

Test Report

Report Number: L15161

Date: Jan 8, 2016

Issued by:

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

Test of one LED Floodlight
Unit manufacturer: Dialight Corporation
Unit model number: FLx266xC2NG

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: December 16, 2015 through January 8, 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: L15161
Manufacturer: Dialight Corporation
Product Name: LED Floodlight
Description: LED Floodlight
Model Number: FLx266xC2NG

Report Summary

Sample number L15161
Dialight unit model number FLx266xC2NG

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	11490 (lumens)	11391 (lumens)
Electrical Power:	106.8 (W)	106.9 (W)
Luminous Efficacy:	107.6 (lumens/W)	106.6 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 106.8 (W)
 Power Factor (120VAC): 0.995
 Current ATHD % (120VAC): 4.191
 Input Power (277VAC): 104.0 (W)
 Power Factor (277VAC): 0.92
 Current ATHD % (277VAC): 8.75

Color Measurements:

Correlated Color Temperature (CCT): 4788
 Color Rendering Index (CRI): 71.6
 Chromaticity Coordinate (x): 0.353
 Chromaticity Coordinate (y): 0.368
 Chromaticity Coordinate (u'): 0.21
 Chromaticity Coordinate (v'): 0.329
 DUV: 0.0052

Temperature Measurements:

In Situ LED Source Temperature: 66.5 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L15161.

Dialight unit model number FLx266xC2NG

Test Conditions:

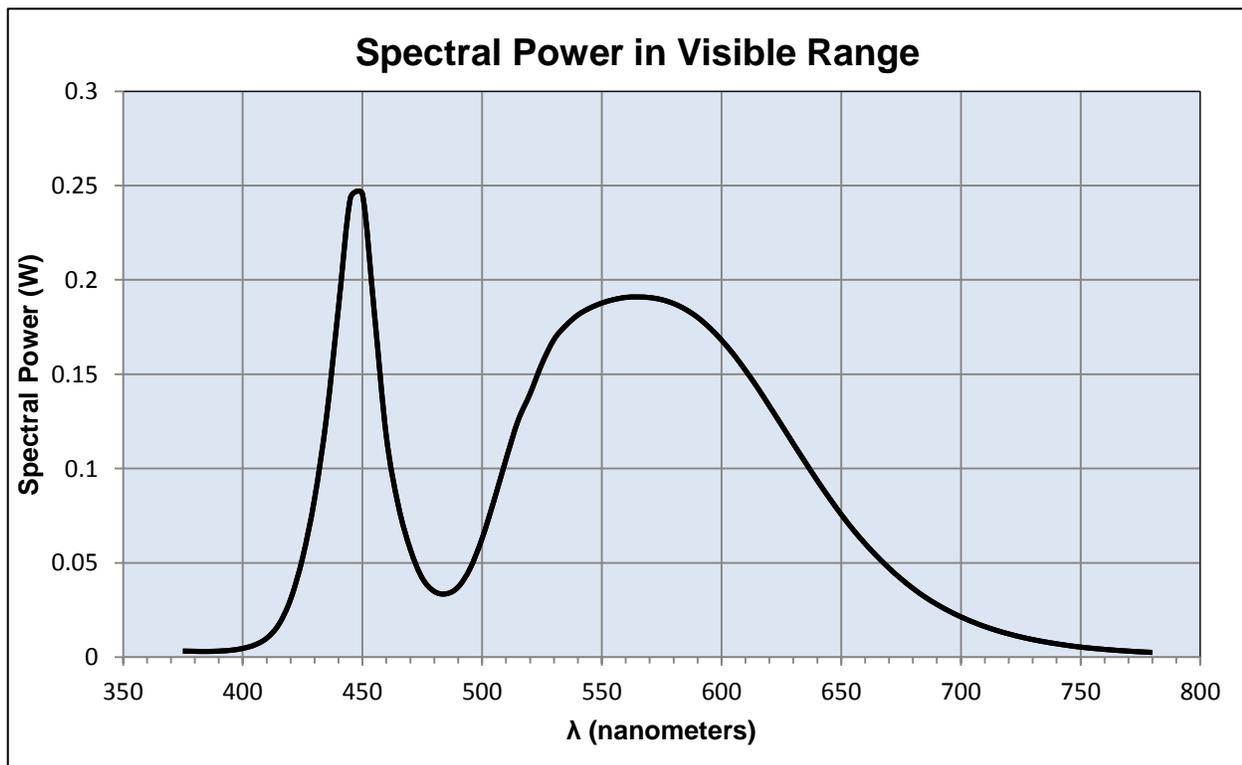
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
Input Current: 0.892 (A)
Input Power: 106.8 (W)
Input Power Factor: 0.995
Current ATHD: 4.191 (%)

Photometric measurements:

Luminous Flux: 11490 (lumens)
Luminous Efficacy: 107.6 (lumens/W)
Correlated Color Temperature (CCT): 4788 (K)
CRI -Ra: 71.6
CRI -R9: -26.3
DUV: 0.0052
CIE Coordinate (x): 0.353
CIE Coordinate (y): 0.368
CIE Coordinate (u'): 0.21
CIE Coordinate (v'): 0.329



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	0.003	515	0.125	655	0.068
380	0.003	520	0.14	660	0.06
385	0.003	525	0.156	665	0.053
390	0.003	530	0.168	670	0.047
395	0.004	535	0.176	675	0.042
400	0.005	540	0.181	680	0.036
405	0.006	545	0.185	685	0.032
410	0.01	550	0.188	690	0.028
415	0.017	555	0.19	695	0.024
420	0.031	560	0.191	700	0.021
425	0.053	565	0.191	705	0.019
430	0.084	570	0.191	710	0.016
435	0.127	575	0.19	715	0.014
440	0.186	580	0.187	720	0.012
445	0.244	585	0.184	725	0.011
450	0.245	590	0.18	730	0.009
455	0.182	595	0.175	735	0.008
460	0.117	600	0.168	740	0.007
465	0.08	605	0.161	745	0.006
470	0.057	610	0.152	750	0.005
475	0.042	615	0.143	755	0.005
480	0.035	620	0.133	760	0.004
485	0.034	625	0.123	765	0.004
490	0.037	630	0.113	770	0.003
495	0.047	635	0.103	775	0.003
500	0.063	640	0.094	780	0.003
505	0.083	645	0.084		
510	0.105	650	0.076		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L15161.
Dialight unit model number FLx266xC2NG

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 0.894 (A)
Input Power: 106.9 (W)
Power Factor: 0.995

Photometric measurements:

Absolute Luminous Flux: 11391 (lumens)
Luminous Efficacy: 106.6 (lumens/W)

Intensity Summary:

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	23	45	68	ACROSS	OUTPUT LUMENS
0	11788	11788	11788	11788	11788	
5	11440	11440	11440	11440	11440	430
15	7802	7802	7802	7802	7802	1969
25	4977	4977	4977	4977	4977	2248
35	3647	3647	3647	3647	3647	2392
45	2495	2495	2495	2495	2495	2012
55	1745	1745	1745	1745	1745	1775
65	90	90	90	90	90	531
75	15	15	15	15	15	29
85	1	1	1	1	1	5
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

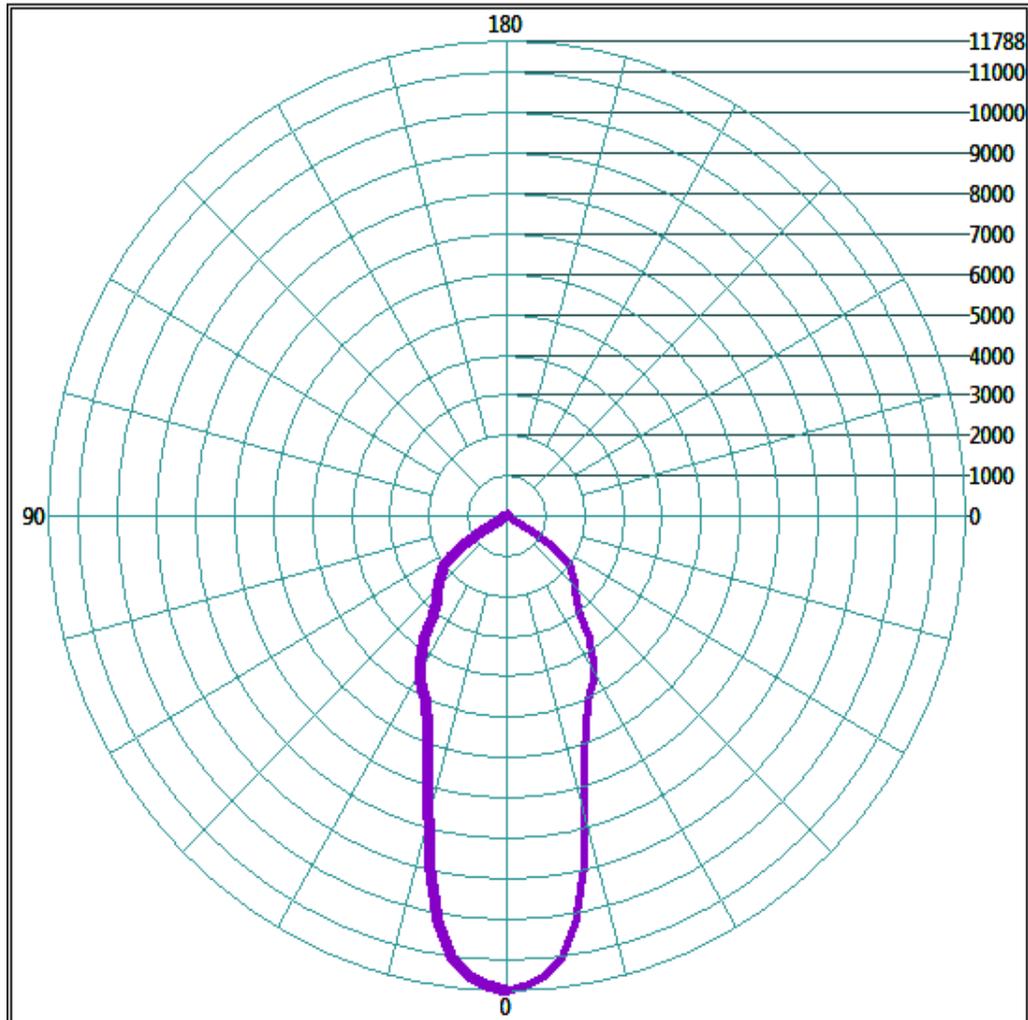
ZONE	LUMENS	% LUMINAIRE
0-30	5858.88	51.4%
0-40	8076.16	70.9%
0-60	11272.32	99.0%
60-90	280.48	2.5%
0-90	11391.52	100.0%
90-180	0	0.0%
0-180	11391.52	100.0%

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	40.21	40.21

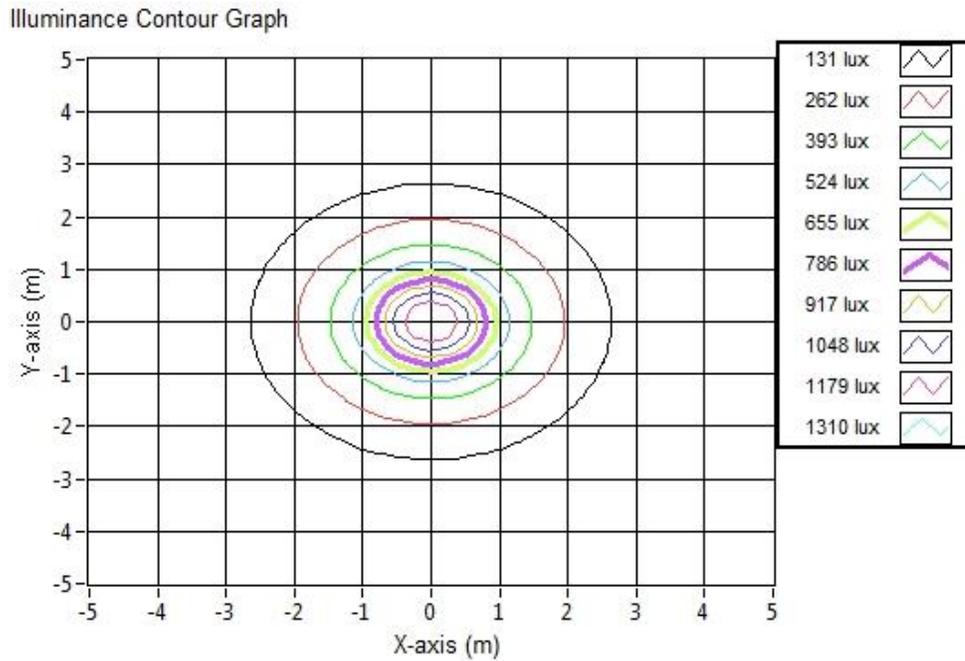
Beam Spread (at 50% Max CD)		Field Spread (at 10% Max CD)		IESNA LM-35-02 Floodlight Designation	
(deg) Horiz	(deg) Vert	(deg) Horiz	(deg) Vert	IESNA LM-35-02 Floodlight H Designation	IESNA LM-35-02 Floodlight V Designation
40.53	40.53	116.84	116.84	6	6

Total Luminous Flux	Field (%)	Field Flux (lm)	Beam Flux (%)	Beam Flux (lm)	Beam Spill (%)	Spill Flux (lm)
11363.83	97.24	11050.36	28.38	3225.62	2.76	313.47

Test Results: Goniometer

Results continued from previous page.

Illuminance Plot:



Illuminance-Cone of Light:

Mounting Height (m)	Beam Cone Width (m)	Orthogonal Beam Cone Width (m)	Projected Illuminance (lux)
3.048	2.23	2.23	1268.8
6.096	4.46	4.46	317.2
9.144	6.69	6.69	141.0
12.192	8.93	8.93	79.3
15.24	11.16	11.16	50.8
18.288	13.39	13.39	35.2
21.336	15.62	15.62	25.9
24.384	17.85	17.85	19.8
27.432	20.08	20.08	15.7
30.48	22.32	22.32	12.7

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L15161.
Dialight unit model number FLx266xC2NG

LED identified as Cree part number XTEAWT.

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:

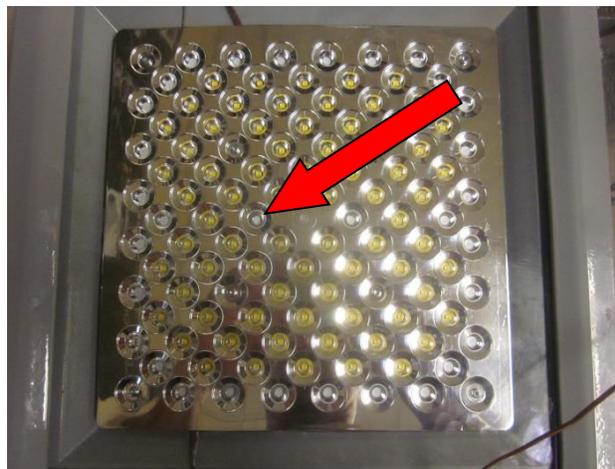
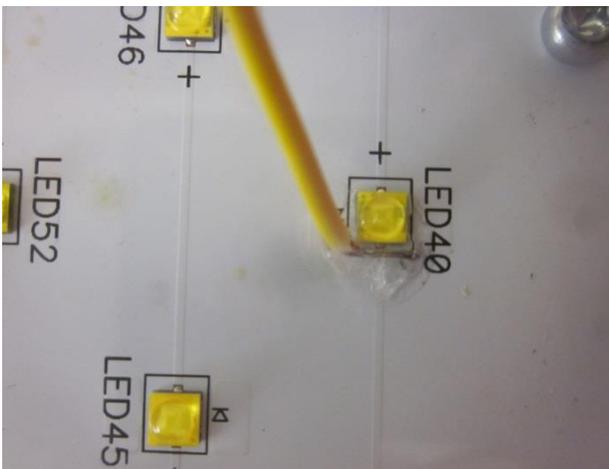
Maximum Power at Indicated Current: 1.488 (W)
Maximum Source Temperature: 142.6 (°C)

Test Conditions:

Temperature Measurement Location: See Photographs Below
Ambient Temperature: 25 ± 1 (°C)
Ambient temperature at time of measurement: 25.1 (°C)
Relative humidity at time of measurement: 15%

Results:

Measured LED source temperature: 66.5 (°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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Optical Engineer
Approved Signatory