

Test Report

Report Number: L16017

Date: Feb 25, 2016

Issued by:

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

Test of one Floodlight
Unit manufacturer: Dialight Corporation
Unit model number: FLx666xC2NG

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: February 24, 2016 through February 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

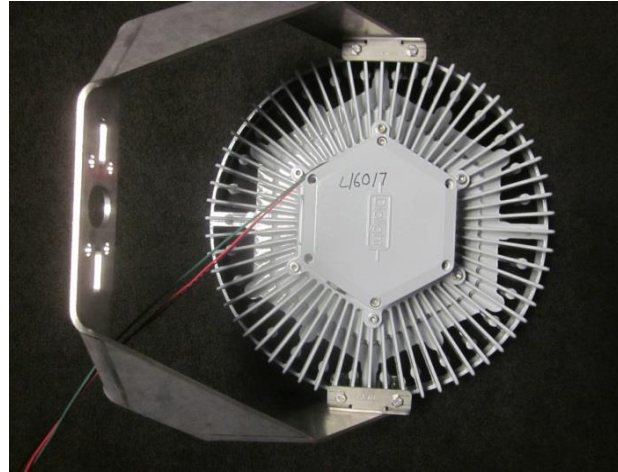
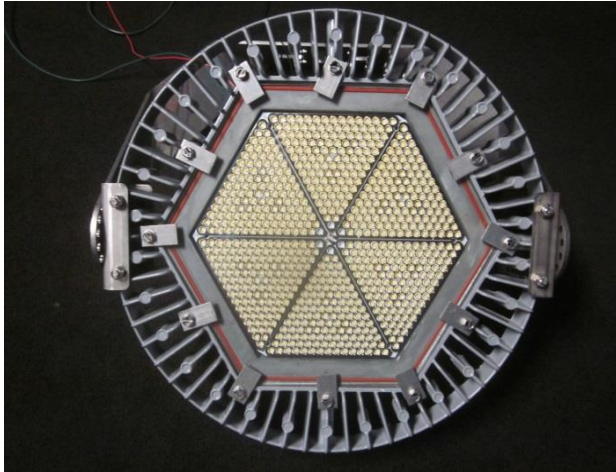
Description of sample:

Sample Number: L16017
Manufacturer: Dialight Corporation
Product Name: Vigilant Floodlight
Description: Floodlight
Model Number: FLx666xC2NG

Report Summary

Sample number L16017
Dialight unit model number FLx666xC2NG

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	28110 (lumens)	28012 (lumens)
Electrical Power:	211.9 (W)	212.0 (W)
Luminous Efficacy:	132.7 (lumens/W)	132.1 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 211.9 (W)
 Power Factor (120VAC): 0.997
 Current ATHD % (120VAC): 6.042
 Input Power (277VAC): 205.4 (W)
 Power Factor (277VAC): 0.974
 Current ATHD % (277VAC): 12.74

Color Measurements:

Correlated Color Temperature (CCT): 5031
 Color Rendering Index (CRI): 79.1
 Chromaticity Coordinate (x): 0.345
 Chromaticity Coordinate (y): 0.354
 Chromaticity Coordinate (u'): 0.21
 Chromaticity Coordinate (v'): 0.324
 DUV: 0.0016

Temperature Measurements:

In Situ LED Source Temperature: 60.7 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L16017.

Dialight unit model number FLx666xC2NG

Test Conditions:

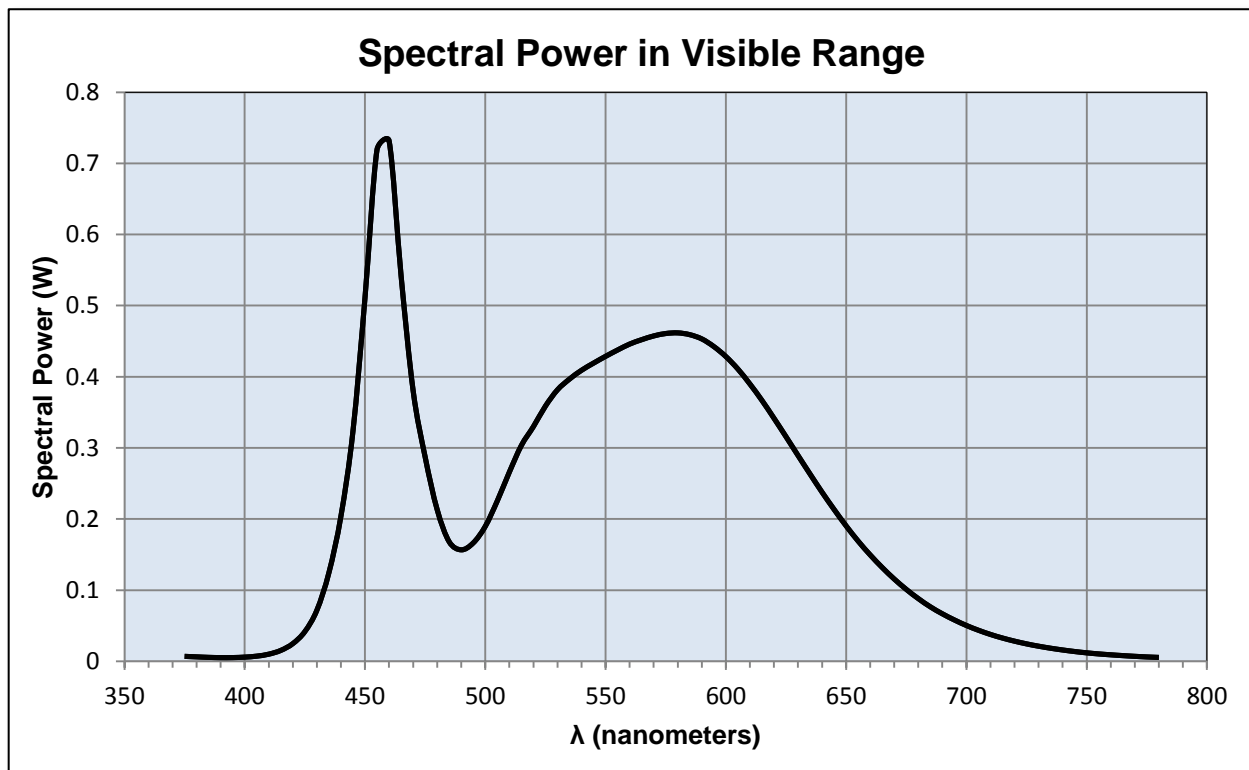
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
Input Current: 1.768 (A)
Input Power: 211.9 (W)
Input Power Factor: 0.997
Current ATHD: 6.042 (%)

Photometric measurements:

Luminous Flux: 28110 (lumens)
Luminous Efficacy: 132.7 (lumens/W)
Correlated Color Temperature (CCT): 5031 (K)
CRI -Ra: 79.1
CRI -R9: -7.9
DUV: 0.0016
CIE Coordinate (x): 0.345
CIE Coordinate (y): 0.354
CIE Coordinate (u'): 0.21
CIE Coordinate (v'): 0.324



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	0.007	515	0.303	655	0.169
380	0.006	520	0.330	660	0.150
385	0.006	525	0.359	665	0.132
390	0.005	530	0.382	670	0.116
395	0.005	535	0.397	675	0.101
400	0.006	540	0.409	680	0.088
405	0.007	545	0.419	685	0.077
410	0.010	550	0.429	690	0.067
415	0.015	555	0.438	695	0.058
420	0.025	560	0.446	700	0.050
425	0.042	565	0.452	705	0.044
430	0.072	570	0.457	710	0.038
435	0.125	575	0.461	715	0.033
440	0.204	580	0.462	720	0.028
445	0.324	585	0.459	725	0.025
450	0.511	590	0.453	730	0.021
455	0.719	595	0.442	735	0.018
460	0.732	600	0.428	740	0.016
465	0.542	605	0.411	745	0.014
470	0.381	610	0.390	750	0.012
475	0.287	615	0.367	755	0.010
480	0.213	620	0.342	760	0.009
485	0.168	625	0.316	765	0.008
490	0.157	630	0.289	770	0.007
495	0.166	635	0.263	775	0.006
500	0.190	640	0.238	780	0.006
505	0.226	645	0.214		
510	0.266	650	0.190		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L16017.
Dialight unit model number FLx666xC2NG

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 1.77 (A)
Input Power: 212.0 (W)
Power Factor: 0.997

Photometric measurements:

Absolute Luminous Flux: 28012 (lumens)
Luminous Efficacy: 132.1 (lumens/W)

Intensity Summary:

INTENSITY (CANDLEPOWER) SUMMARY						
ANGLE	ALONG	23	45	68	ACROSS	OUTPUT LUMENS
0	31371	31371	31371	31371	31371	
5	29821	29821	29821	29821	29821	1130
15	19332	19332	19332	19332	19332	4858
25	11715	11715	11715	11715	11715	5531
35	8791	8791	8791	8791	8791	5450
45	6967	6967	6967	6967	6967	5524
55	3602	3602	3602	3602	3602	4281
65	261	261	261	261	261	1148
75	46	46	46	46	46	68
85	6	6	6	6	6	20
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

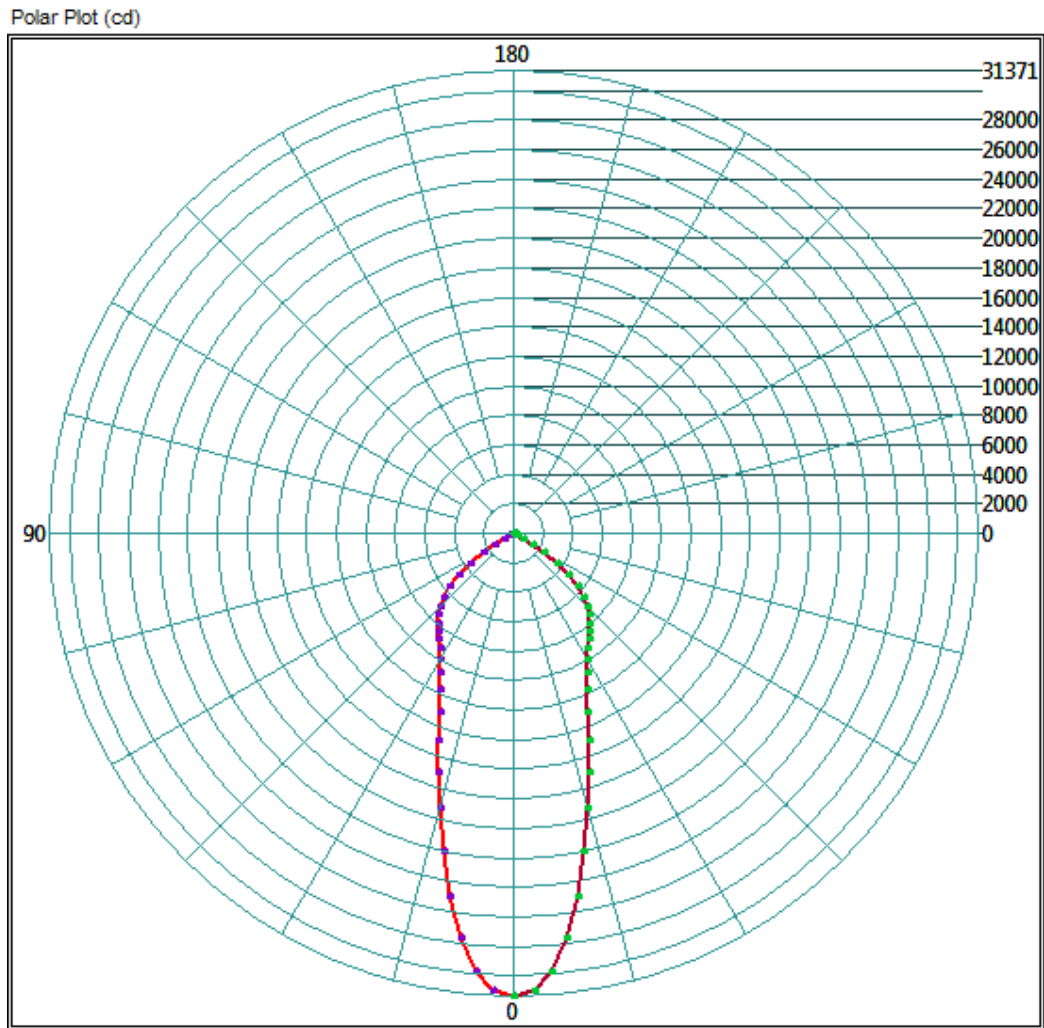
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	14220.96	50.8%
0-40	19759.2	70.5%
0-60	27687.04	98.8%
60-90	666.24	2.4%
0-90	28011.36	100.0%
90-180	0	0.0%
0-180	28011.36	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	38.12	38.12

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
38.14	38.14	112.78	112.78	6	6

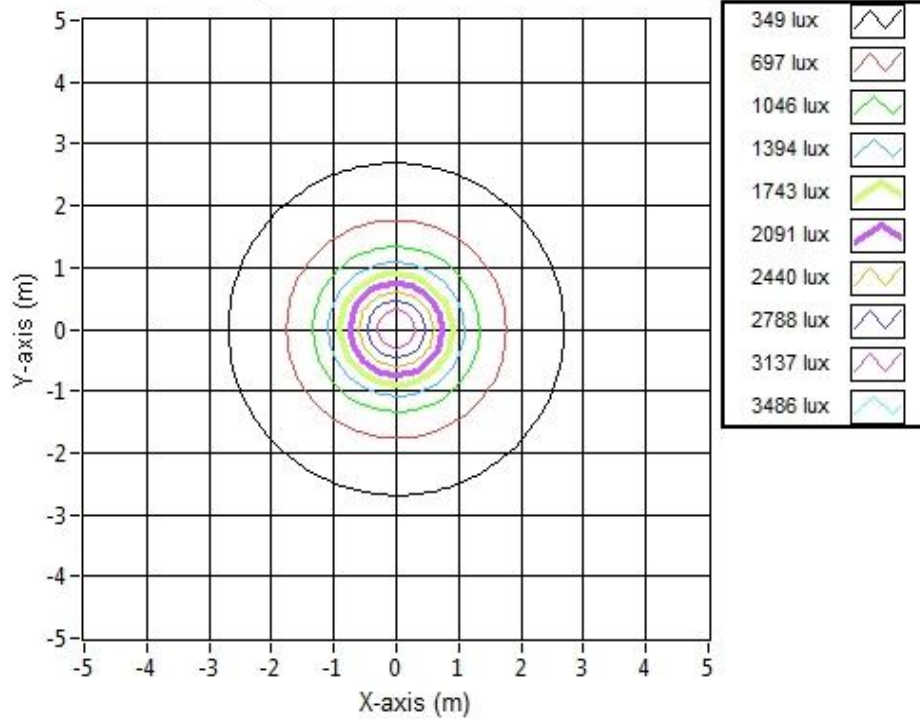
Total Luminous Flux	Field (%)	Field Flux (lm)	Beam Flux (%)	Beam Flux (lm)	Beam Spill (%)	Spill Flux (lm)
27889.26	95.54	26645.07	26.34	7346.44	4.46	1244.19

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	2.11	2.11	3376.7
6.096	4.21	4.21	844.2
9.144	6.32	6.32	375.2
12.192	8.42	8.42	211.0
15.24	10.53	10.53	135.1
18.288	12.64	12.64	93.8
21.336	14.74	14.74	68.9
24.384	16.85	16.85	52.8
27.432	18.95	18.95	41.7
30.48	21.06	21.06	33.8

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L16017.
Dialight unit model number FLx666xC2NG

LED identified as Nichia part number NT2W757DT.

LED drive current (as indicated by customer): 100 (mA)

LED Specifications:

LED specifications are taken from LED manufacturer datasheet:

Maximum Forward Current (If): 300 (mA)
Maximum Rated Power Dissipation: 1.05 (W)
Maximum Junction Temp. (Tj): 120 (°C)
Thermal Resistance (Rth): 18 (°C/W)

Derived Specifications:

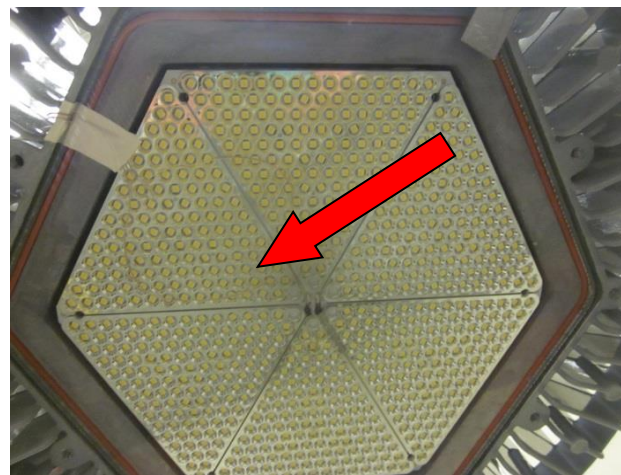
Maximum Power at Indicated Current: 0.35 (W)
Maximum Source Temperature: 113.7 (°C)

Test Conditions:

Temperature Measurement Location: See Photographs Below
Ambient Temperature: $25^{\circ} \pm 5^{\circ}$ (°C)
Ambient temperature at time of measurement: 24 (°C)
Relative humidity at time of measurement: 19%

Results:

Measured LED source temperature: 60.7 (°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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