

# Test Report

Report Number: L15156

Date: Dec 7, 2015

Issued by:

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

Test of one LED Dual Vigilant Floodlight  
Unit manufacturer: Dialight Corporation  
Unit model number: FLxB66xC5NG

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 4, 2015 through December 7, 2015

**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

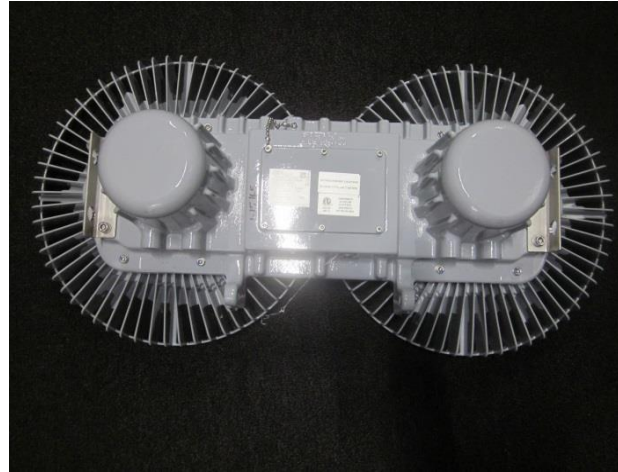
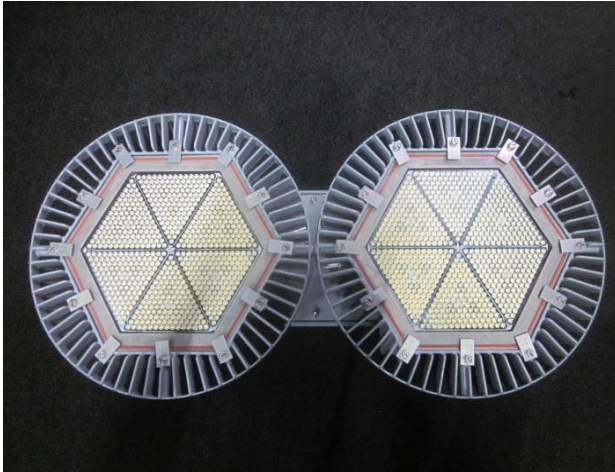
**Description of sample:**

Sample Number: L15156  
Manufacturer: Dialight Corporation  
Product Name: LED Dual Vigilant Floodlight  
Description: LED Dual Vigilant Floodlight  
Model Number: FLxB66xC5NG

## Report Summary

Sample number L15156  
Dialight unit model number FLxB66xC5NG

### Photograph(s) of sample:



\*Photographs not to scale. For reference only.

### Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	53920 (lumens)	54426 (lumens)
Electrical Power:	444.6 (W)	447.0 (W)
Luminous Efficacy:	121.2 (lumens/W)	121.8 (lumens/W)

### Electrical Measurements:

Input Power (480VAC): 444.6 (W)  
Power Factor (480VAC): 0.984  
Current ATHD % (480VAC): 10.2

### Color Measurements:

Correlated Color Temperature (CCT): 4948  
Color Rendering Index (CRI): 78.3  
Chromaticity Coordinate (x): 0.347  
Chromaticity Coordinate (y): 0.356  
Chromaticity Coordinate (u'): 0.211  
Chromaticity Coordinate (v'): 0.325  
DUV: 0.0016

### Temperature Measurements:

In Situ LED Source Temperature: 58.9 (°C)

## Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L15156.

Dialight unit model number FLxB66xC5NG

### Test Conditions:

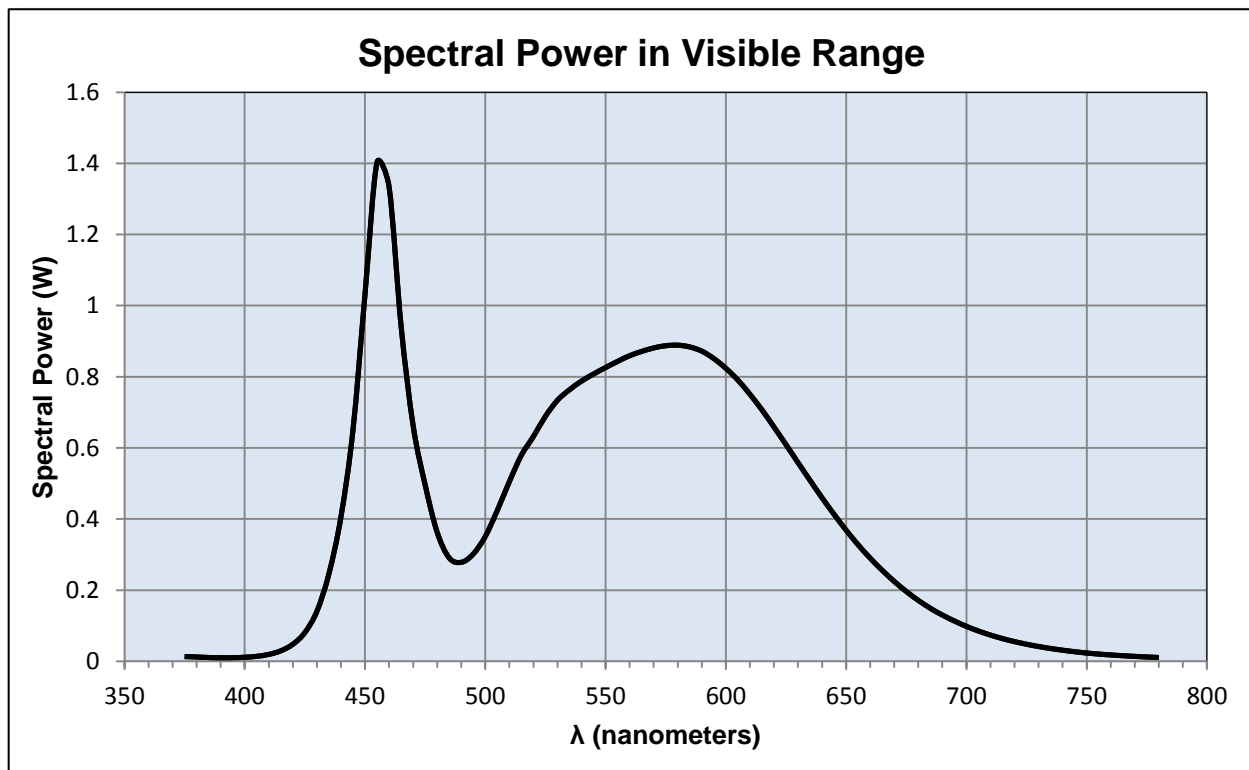
Ambient Temperature:  $25 \pm 1$  (°C)

### Electrical Measurements:

Input Voltage: 480 (VAC)  
Input Current: 0.941 (A)  
Input Power: 444.6 (W)  
Input Power Factor: 0.984  
Current ATHD: 10.2 (%)

### Photometric measurements:

Luminous Flux: 53920 (lumens)  
Luminous Efficacy: 121.2 (lumens/W)  
Correlated Color Temperature (CCT): 4948 (K)  
CRI -Ra: 78.3  
CRI -R9: -8.5  
DUV: 0.0016  
CIE Coordinate (x): 0.347  
CIE Coordinate (y): 0.356  
CIE Coordinate (u'): 0.211  
CIE Coordinate (v'): 0.325



## 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	0.013	515	0.579	655	0.328
380	0.012	520	0.632	660	0.29
385	0.011	525	0.689	665	0.256
390	0.01	530	0.734	670	0.225
395	0.01	535	0.763	675	0.197
400	0.011	540	0.788	680	0.171
405	0.014	545	0.808	685	0.149
410	0.019	550	0.826	690	0.13
415	0.03	555	0.843	695	0.114
420	0.048	560	0.859	700	0.098
425	0.081	565	0.871	705	0.085
430	0.141	570	0.881	710	0.074
435	0.246	575	0.887	715	0.064
440	0.406	580	0.889	720	0.056
445	0.65	585	0.884	725	0.048
450	1.032	590	0.872	730	0.042
455	1.403	595	0.851	735	0.036
460	1.335	600	0.824	740	0.031
465	0.943	605	0.791	745	0.027
470	0.663	610	0.751	750	0.023
475	0.496	615	0.707	755	0.02
480	0.363	620	0.659	760	0.018
485	0.291	625	0.609	765	0.016
490	0.278	630	0.559	770	0.014
495	0.302	635	0.509	775	0.012
500	0.351	640	0.46	780	0.011
505	0.424	645	0.413		
510	0.505	650	0.369		

## Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L15156.  
Dialight unit model number FLxB66xC5NG

### Electrical Measurements:

Input Voltage: 480 (VAC)  
Input current: 0.946 (A)  
Input Power: 447.0 (W)  
Power Factor: 0.984

### Photometric measurements:

Absolute Luminous Flux: 54426 (lumens)  
Luminous Efficacy: 121.8 (lumens/W)

### Intensity Summary:

<b>INTENSITY (CANDLEPOWER) SUMMARY</b>						
ANGLE	ALONG	23	45	68	ACROSS	OUTPUT LUMENS
0	68767	68767	68767	68767	68767	
5	63993	63993	63993	63993	63993	2440
15	38419	38419	38419	38419	38419	9905
25	22782	22782	22782	22782	22782	10775
35	17342	17342	17342	17342	17342	10711
45	13567	13567	13567	13567	13567	10844
55	6218	6218	6218	6218	6218	7936
65	270	270	270	270	270	1693
75	61	61	61	61	61	96
85	7	7	7	7	7	27
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

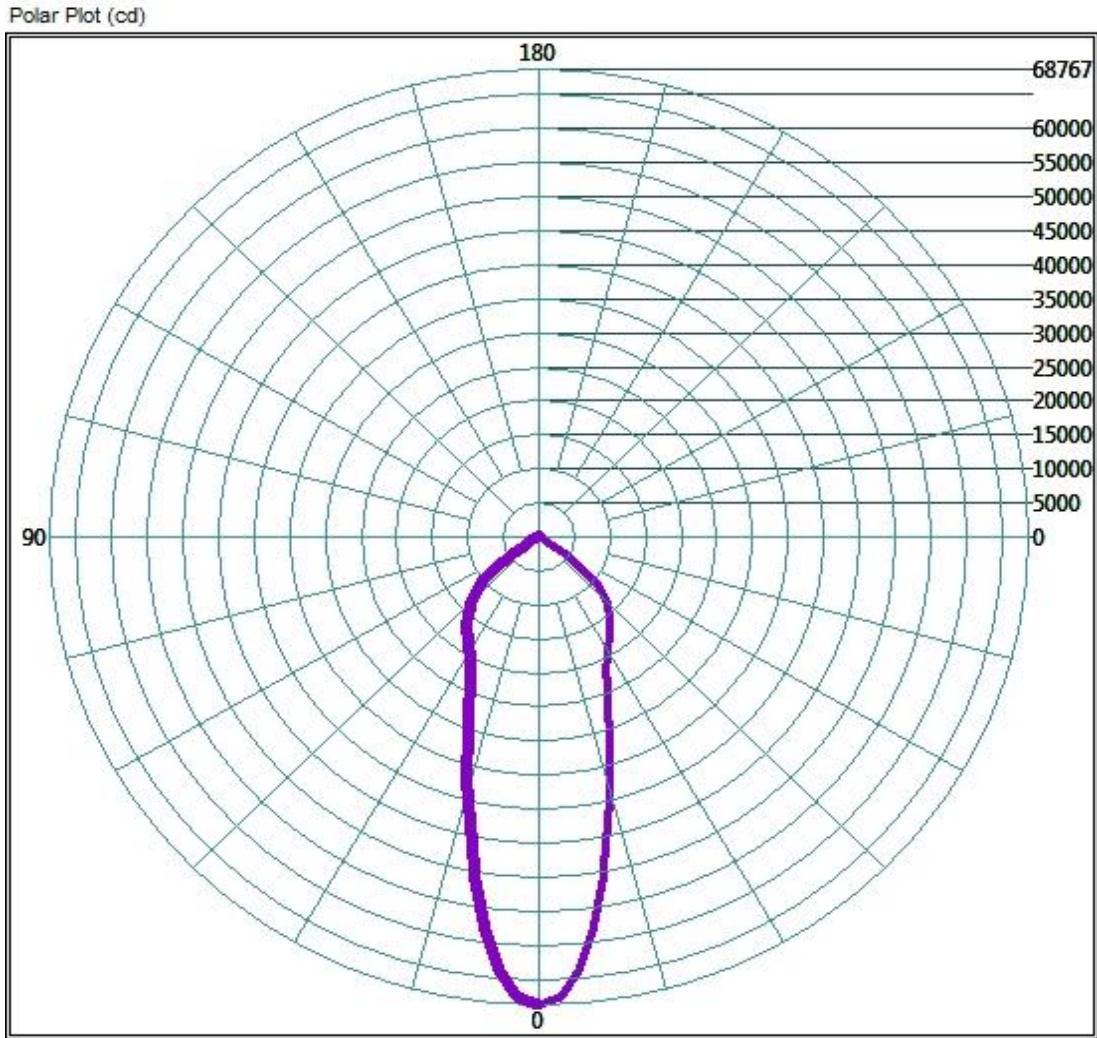
### ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	28412.48	52.2%
0-40	39329.92	72.3%
0-60	54015.2	99.2%
60-90	905.92	1.7%
0-90	54425.76	100.0%
90-180	0	0.0%
0-180	54425.76	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	33.96	33.96

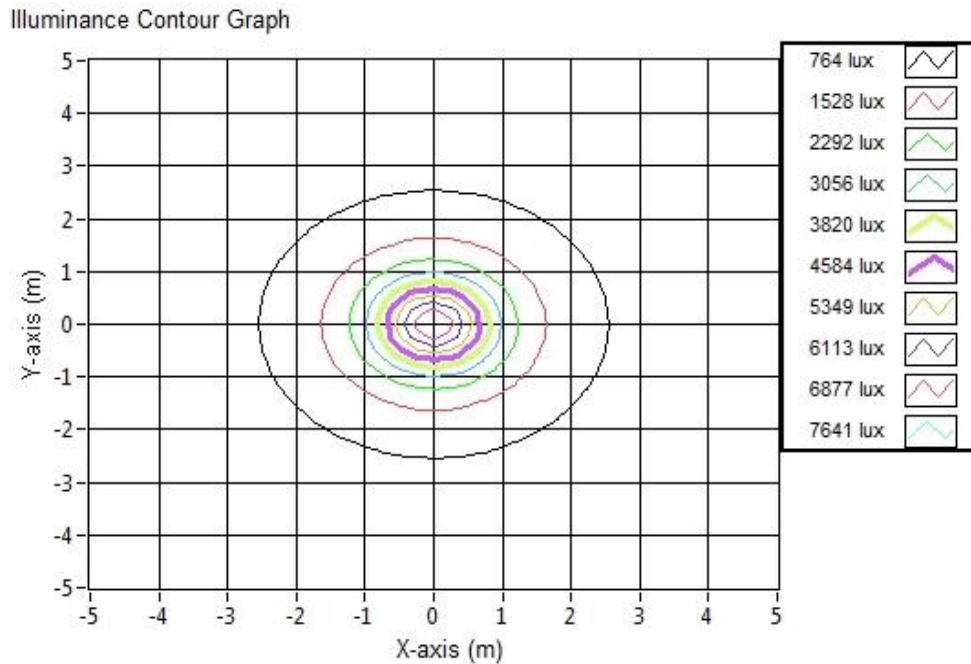
Beam Spread (at 50% Max CD)		Field Spread (at 10% Max CD)		IESNA LM-35-02 Floodlight Designation	
(deg) Horiz	(deg) Vert	(deg) Horiz	(deg) Vert	IESNA LM-35-02 Floodlight H Designation	IESNA LM-35-02 Floodlight V Designation
33.96	33.96	108.35	108.35	6	6

Total Luminous Flux	Field (%)	Field Flux (lm)	Beam Flux (%)	Beam Flux (lm)	Beam Spill (%)	Spill Flux (lm)
54173.79	93.29	50538.04	23.95	12977.08	6.71	3635.74

## 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	1.86	1.86	7402.0
6.096	3.72	3.72	1850.5
9.144	5.58	5.58	822.4
12.192	7.44	7.44	462.6
15.24	9.31	9.31	296.1
18.288	11.17	11.17	205.6
21.336	13.03	13.03	151.1
24.384	14.89	14.89	115.7
27.432	16.75	16.75	91.4
30.48	18.61	18.61	74.0

## Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L15156.  
Dialight unit model number FLxB66xC5NG

LED identified as Nichia part number NT2W757.

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:

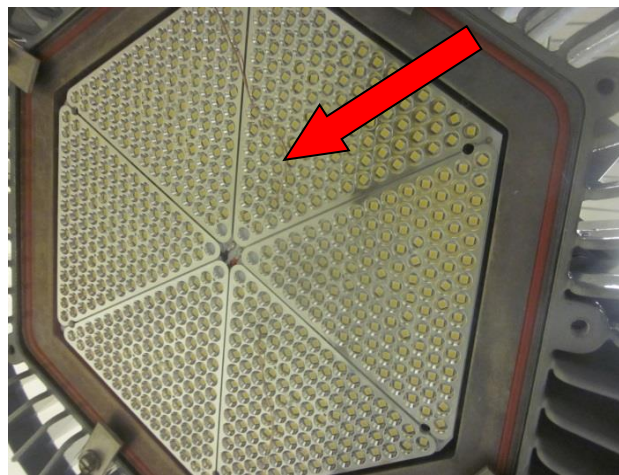
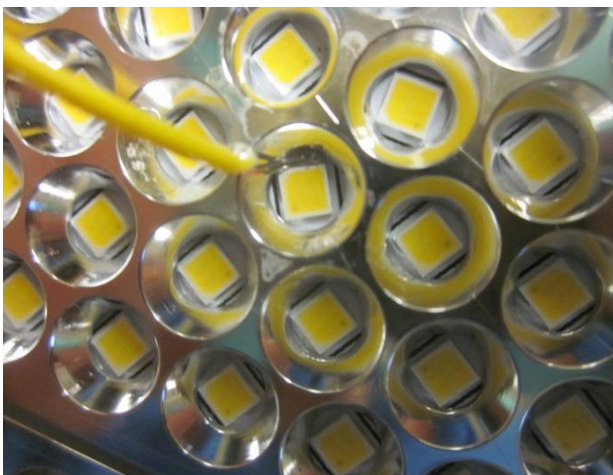
Maximum Power at Indicated Current: 0.35 (W)  
Maximum Source Temperature: 113.7 (°C)

### Test Conditions:

Temperature Measurement Location: See Photographs Below  
Ambient Temperature:  $25^{\circ} \pm 1^{\circ}$  (°C)  
Ambient temperature at time of measurement: 24.1 (°C)  
Relative humidity at time of measurement: 19%

### Results:

**Measured LED source temperature: 58.9 (°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 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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