

Test Report

Report Number: L14033

Date: Sep 4, 2014

Issued by:

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

Test of one Four Foot Stainless Steel Linear fixture
Unit manufacturer: Dialight Corporation
Unit model number: EL-1C3R-SSCB

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 28, 2014 through September 4, 2014

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: L14033
Manufacturer: Dialight Corporation
Product Name: Four Foot Stainless Steel Linear
Description: Four Foot Stainless Steel Linear fixture
Model Number: EL-1C3R-SSCB

Report Summary

Sample number L14033
Dialight unit model number EL-1C3R-SSCB

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	5385 (lumens)	5307 (lumens)
Electrical Power:	63.9 (W)	63.7 (W)
Luminous Efficacy:	84.29 (lumens/W)	83.31 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 63.9 (W)
 Power Factor (120VAC): 0.98
 Current ATHD % (120VAC): 15.53
 Input Power (277VAC): 64.9 (W)
 Power Factor (277VAC): 0.851
 Current ATHD % (277VAC): 17.29

Color Measurements:

Correlated Color Temperature (CCT): 5016
 Color Rendering Index (CRI): 77.4
 Chromaticity Coordinate (x): 0.344
 Chromaticity Coordinate (y): 0.347
 Chromaticity Coordinate (u'): 0.213
 Chromaticity Coordinate (v'): 0.322
 DUV: 0.0019

Temperature Measurements:

In Situ LED Source Temperature: 63.6 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L14033.

Dialight unit model number EL-1C3R-SSCB

Test Conditions:

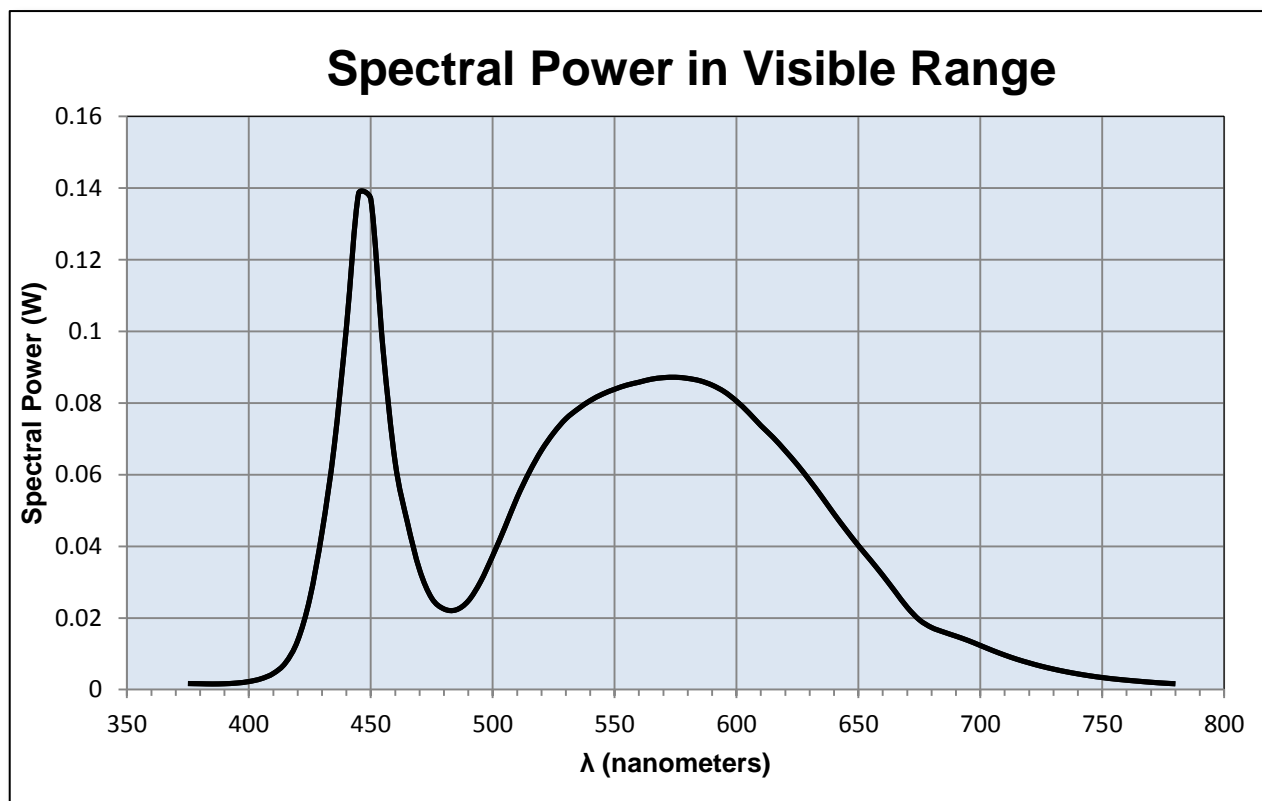
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
 Input Current: 0.543 (A)
 Input Power: 63.89 (W)
 Input Power Factor: 0.98
 Current ATHD: 15.53 (%)

Photometric measurements:

Luminous Flux: 5385 (lumens)
 Luminous Efficacy: 84.29 (lumens/W)
 Correlated Color Temperature (CCT): 5016 (K)
 CRI -Ra: 77.4
 CRI -R9: -0.2
 DUV: 0.0019
 CIE Coordinate (x): 0.344
 CIE Coordinate (y): 0.347
 CIE Coordinate (u'): 0.213
 CIE Coordinate (v'): 0.322



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	0.002	515	0.061	655	0.036
380	0.002	520	0.067	660	0.032
385	0.002	525	0.072	665	0.027
390	0.002	530	0.076	670	0.023
395	0.002	535	0.078	675	0.019
400	0.002	540	0.081	680	0.017
405	0.003	545	0.082	685	0.016
410	0.005	550	0.084	690	0.015
415	0.007	555	0.085	695	0.014
420	0.014	560	0.086	700	0.012
425	0.025	565	0.087	705	0.011
430	0.044	570	0.087	710	0.01
435	0.068	575	0.087	715	0.008
440	0.101	580	0.087	720	0.007
445	0.139	585	0.086	725	0.007
450	0.137	590	0.085	730	0.006
455	0.095	595	0.083	735	0.005
460	0.064	600	0.081	740	0.004
465	0.047	605	0.077	745	0.004
470	0.033	610	0.074	750	0.003
475	0.026	615	0.07	755	0.003
480	0.023	620	0.067	760	0.003
485	0.022	625	0.063	765	0.002
490	0.025	630	0.058	770	0.002
495	0.03	635	0.054	775	0.002
500	0.037	640	0.049	780	0.002
505	0.045	645	0.045		
510	0.054	650	0.04		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L14033.
Dialight unit model number EL-1C3R-SSCB

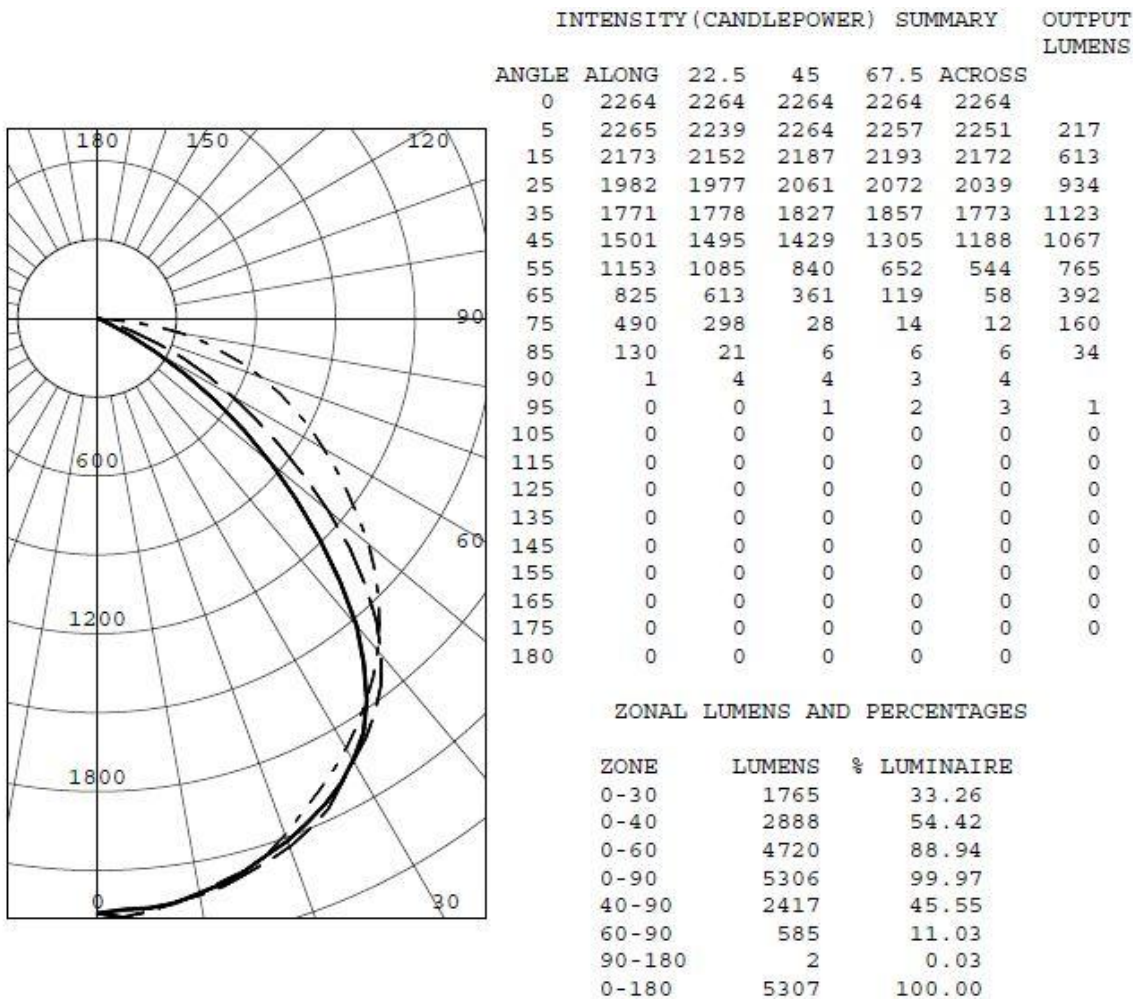
Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 0.541 (A)
Input Power: 63.7 (W)
Power Factor: 0.979

Photometric measurements:

Absolute Luminous Flux: 5307 (lumens)
Luminous Efficacy: 83.31 (lumens/W)

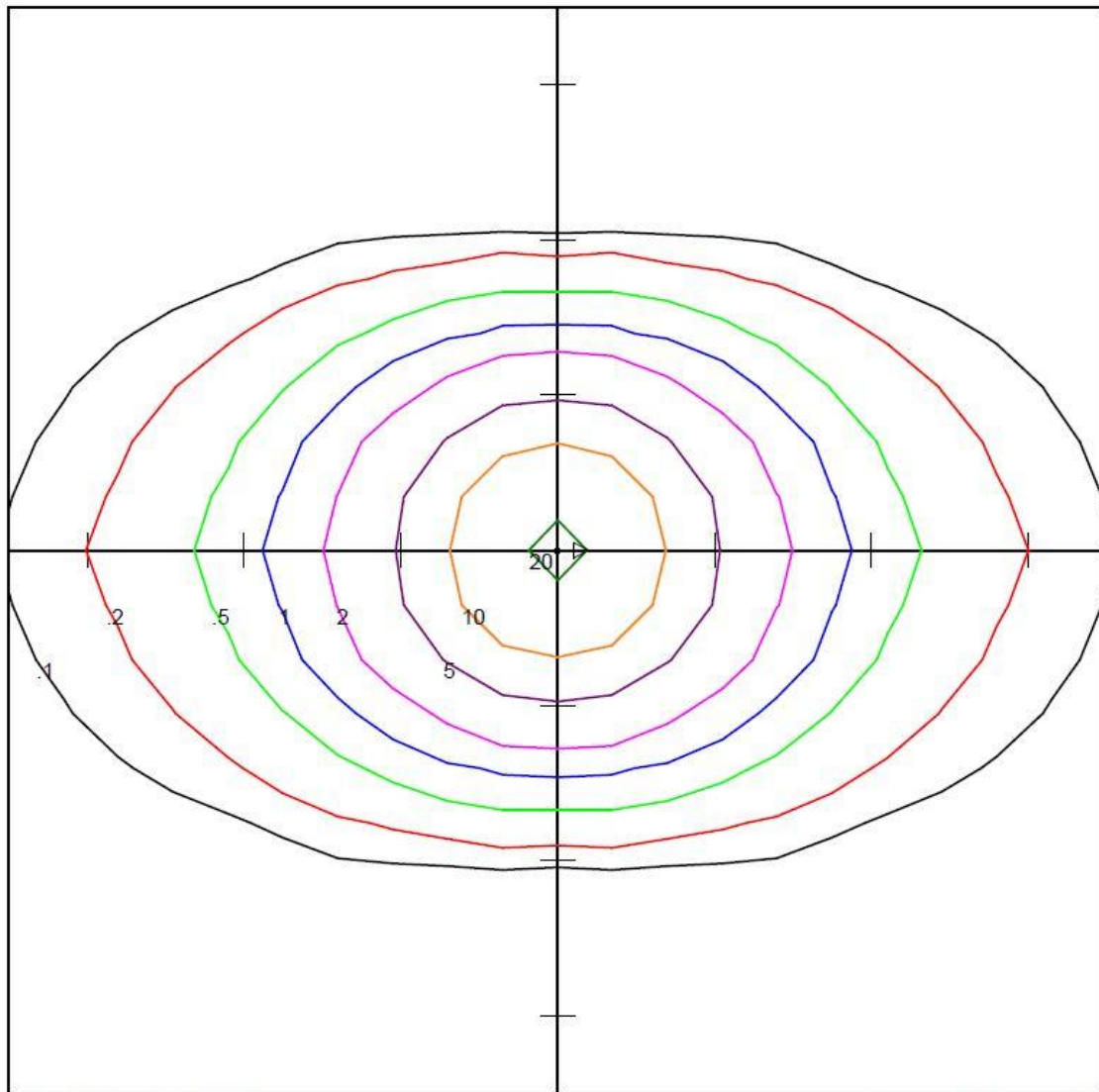
Intensity Summary:



Test Results: Goniometer

Results continued from previous page.

Iso-illuminance Plot:



DIALIGHT COPORATION
EL-1C3R-SSCB
MOD: EL-1C3R-SSCB
LED

Horizontal Footcandles
Scale: 1 Inch = 10 Ft.
Light Loss Factor = 1.00
Lumens Per Lamp = N.A. (absolute photometry)
Luminaire Lumens = 5314
Mounting Height = 10.00 Ft
Maximum Calculated Value = 22.64 Fc
Arrangement: Single

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L14033.

Dialight unit model number EL-1C3R-SSCB

LED identified as Nichia part number Nichia 219B..

LED drive current (as indicated by customer): 350 (mA)

LED Specifications:

LED specifications are taken from LED manufacturer datasheet:

Maximum Forward Current (If): 1500 (mA)
Maximum Rated Power Dissipation: 5.1 (W)
Maximum Junction Temp. (Tj): 150 (°C)
Thermal Resistance (Rth): 11 (°C/W)

Derived Specifications:

Maximum Power at Indicated Current: 1.19 (W)
Maximum Source Temperature: 136.9 (°C) (Tj - [power dissipation * Rth])

Test Conditions:

Temperature Measurement Location: See Photographs Below

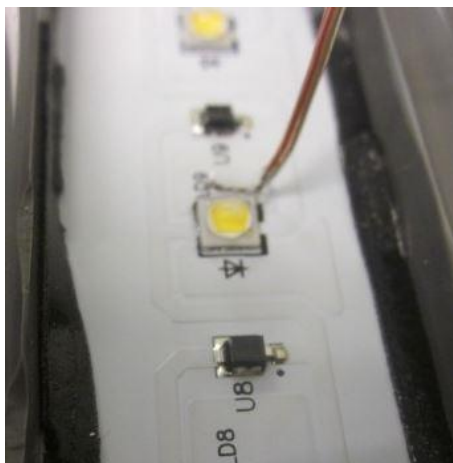
Ambient Temperature: $25^{\circ} \pm 1^{\circ}$ (°C)

Ambient temperature at time of measurement: 24.5 (°C)

Relative humidity at time of measurement: 49%

Results:

Measured LED source temperature: 63.6 (°C)



Equipment Used:

Equipment Name	Model Number	Calibration Due Date
Omega TC	Dpi8	3/7/2015
Fluke 8808A Digit Multimeter	8808A	4/7/2015
YOKOGAWA Digital Power Meter	760401	4/7/2015
LSI Standard Lamps	#30279	4/17/2015
LSI High Speed Mirror Goniometer	6240T	-
Instrument System Spectrometer	CAS140B-151	-
Instrument System Sphere Lamps (Osram Sylvania)	STD-20WF-3	4/17/2015
Instrument System Sphere Lamps (Osram Sylvania)	STD-20WF-3	4/17/2015
Instrument System Sphere Lamps (Osram Sylvania)	STD-20WF-3	4/17/2015
Instrument System 1.5 Meter Sphere	ISP1500	-
Volttech Power Analyzer	PM1000+	4/17/2015
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	445703	-
Extech Hygro-Thermometer	445703	-
Fluke 52II Thermometer	52II Thermometer	3/6/2015
Volttech Power Analyzer	PM1000+	4/17/2015
Tenma AC Power Source	72-7675	-
BK Precision	1715A	-
TDK-Lambda	GEN1500W	-
Fluke 8808A Digit Multimeter	8808A	4/14/2015
TPI Digital Thermometer 343	343	4/17/2015
TPI Digital Thermometer 343	343	4/17/2015

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.

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