Dialight OPTICS LABORATORY

NVLAP Lab Code 201033-0

Test Report

Report Number: L16038 Date: May 2, 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: FLx266xC2NP

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 22, 2016 through April 25, 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: L16038
Manufacturer: Dialight Corporation
Product Name: Die Cast Floodlight
Description: Die Cast Floodlight
Model Number: FLx266xC2NP

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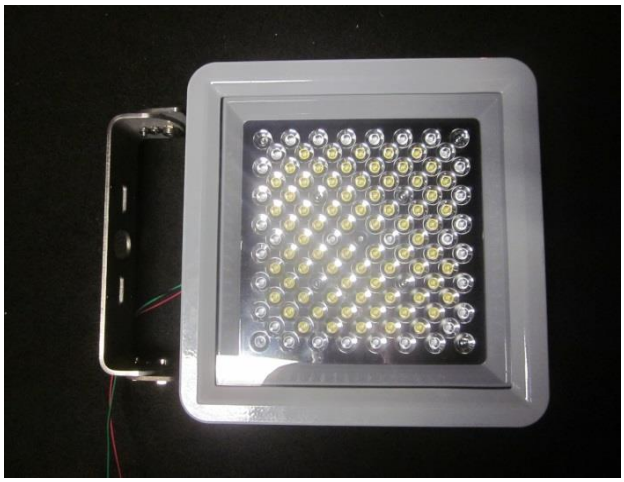
Report Summary

Sample number L16038

Dialight unit model number FLx266xC2NP

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	Integrating Sphere		Goniophotometer	
Luminous Flux:	10340	(lumens)	10252	(lumens)
Electrical Power:	105.0	(W)	105.2	(W)
Luminous Efficacy:	98.48	(lumens/W)	97.48	(lumens/W)

Electrical Measurements:

Input Power (120VAC):	105.0	(W)
Power Factor (120VAC):	0.995	
Current ATHD % (120VAC):	4.037	
Input Power (277VAC):	102.1	(W)
Power Factor (277VAC):	0.92	
Current ATHD % (277VAC):	8.294	

Color Measurements:

Correlated Color Temperature (CCT):	4842
Color Rendering Index (CRI):	71.7
Chromaticity Coordinate (x):	0.35
Chromaticity Coordinate (y):	0.361
Chromaticity Coordinate (u'):	0.211
Chromaticity Coordinate (v'):	0.327
DUV:	0.0025

Temperature Measurements:

In Situ LED Source Temperature:	62.9	(°C)

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Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L16038.
Dialight unit model number FLx266xC2NP

Test Conditions:

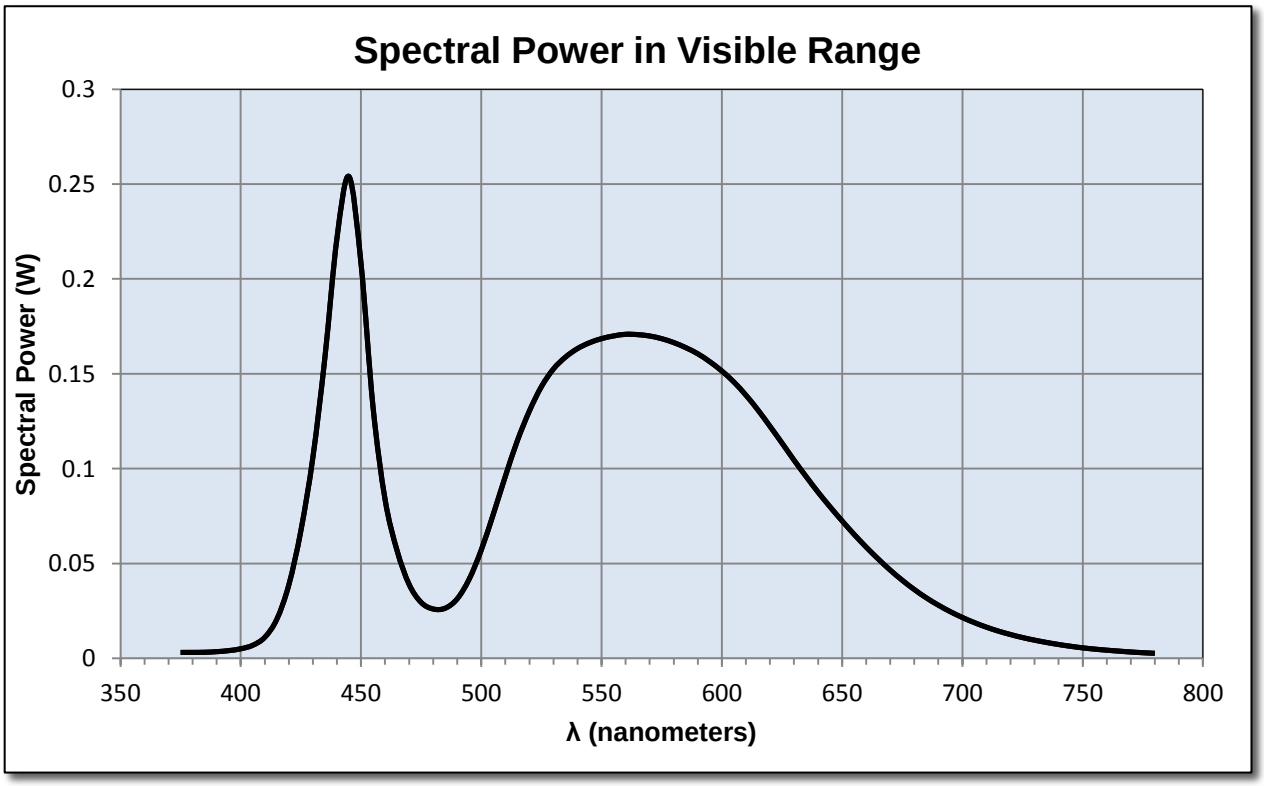
Ambient Temperature:	25 ± 1	(°C)

Electrical Measurements:

Input Voltage:	120	(VAC)
Input Current:	0.878	(A)
Input Power:	105.0	(W)
Input Power Factor:	0.995	
Current ATHD:	4.037	(%)

Photometric measurements:

Luminous Flux:	10340	(lumens)
Luminous Efficacy:	98.5	(lumens/W)
Correlated Color Temperature (CCT):	4842	(K)
CRI -Ra:	71.7	
CRI -R9:	-19.2	
DUV:	0.0025	
CIE Coordinate (x):	0.35	
CIE Coordinate (y):	0.361	
CIE Coordinate (u'):	0.211	
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	0.003	515	0.115	655	0.065
380	0.003	520	0.130	660	0.059
385	0.003	525	0.143	665	0.052
390	0.004	530	0.153	670	0.047
395	0.004	535	0.159	675	0.041
400	0.005	540	0.163	680	0.036
405	0.007	545	0.166	685	0.032
410	0.011	550	0.169	690	0.028
415	0.021	555	0.170	695	0.025
420	0.039	560	0.171	700	0.022
425	0.067	565	0.171	705	0.019
430	0.106	570	0.170	710	0.016
435	0.159	575	0.168	715	0.014
440	0.221	580	0.166	720	0.013
445	0.254	585	0.164	725	0.011
450	0.208	590	0.161	730	0.010
455	0.133	595	0.156	735	0.008
460	0.084	600	0.151	740	0.007
465	0.057	605	0.146	745	0.006
470	0.039	610	0.139	750	0.006
475	0.029	615	0.131	755	0.005
480	0.026	620	0.122	760	0.004
485	0.026	625	0.113	765	0.004
490	0.031	630	0.104	770	0.003
495	0.042	635	0.096	775	0.003
500	0.057	640	0.088	780	0.003
505	0.076	645	0.080		
510	0.096	650	0.072		

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Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L16038.
Dialight unit model number FLx266xC2NP

Electrical Measurements:

Input Voltage:	120	(VAC)
Input current:	0.878	(A)
Input Power:	105.2	(W)
Power Factor:	0.995	

Photometric measurements:

Absolute Luminous Flux:	10252	(lumens)
Luminous Efficacy:	97.5	(lumens/W)

Intensity Summary:

INTENSITY (CANDLEPOWER) SUMMARY

ANGLE	ALONG	23	45	68	ACROSS	OUTPUT LUMENS
0	11779	11779	11779	11779	11779	
5	11250	11250	11250	11250	11250	425
15	7739	7739	7739	7739	7739	1944
25	4654	4654	4654	4654	4654	2160
35	3018	3018	3018	3018	3018	2052
45	2339	2339	2339	2339	2339	1822
55	1114	1114	1114	1114	1114	1492
65	133	133	133	133	133	282
75	39	39	39	39	39	60
85	3	3	3	3	3	14
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	

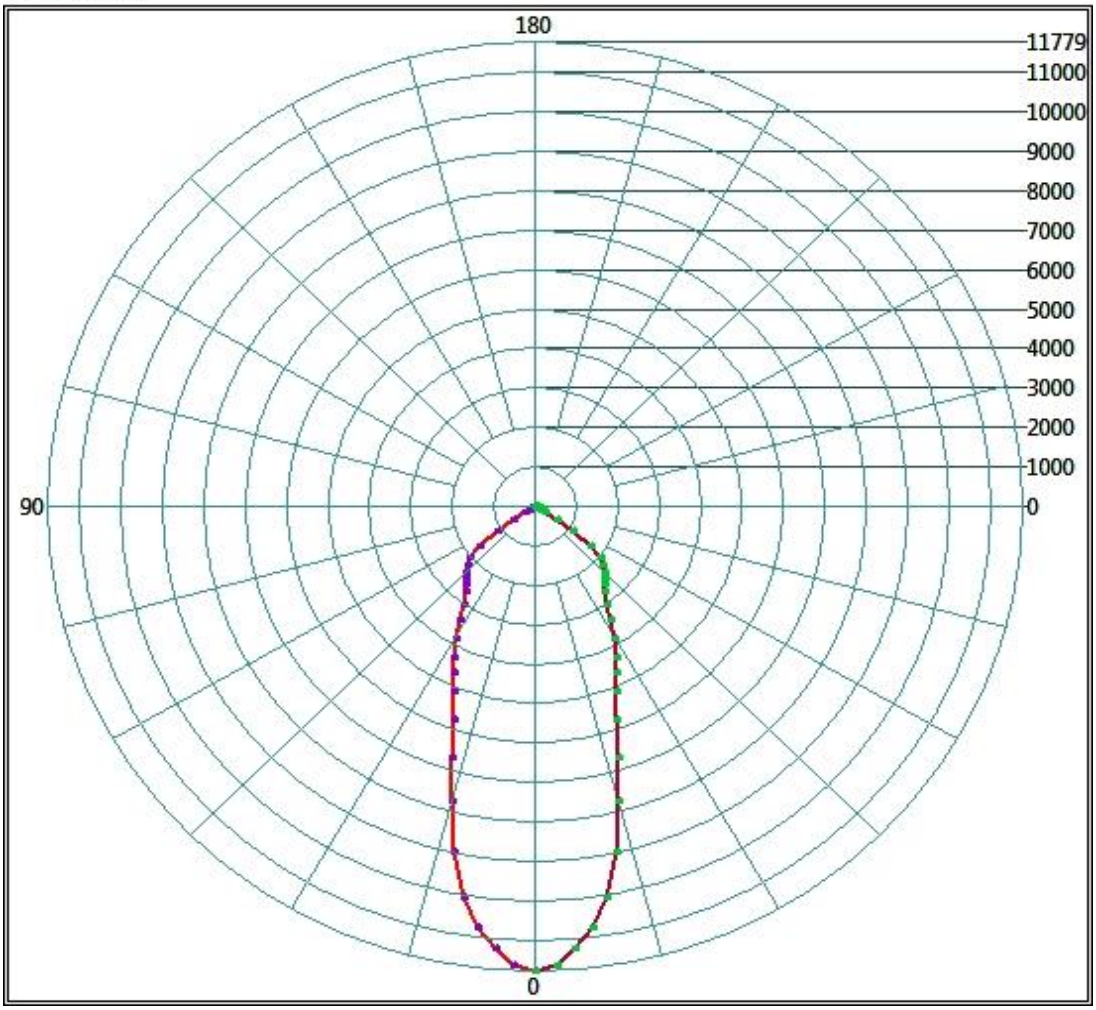
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	5604.48	54.7%
0-40	7495.04	73.1%
0-60	10104.64	98.6%
60-90	212.48	2.1%
0-90	10252	100.0%
90-180	0	0.0%
0-180	10252	100.0%

Test Results: Goniometer

Results continued from previous page.

Polar Plot: Polar Plot (cd)



Target % of Peak Intensity	Beam Angle to % Intensity Value (degrees)	Beam Angle to Specified % Intensity Value (degrees) [-]
50.00	39.22	39.22

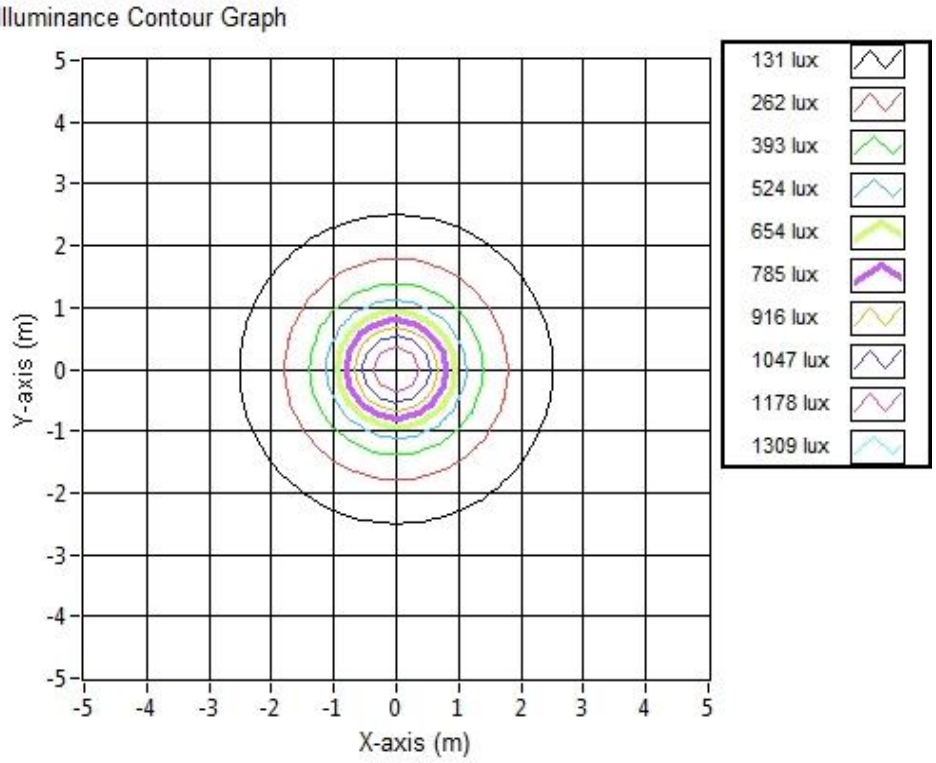
Beam Spread (at 50% Max CD)		Field Spread (at 10% Max CD)		IESNA LM-35-02 Floodlight Designation	
(deg) Horiz	(deg) Vert	(deg) Horiz	(deg) Vert	IESNA LM-35-02 Floodlight H Designation	IESNA LM-35-02 Floodlight V Designation
39.28	39.28	109.14	109.14	6	6

Total Luminous Flux	Field (%)	Field Flux (lm)	Beam Flux (%)	Beam Flux (lm)	Beam Spill (%)	Spill Flux (lm)
10198.27	93.19	9503.35	29.83	3042.05	6.81	694.92

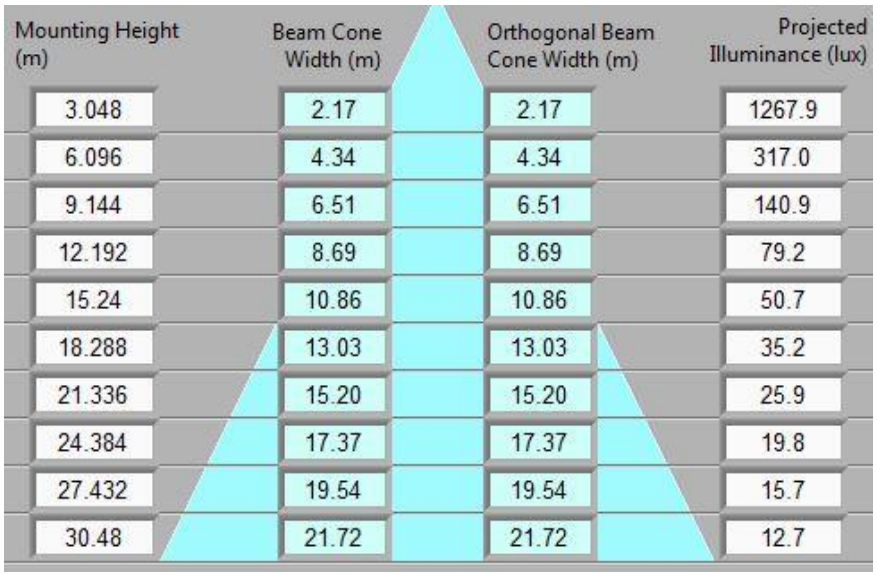
Test Results: Goniometer

Results continued from previous page.

Illuminance Plot:



Illuminance-Cone of Light:



Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L16038.
Dialight unit model number FLx266xC2NP

LED identified as Cree part number XTE.

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

Derived Specifications:

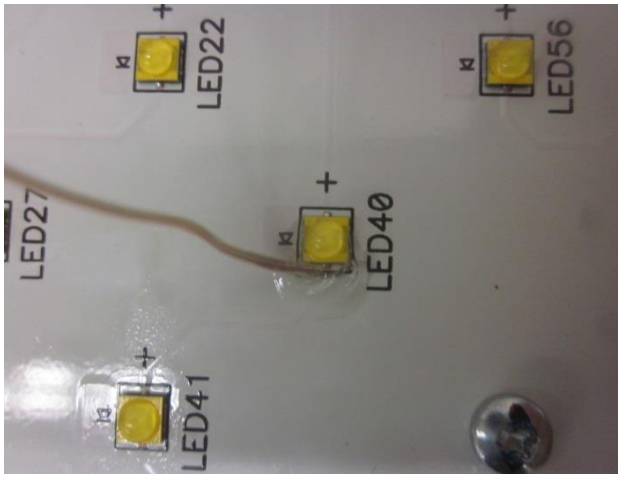
Maximum Power at Indicated Current:	1.488	(W)
Maximum Source Temperature:	142.6	(°C)

Test Conditions:

Temperature Measurement Location:	See Photographs Below	
Ambient Temperature:	25° ± 5‘	(°C)
Ambient temperature at time of measurement:	24	(°C)
Relative humidity at time of measurement:	16%	

Results:

Measured LED source temperature: 62.9 (°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 Precison	1715A
TDK-Lambda	GEN1500W
Fluke 8808A Digit Multimeter	8808A
TPI Digitial Thermometer 343	TPI 343
TPI Digitial 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.

Test Report Issued By:

Richard Huegi
Dialight Optics Laboratory
Senior Optical Engineering Technician
Lighting Division

Test Report Reviewed and Approved By:

Vishnu Shastry
Dialight Optics Laboratory
Optical Engineer
Approved Signatory