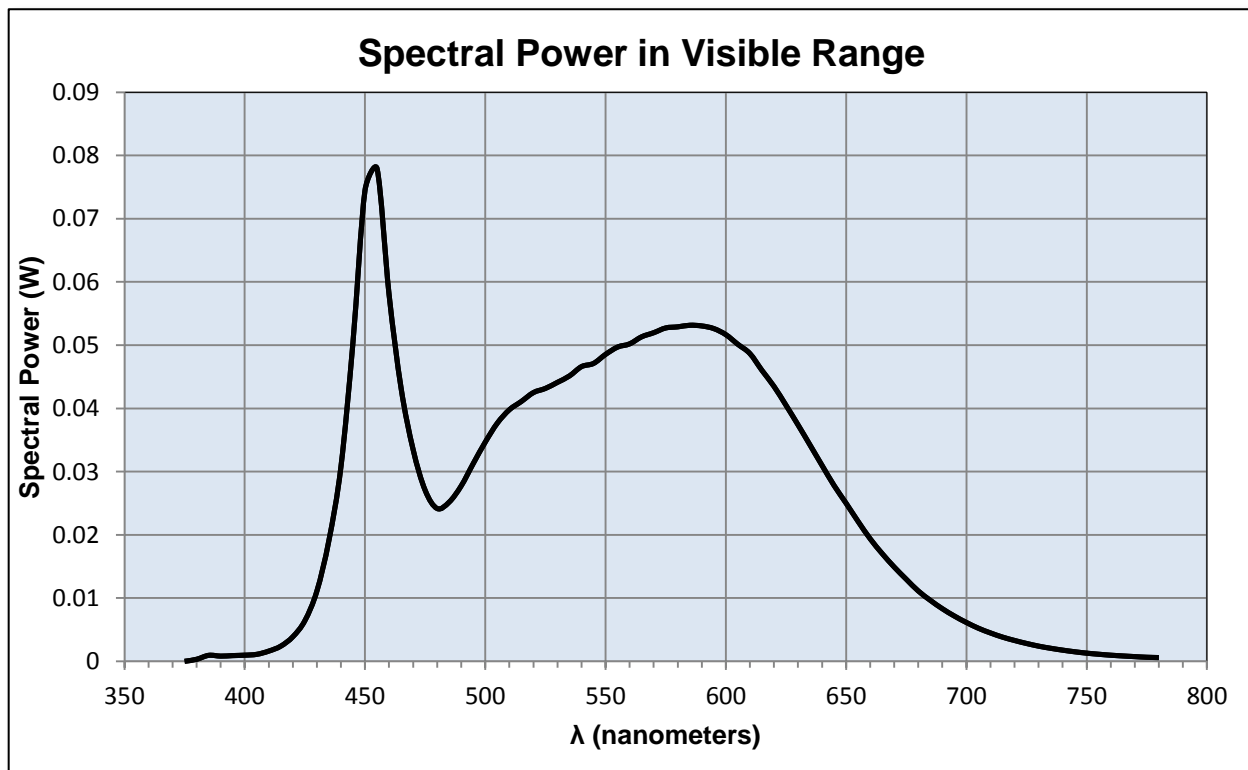
Ambient Temperature:  $25 \pm 1$  (°C)

### Electrical Measurements:

Input Voltage: 277 (VAC)  
 Input Current: 0.135 (A)  
 Input Power: 34.7 (W)  
 Input Power Factor: 0.926  
 Current ATHD: 17.42 (%)

### Photometric measurements:

Luminous Flux: 3351 (lumens)  
 Luminous Efficacy: 96.8 (lumens/W)  
 Correlated Color Temperature (CCT): 4937 (K)  
 CRI -Ra: 83.9  
 CRI -R9: 9.8  
 DUV: 0.0027  
 CIE Coordinate (x): 0.348  
 CIE Coordinate (y): 0.359  
 CIE Coordinate (u'): 0.21  
 CIE Coordinate (v'): 0.326



## 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	0.000	515	0.041	655	0.022
380	0.000	520	0.042	660	0.019
385	0.001	525	0.043	665	0.017
390	0.001	530	0.044	670	0.015
395	0.001	535	0.045	675	0.013
400	0.001	540	0.047	680	0.011
405	0.001	545	0.047	685	0.010
410	0.002	550	0.049	690	0.008
415	0.002	555	0.050	695	0.007
420	0.004	560	0.050	700	0.006
425	0.006	565	0.051	705	0.005
430	0.011	570	0.052	710	0.004
435	0.019	575	0.053	715	0.004
440	0.031	580	0.053	720	0.003
445	0.050	585	0.053	725	0.003
450	0.074	590	0.053	730	0.002
455	0.078	595	0.053	735	0.002
460	0.058	600	0.052	740	0.002
465	0.043	605	0.050	745	0.002
470	0.033	610	0.049	750	0.001
475	0.027	615	0.046	755	0.001
480	0.024	620	0.043	760	0.001
485	0.025	625	0.040	765	0.001
490	0.028	630	0.037	770	0.001
495	0.031	635	0.034	775	0.001
500	0.035	640	0.031	780	0.001
505	0.038	645	0.028		
510	0.040	650	0.025		

## Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L16079.  
Dialight unit model number LTx3B4B2W

### Electrical Measurements:

Input Voltage: 277 (VAC)  
Input current: 0.135 (A)  
Input Power: 34.8 (W)  
Power Factor: 0.924

### Photometric measurements:

Absolute Luminous Flux: 3298 (lumens)  
Luminous Efficacy: 94.9 (lumens/W)

### Intensity Summary:

<b>INTENSITY (CANDLEPOWER) SUMMARY</b>						
ANGLE	ALONG	23	45	68	ACROSS	OUTPUT LUMENS
0	1832	1832	1832	1832	1832	
5	1821	1821	1821	1821	1821	68
15	1714	1714	1714	1714	1714	375
25	1442	1442	1442	1442	1442	615
35	1027	1027	1027	1027	1027	669
45	660	660	660	660	660	564
55	432	432	432	432	432	431
65	281	281	281	281	281	320
75	134	134	134	134	134	196
85	13	13	13	13	13	57
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

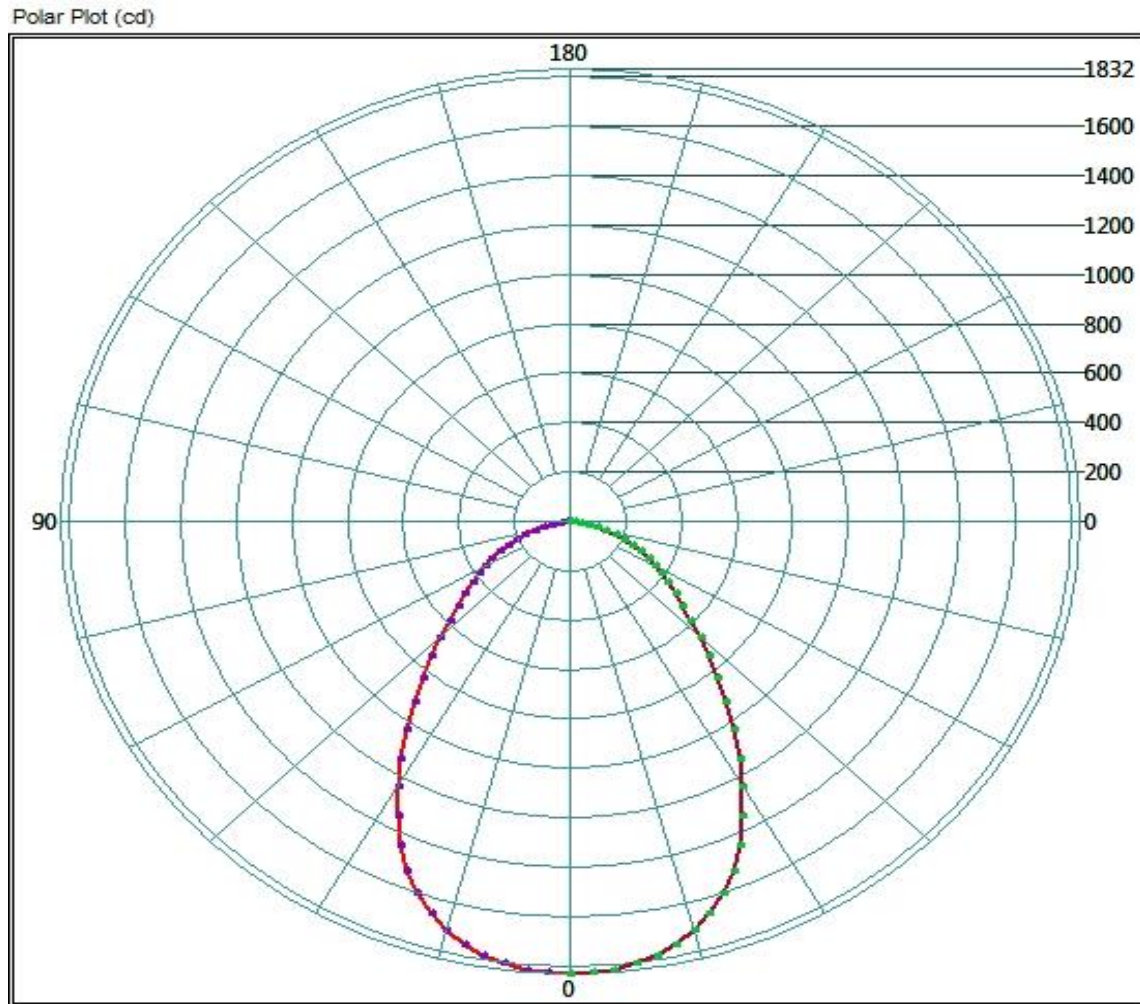
### ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	1398.56	42.4%
0-40	2026.72	61.5%
0-60	2896.32	87.8%
60-90	484.8	14.7%
0-90	3297.6	100.0%
90-180	0	0.0%
0-180	3297.6	100.0%

## Test Results: Goniometer

Results continued from previous page.

### Polar Plot:

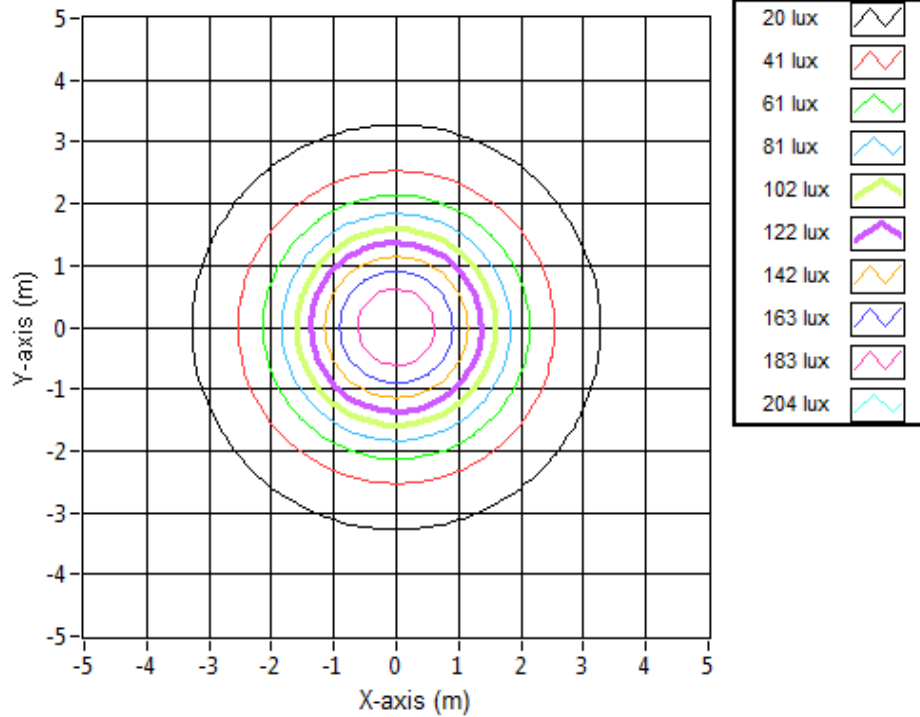


## Test Results: Goniometer

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	4.71	4.71	197.2
6.096	9.42	9.42	49.3
9.144	14.13	14.13	21.9
12.192	18.84	18.84	12.3
15.24	23.55	23.55	7.9
18.288	28.26	28.26	5.5
21.336	32.97	32.97	4.0
24.384	37.67	37.67	3.1
27.432	42.38	42.38	2.4
30.48	47.09	47.09	2.0

## Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L16079.  
Dialight unit model number LTx3B4B2W

LED identified as Nichia part number NS2L757AT.

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:

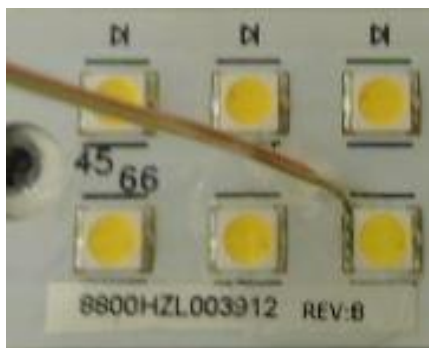
Maximum Power at Indicated Current: 0.27 (W)  
Maximum Source Temperature: 114.9 (°C)

### Test Conditions:

Temperature Measurement Location: See Photographs Below  
Ambient Temperature: 25° ± 5' (°C)  
Ambient temperature at time of measurement: 24.1 (°C)  
Relative humidity at time of measurement: 33%

### Results:

**Measured LED source temperature: 41.3 (°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
Fluke 971 Humidity Meter	971
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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