

# Test Report

Report Number: L16019

Date: Mar 21, 2016

Issued by:

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

Test of one CID1 Battery Backup Linear  
Unit manufacturer: Dialight Corporation  
Unit model number: LSC3C4MEGEX

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:** March 9, 2016 through March 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: L16019  
Manufacturer: Dialight Corporation  
Product Name: CID1 Battery Backup Linear  
Description: CID1 Battery Backup Linear  
Model Number: LSC3C4MEGEX

**Report Summary**  
Sample number L16019  
Dialight unit model number LSC3C4MEGEX

**Photograph(s) of sample:**



\*Photographs not to scale. For reference only.

**Summary of Results:**

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	7621 (lumens)	7683 (lumens)
Electrical Power:	80.0 (W)	80.6 (W)
Luminous Efficacy:	95.38 (lumens/W)	95.33 (lumens/W)

**Electrical Measurements:**

Input Power (277VAC): 80.0 (W)  
 Power Factor (277VAC): 0.871  
 Current ATHD % (277VAC): 16.84  
 Input Power (120VAC): 79.0 (W)  
 Power Factor (120VAC): 0.988  
 Current ATHD % (120VAC): 11.95

**Color Measurements:**

Correlated Color Temperature (CCT): 4880  
 Color Rendering Index (CRI): 71.4  
 Chromaticity Coordinate (x): 0.349  
 Chromaticity Coordinate (y): 0.359  
 Chromaticity Coordinate (u'): 0.211  
 Chromaticity Coordinate (v'): 0.326  
 DUV: 0.0021

**Temperature Measurements:**

In Situ LED Source Temperature: 49.5 (°C)

## Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L16019.

Dialight unit model number LSC3C4MEGEX

### Test Conditions:

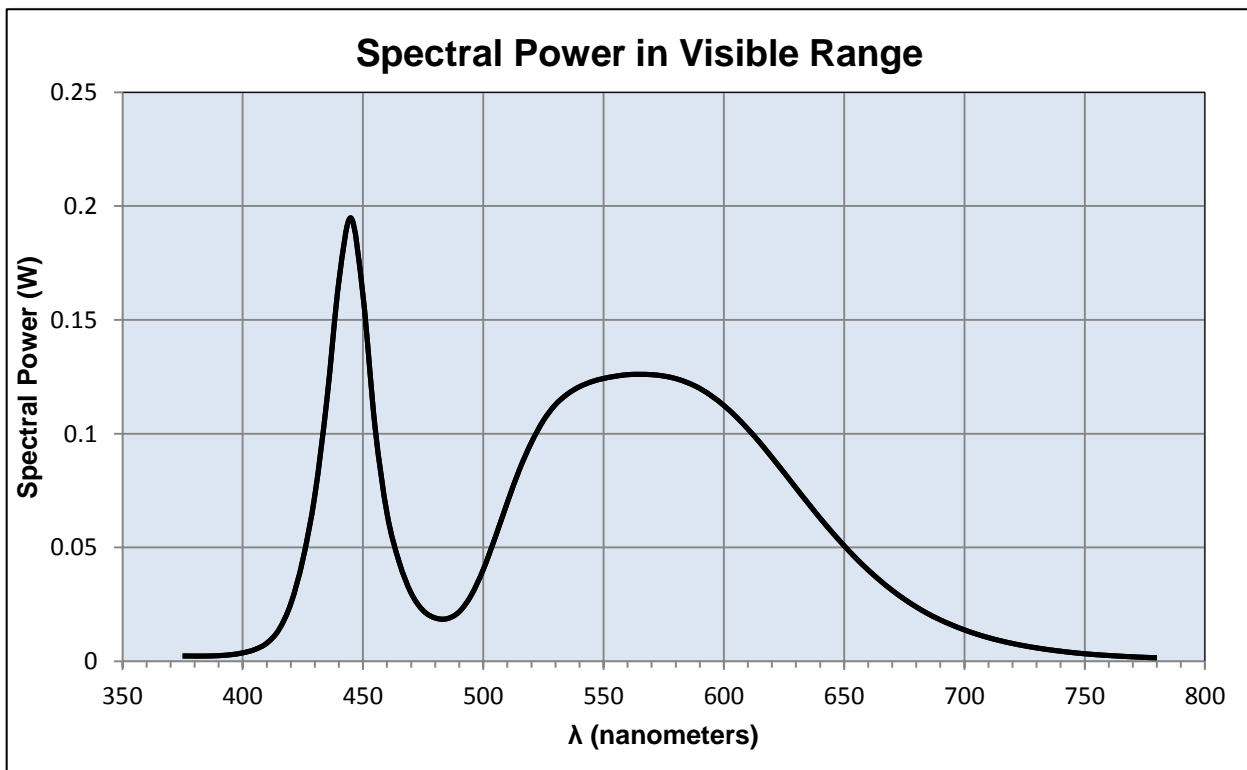
Ambient Temperature: 25 ± 1 (°C)

### Electrical Measurements:

Input Voltage: 120 (VAC)  
 Input Current: 0.332 (A)  
 Input Power: 80.0 (W)  
 Input Power Factor: 0.871  
 Current ATHD: 16.84 (%)

### Photometric measurements:

Luminous Flux: 7621 (lumens)  
 Luminous Efficacy: 95.4 (lumens/W)  
 Correlated Color Temperature (CCT): 4880 (K)  
 CRI -Ra: 71.4  
 CRI -R9: -21.3  
 DUV: 0.0021  
 CIE Coordinate (x): 0.349  
 CIE Coordinate (y): 0.359  
 CIE Coordinate (u'): 0.211  
 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	0.002	515	0.084	655	0.045
380	0.002	520	0.096	660	0.040
385	0.002	525	0.106	665	0.035
390	0.003	530	0.113	670	0.031
395	0.003	535	0.117	675	0.027
400	0.004	540	0.121	680	0.024
405	0.005	545	0.123	685	0.021
410	0.008	550	0.124	690	0.018
415	0.014	555	0.125	695	0.016
420	0.025	560	0.126	700	0.014
425	0.045	565	0.126	705	0.012
430	0.073	570	0.126	710	0.010
435	0.115	575	0.125	715	0.009
440	0.167	580	0.124	720	0.008
445	0.195	585	0.122	725	0.007
450	0.161	590	0.120	730	0.006
455	0.103	595	0.116	735	0.005
460	0.065	600	0.112	740	0.004
465	0.044	605	0.108	745	0.004
470	0.030	610	0.102	750	0.003
475	0.022	615	0.096	755	0.003
480	0.019	620	0.090	760	0.003
485	0.019	625	0.083	765	0.002
490	0.022	630	0.076	770	0.002
495	0.029	635	0.069	775	0.002
500	0.040	640	0.063	780	0.002
505	0.055	645	0.057		
510	0.070	650	0.051		

## Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L16019.  
Dialight unit model number LSC3C4MEGEX

### Electrical Measurements:

Input Voltage: 277 (VAC)  
Input current: 0.333 (A)  
Input Power: 80.6 (W)  
Power Factor: 0.871

### Photometric measurements:

Absolute Luminous Flux: 7683 (lumens)  
Luminous Efficacy: 95.3 (lumens/W)

### Intensity Summary:

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	23	45	68	ACROSS	OUTPUT LUMENS
0	2638	2638	2638	2638	2638	
5	2630	2630	2630	2630	2630	98
15	2548	2548	2548	2548	2548	550
25	2590	2590	2590	2590	2590	1017
35	2913	2913	2913	2913	2913	1603
45	2467	2467	2467	2467	2467	1947
55	1371	1371	1371	1371	1371	1438
65	541	541	541	541	541	853
75	34	34	34	34	34	160
85	7	7	7	7	7	16
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

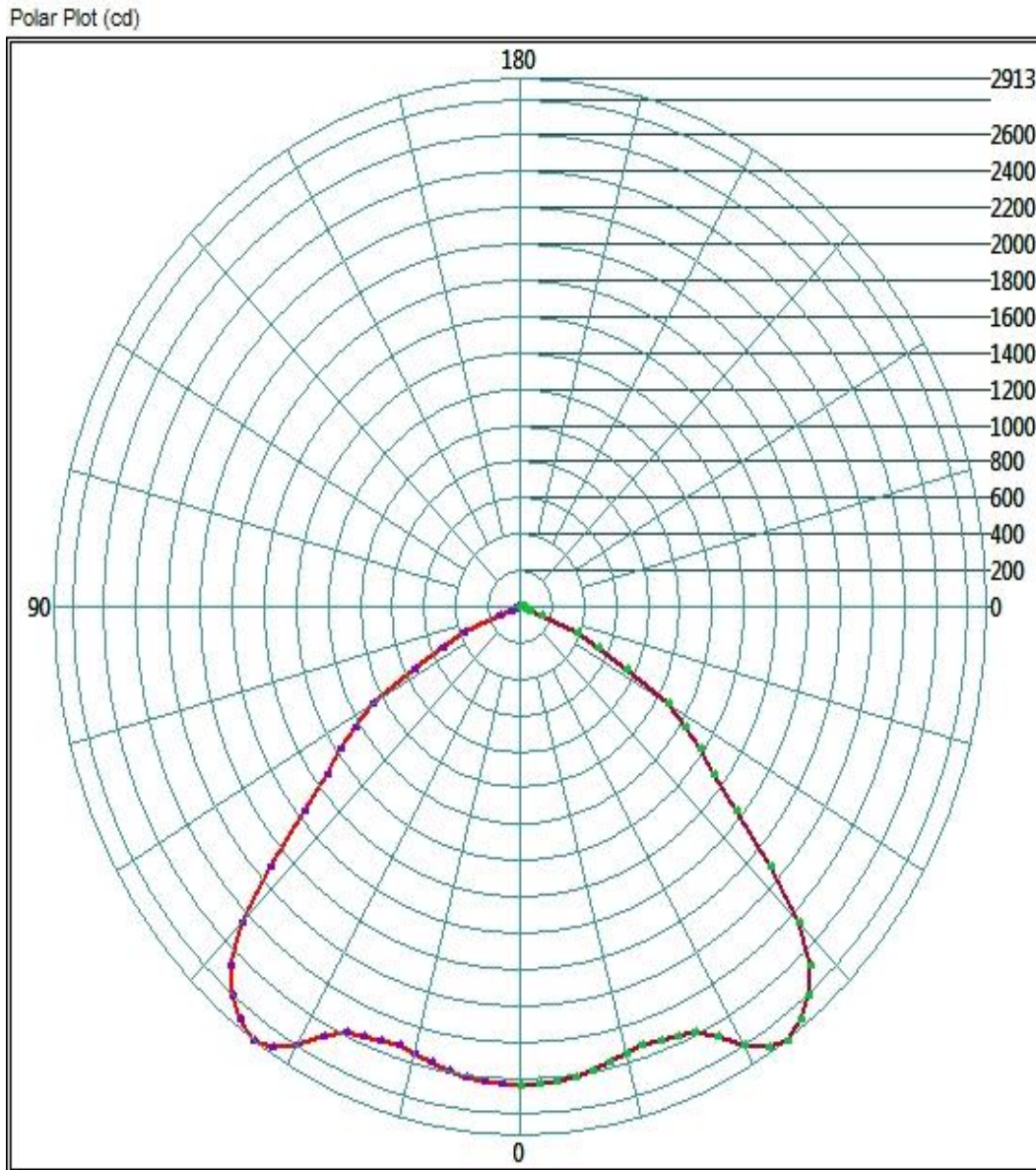
### ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	2385.76	31.1%
0-40	4240.48	55.2%
0-60	7190.4	93.6%
60-90	745.12	9.7%
0-90	7683.04	100.0%
90-180	0	0.0%
0-180	7683.04	100.0%

### Test Results: Goniometer

Results continued from previous page.

**Polar Plot:**

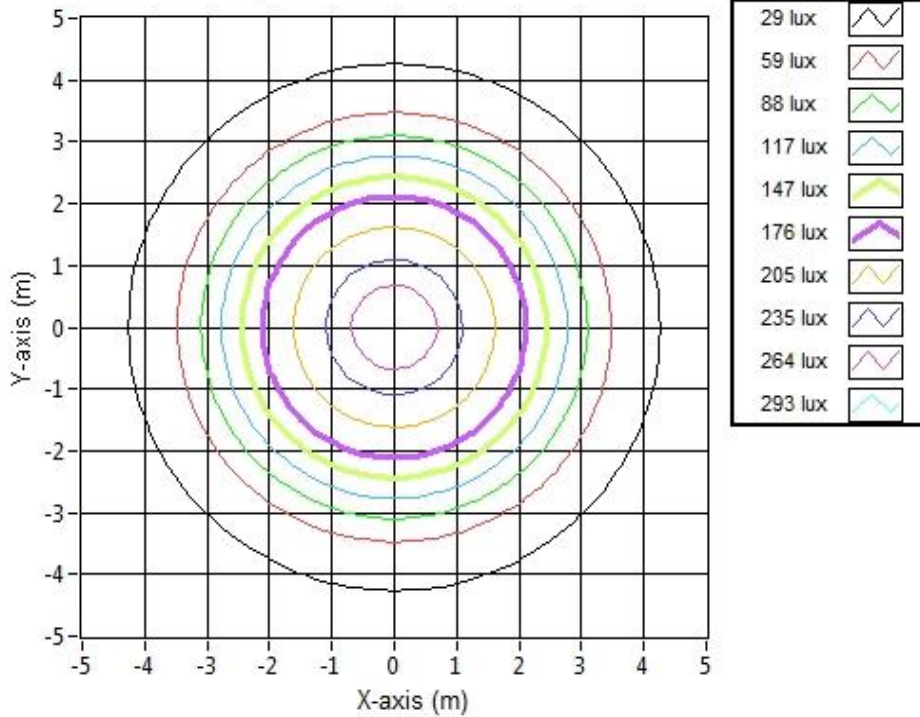


## Test Results: Goniometer

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	9.00	9.00	284.0
6.096	18.00	18.00	71.0
9.144	27.01	27.01	31.6
12.192	36.01	36.01	17.7
15.24	45.01	45.01	11.4
18.288	54.01	54.01	7.9
21.336	63.01	63.01	5.8
24.384	72.01	72.01	4.4
27.432	81.02	81.02	3.5
30.48	90.02	90.02	2.8

## Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L16019.  
Dialight unit model number LSC3C4MEGEX

LED identified as Cree part number XTE-AWT.

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: 5.25 (W)  
Maximum Junction Temp. (Tj): 150 (°C)  
Thermal Resistance (Rth): 5 (°C/W)

Derived Specifications:

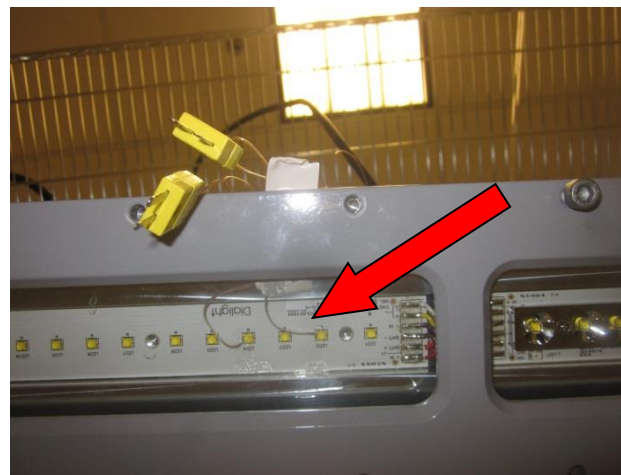
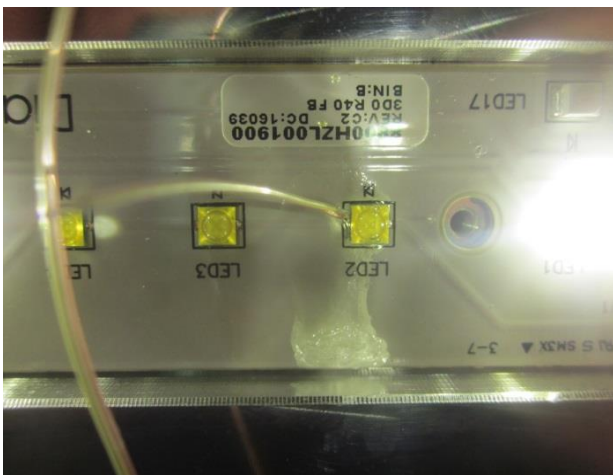
Maximum Power at Indicated Current: 1.225 (W)  
Maximum Source Temperature: 143.9 (°C)

### Test Conditions:

Temperature Measurement Location: See Photographs Below  
Ambient Temperature:  $25^{\circ} \pm 5^{\circ}$  (°C)  
Ambient temperature at time of measurement: 23.6 (°C)  
Relative humidity at time of measurement: 23%

### Results:

**Measured LED source temperature: 49.5 (°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