

Test Report

Report Number: L16064

Date: Aug 25, 2016

Issued by:

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

Test of one Die Cast Floodlight
Unit manufacturer: Dialight Corporation
Unit model number: FLx255xC2NP

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 9, 2016 through August 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):

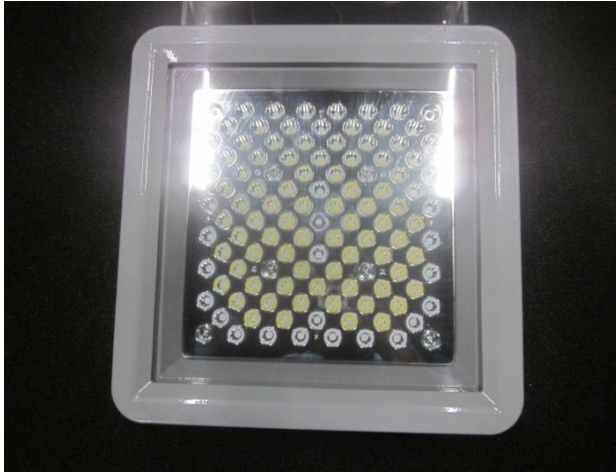
- IES LM-79:2008: Electrical and Photometric Measurements of Solid-State Lighting Products
- ANSI/UL 1598:2008: Underwriters Laboratories Inc. Standard for Safety: Luminaires
- ENERGY STAR Manufacturer's Guide for Qualifying Solid State Lighting Luminaires Version 2.1

Description of sample:

Sample Number: L16064
Manufacturer: Dialight Corporation
Product Name: Die Cast Floodlight
Description: Die Cast Floodlight
Model Number: FLx255xC2NP

Report Summary
Sample number L16064
Dialight unit model number FLx255xC2NP

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	10952 (lumens)	10928 (lumens)
Electrical Power:	102.9 (W)	102.8 (W)
Luminous Efficacy:	106.5 (lumens/W)	106.4 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 102.9 (W)
 Power Factor (120VAC): 0.995
 Current ATHD % (120VAC): 4.307
 Input Power (277VAC): 100.1 (W)
 Power Factor (277VAC): 0.918
 Current ATHD % (277VAC): 8.58

Color Measurements:

Correlated Color Temperature (CCT): 4931
 Color Rendering Index (CRI): 74
 Chromaticity Coordinate (x): 0.348
 Chromaticity Coordinate (y): 0.36
 Chromaticity Coordinate (u'): 0.21
 Chromaticity Coordinate (v'): 0.326
 DUV: 0.0032

Temperature Measurements:

In Situ LED Source Temperature: 77.5 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L16064.

Dialight unit model number FLx255xC2NP

Test Conditions:

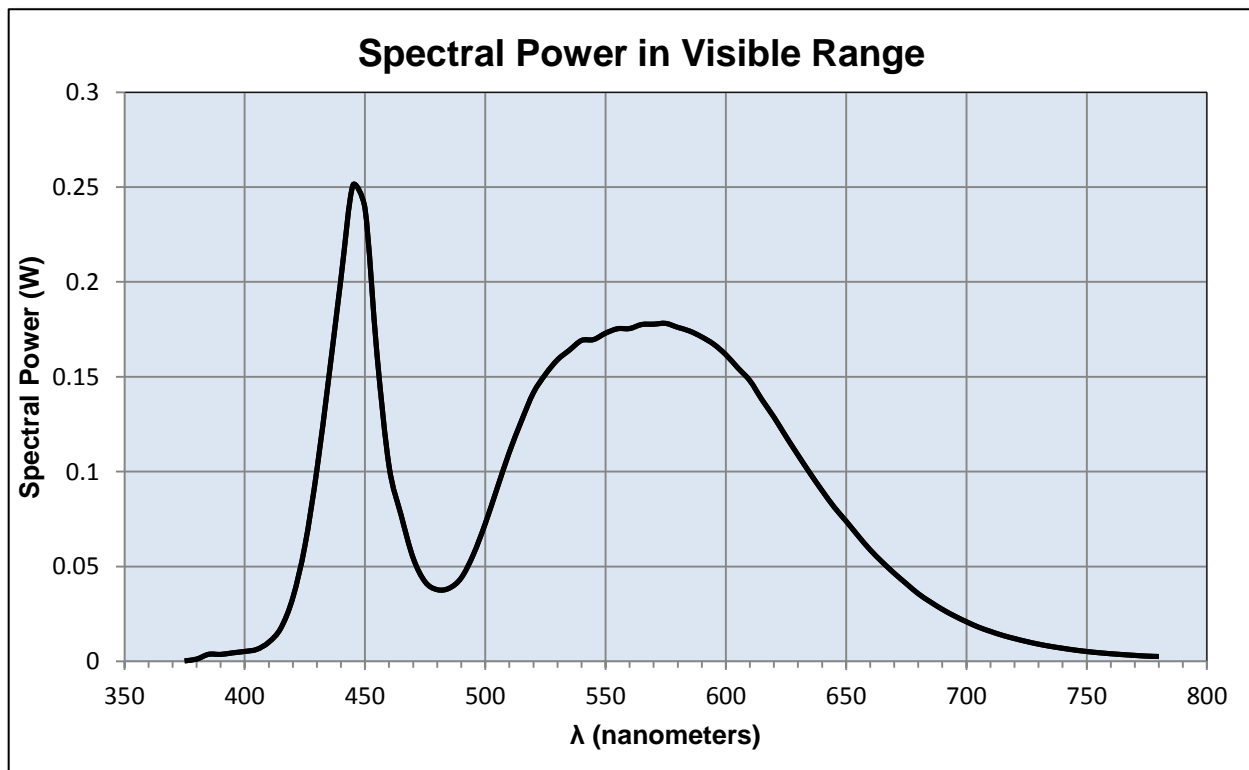
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
Input Current: 0.861 (A)
Input Power: 102.9 (W)
Input Power Factor: 0.995
Current ATHD: 4.307 (%)

Photometric measurements:

Luminous Flux: 10952 (lumens)
Luminous Efficacy: 106.5 (lumens/W)
Correlated Color Temperature (CCT): 4931 (K)
CRI -Ra: 74
CRI -R9: -18.4
DUV: 0.0032
CIE Coordinate (x): 0.348
CIE Coordinate (y): 0.36
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:

λ (nm)	(W/nm)	λ (nm)	(W/nm)	λ (nm)	(W/nm)
375	0.000	515	0.127	655	0.066
380	0.001	520	0.142	660	0.059
385	0.004	525	0.151	665	0.052
390	0.004	530	0.159	670	0.046
395	0.004	535	0.164	675	0.041
400	0.005	540	0.169	680	0.036
405	0.006	545	0.170	685	0.031
410	0.010	550	0.173	690	0.027
415	0.017	555	0.175	695	0.024
420	0.034	560	0.175	700	0.021
425	0.061	565	0.178	705	0.018
430	0.101	570	0.178	710	0.016
435	0.150	575	0.178	715	0.014
440	0.202	580	0.176	720	0.012
445	0.251	585	0.174	725	0.010
450	0.239	590	0.171	730	0.009
455	0.162	595	0.167	735	0.008
460	0.103	600	0.162	740	0.007
465	0.077	605	0.155	745	0.006
470	0.055	610	0.148	750	0.005
475	0.042	615	0.138	755	0.005
480	0.038	620	0.129	760	0.004
485	0.039	625	0.119	765	0.004
490	0.044	630	0.109	770	0.003
495	0.056	635	0.099	775	0.003
500	0.073	640	0.090	780	0.003
505	0.092	645	0.081		
510	0.110	650	0.074		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L16064.
Dialight unit model number FLx255xC2NP

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 0.86 (A)
Input Power: 102.8 (W)
Power Factor: 0.995

Photometric measurements:

Absolute Luminous Flux: 10928 (lumens)
Luminous Efficacy: 106.4 (lumens/W)

Intensity Summary:

INTENSITY (CANDLEPOWER) SUMMARY						
ANGLE	ALONG	23	45	68	ACROSS	OUTPUT LUMENS
0	20576	20576	20576	20576	20576	
5	18707	18707	18707	18707	18707	718
15	10875	10875	10875	10875	10875	2810
25	5768	5768	5768	5768	5768	2903
35	3756	3756	3756	3756	3756	2432
45	1324	1324	1324	1324	1324	1812
55	79	79	79	79	79	189
65	27	27	27	27	27	40
75	13	13	13	13	13	18
85	3	3	3	3	3	7
95	0	0	0	0	0	0
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

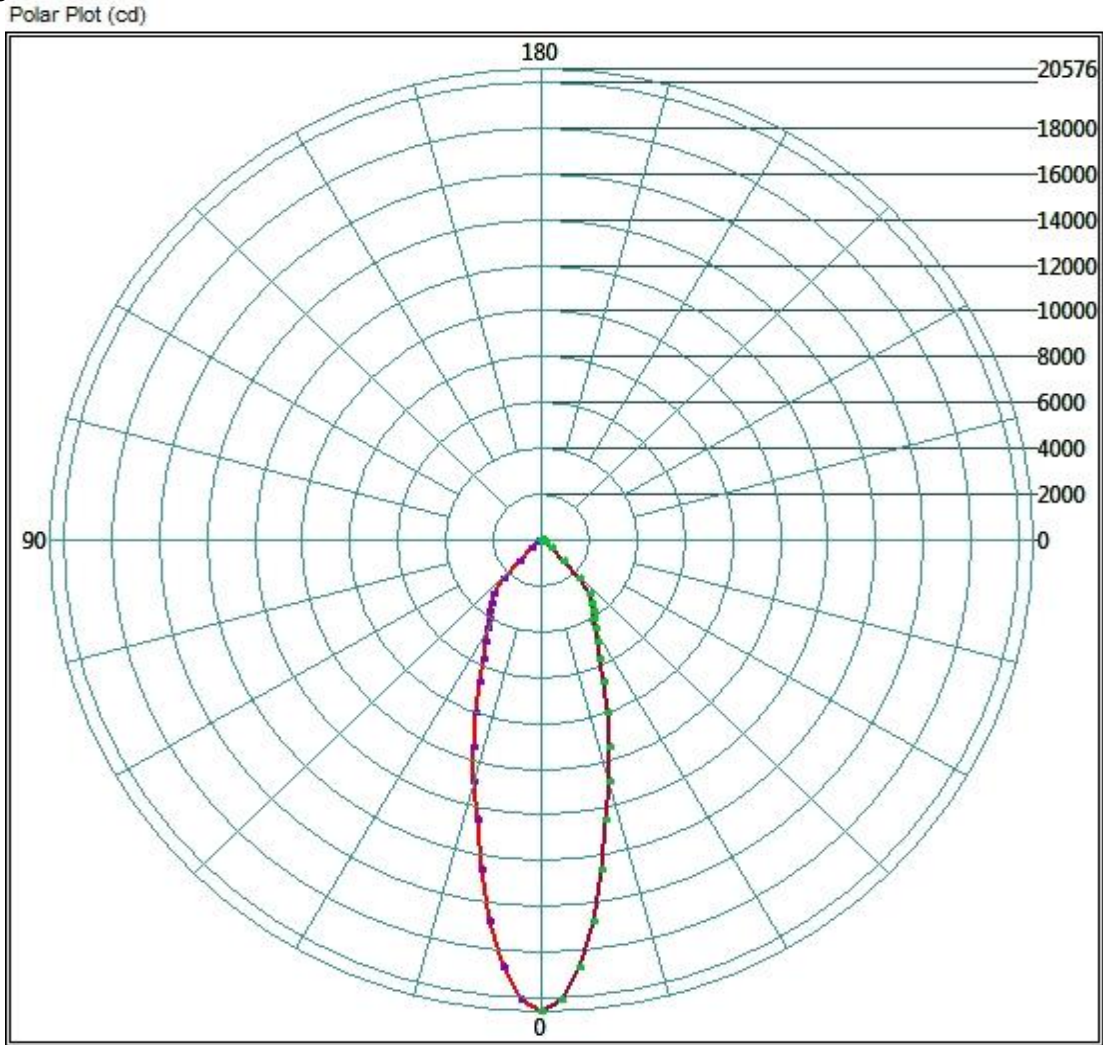
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	7672.8	70.2%
0-40	9990.88	91.4%
0-60	10887.36	99.6%
60-90	51.04	0.5%
0-90	10927.68	100.0%
90-180	0	0.0%
0-180	10927.68	100.0%

Test Results: Goniometer

Results continued from previous page.

Polar Plot:



Target % of Peak Intensity	Beam Angle to % Intensity Value (degrees)	Beam Angle to Specified % Intensity Value (degrees) [-]
50.00	32.08	32.08

Beam Spread (at 50% Max CD)		Field Spread (at 10% Max CD)		IESNA LM-35-02 Floodlight Designation	
(deg) Horiz	(deg) Vert	(deg) Horiz	(deg) Vert	IESNA LM-35-02 Floodlight H Designation	IESNA LM-35-02 Floodlight V Designation
32.08	32.08	86.39	86.39	5	5

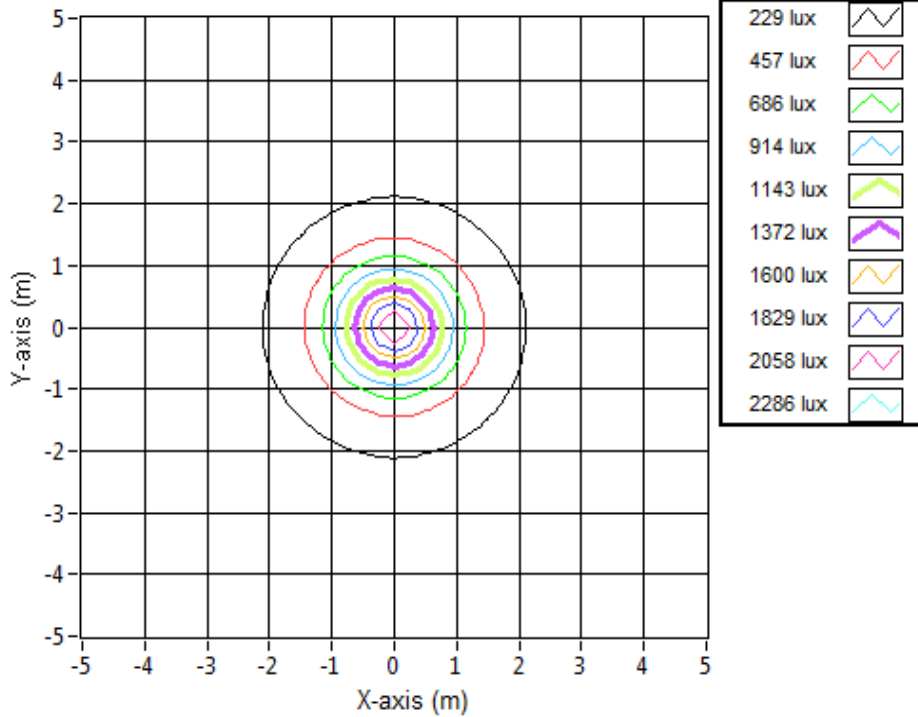
Total Luminous Flux	Field (%)	Field Flux (lm)	Beam Flux (%)	Beam Flux (lm)	Beam Spill (%)	Spill Flux (lm)
10916.40	94.82	10351.22	32.24	3519.02	5.18	565.18

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	1.75	1.75	2214.8
6.096	3.51	3.51	553.7
9.144	5.26	5.26	246.1
12.192	7.01	7.01	138.4
15.24	8.76	8.76	88.6
18.288	10.52	10.52	61.5
21.336	12.27	12.27	45.2
24.384	14.02	14.02	34.6
27.432	15.77	15.77	27.3
30.48	17.53	17.53	22.1

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L16064.
Dialight unit model number FLx255xC2NP

LED identified as Nichia part number 219B.

LED drive current (as indicated by customer): 425 (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:

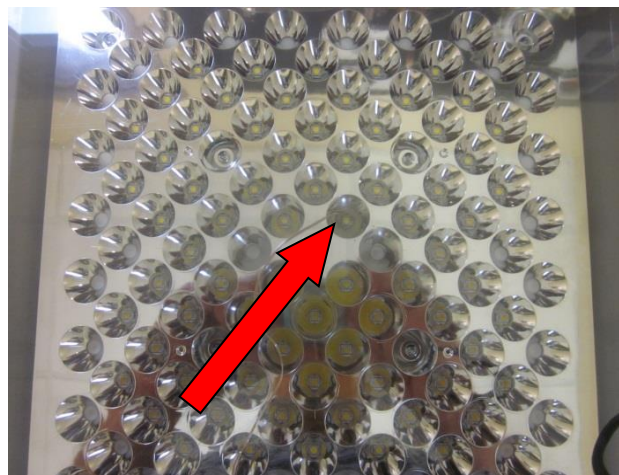
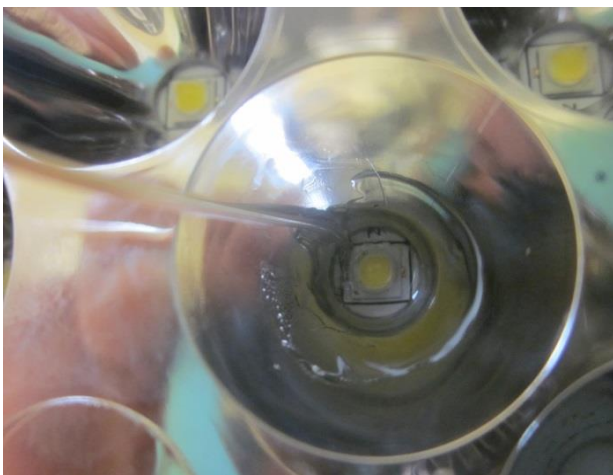
Maximum Power at Indicated Current: 1.445 (W)
Maximum Source Temperature: 134.1 (°C)

Test Conditions:

Temperature Measurement Location: See Photographs Below
Ambient Temperature: $25^{\circ} \pm 5^{\circ}$ (°C)
Ambient temperature at time of measurement: 23.5 (°C)
Relative humidity at time of measurement: 35%

Results:

Measured LED source temperature: 77.5 (°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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