

# Test Report

Report Number: L15101

Date: Aug 7, 2015

Issued by:

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

Test of one 26k C1D2 Vigilant High Bay  
Unit manufacturer: Dialight Corporation  
Unit model number: HEDGMC4PN-xxx

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 5, 2015 through August 6, 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

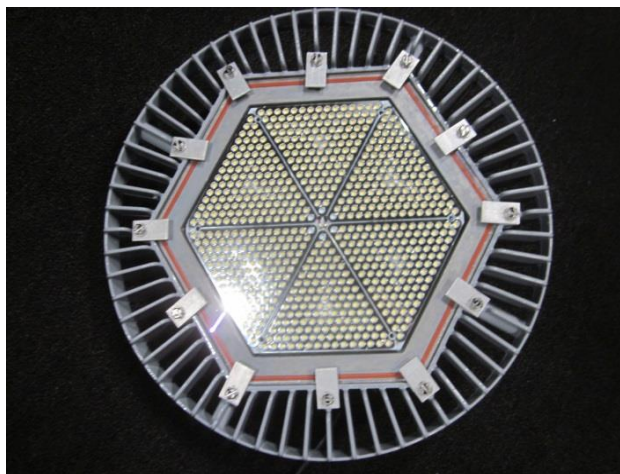
**Description of sample:**

Sample Number: L15101  
Manufacturer: Dialight Corporation  
Product Name: 26k C1D2 Vigilant High Bay  
Description: 26k C1D2 Vigilant High Bay  
Model Number: HEDGMC4PN-xxx

## Report Summary

Sample number L15101  
Dialight unit model number HEDGMC4PN-xxx

### Photograph(s) of sample:



\*Photographs not to scale. For reference only.

### Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	26910 (lumens)	26792 (lumens)
Electrical Power:	212.1 (W)	211.9 (W)
Luminous Efficacy:	126.9 (lumens/W)	126.4 (lumens/W)

### Electrical Measurements:

Input Power (120VAC): 212.1 (W)  
 Power Factor (120VAC): 0.996  
 Current ATHD % (120VAC): 5.422  
 Input Power (277VAC): 206.1 (W)  
 Power Factor (277VAC): 0.961  
 Current ATHD % (277VAC): 13.23

### Color Measurements:

Correlated Color Temperature (CCT): 5001  
 Color Rendering Index (CRI): 78.6  
 Chromaticity Coordinate (x): 0.345  
 Chromaticity Coordinate (y): 0.354  
 Chromaticity Coordinate (u'): 0.211  
 Chromaticity Coordinate (v'): 0.324  
 DUV: 0.001

### Temperature Measurements:

In Situ LED Source Temperature: 58.5 (°C)

## Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L15101.  
Dialight unit model number HEDGMC4PN-xxx

### Test Conditions:

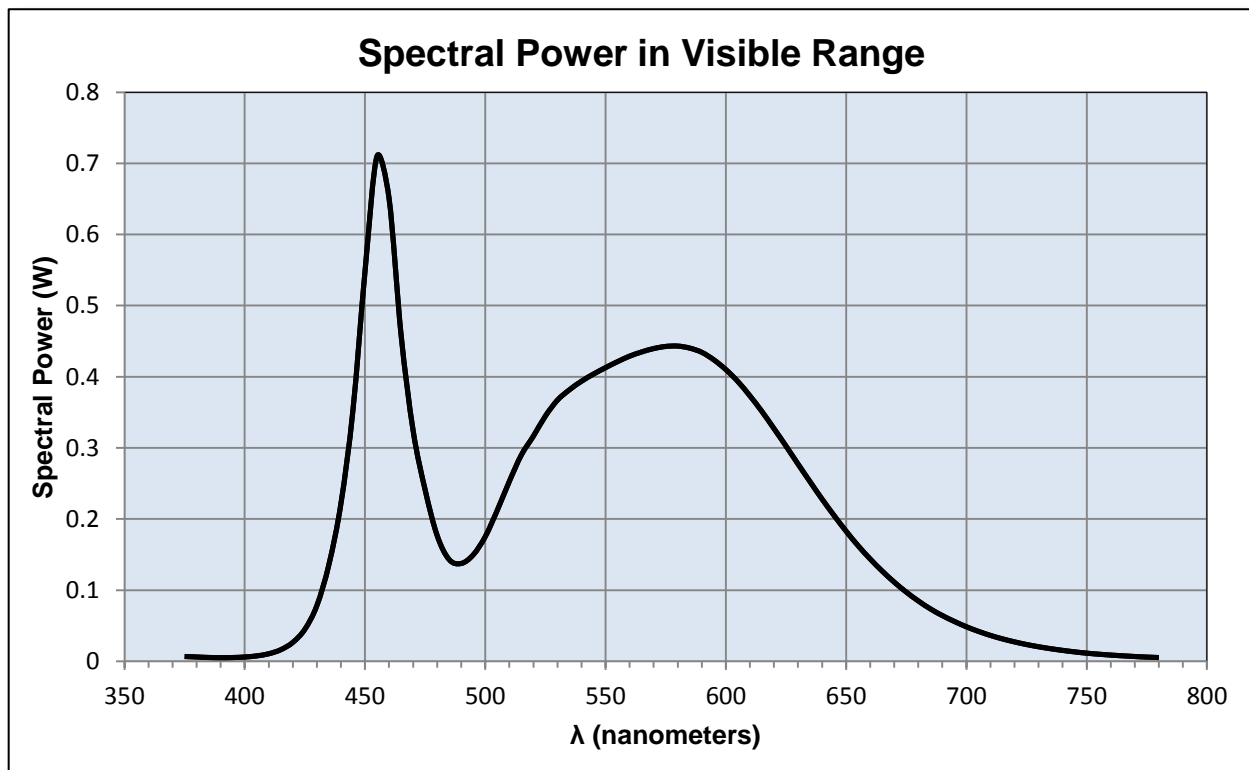
Ambient Temperature:  $25 \pm 1$  (°C)

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input Current: 1.773 (A)  
Input Power: 212.1 (W)  
Input Power Factor: 0.996  
Current ATHD: 5.422 (%)

### Photometric measurements:

Luminous Flux: 26910 (lumens)  
Luminous Efficacy: 126.9 (lumens/W)  
Correlated Color Temperature (CCT): 5001 (K)  
CRI -Ra: 78.6  
CRI -R9: -8.2  
DUV: 0.001  
CIE Coordinate (x): 0.345  
CIE Coordinate (y): 0.354  
CIE Coordinate (u'): 0.211  
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	0.29	655	0.162
380	0.006	520	0.317	660	0.144
385	0.005	525	0.345	665	0.127
390	0.005	530	0.367	670	0.111
395	0.005	535	0.382	675	0.097
400	0.006	540	0.394	680	0.085
405	0.008	545	0.404	685	0.074
410	0.011	550	0.413	690	0.064
415	0.016	555	0.421	695	0.056
420	0.027	560	0.429	700	0.049
425	0.045	565	0.435	705	0.042
430	0.078	570	0.44	710	0.036
435	0.136	575	0.443	715	0.032
440	0.222	580	0.443	720	0.027
445	0.353	585	0.44	725	0.024
450	0.548	590	0.434	730	0.021
455	0.71	595	0.424	735	0.018
460	0.651	600	0.41	740	0.015
465	0.459	605	0.393	745	0.013
470	0.324	610	0.373	750	0.012
475	0.241	615	0.351	755	0.01
480	0.177	620	0.327	760	0.009
485	0.143	625	0.303	765	0.008
490	0.138	630	0.277	770	0.007
495	0.15	635	0.253	775	0.006
500	0.175	640	0.228	780	0.005
505	0.213	645	0.205		
510	0.253	650	0.183		

## Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L15101.  
Dialight unit model number HEDGMC4PN-xxx

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input current: 1.776 (A)  
Input Power: 211.9 (W)  
Power Factor: 0.996

### Photometric measurements:

Absolute Luminous Flux: 26792 (lumens)  
Luminous Efficacy: 126.4 (lumens/W)

### Intensity Summary:

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	23	45	68	ACROSS	OUTPUT LUMENS
0	10163	10163	10163	10163	10163	
5	10192	10192	10192	10192	10192	380
15	10634	10634	10634	10634	10634	2232
25	11770	11770	11770	11770	11770	4516
35	11452	11452	11452	11452	11452	6690
45	8345	8345	8345	8345	8345	6952
55	3443	3443	3443	3443	3443	4497
65	663	663	663	663	663	1363
75	21	21	21	21	21	151
85	4	4	4	4	4	10
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

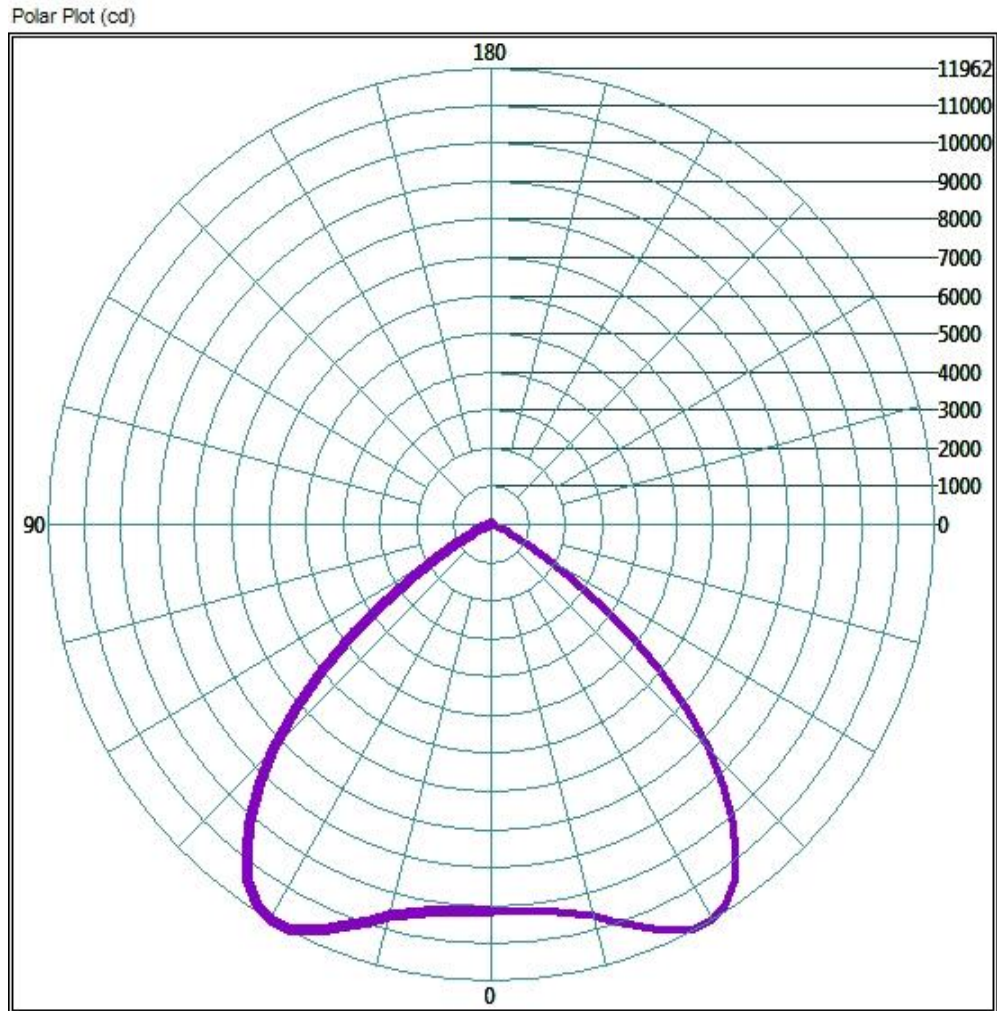
### ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	10280.16	38.4%
0-40	17427.52	65.0%
0-60	26212.32	97.8%
60-90	966.88	3.6%
0-90	26792.48	100.0%
90-180	0	0.0%
0-180	26792.48	100.0%

## Test Results: Goniometer

Results continued from previous page.

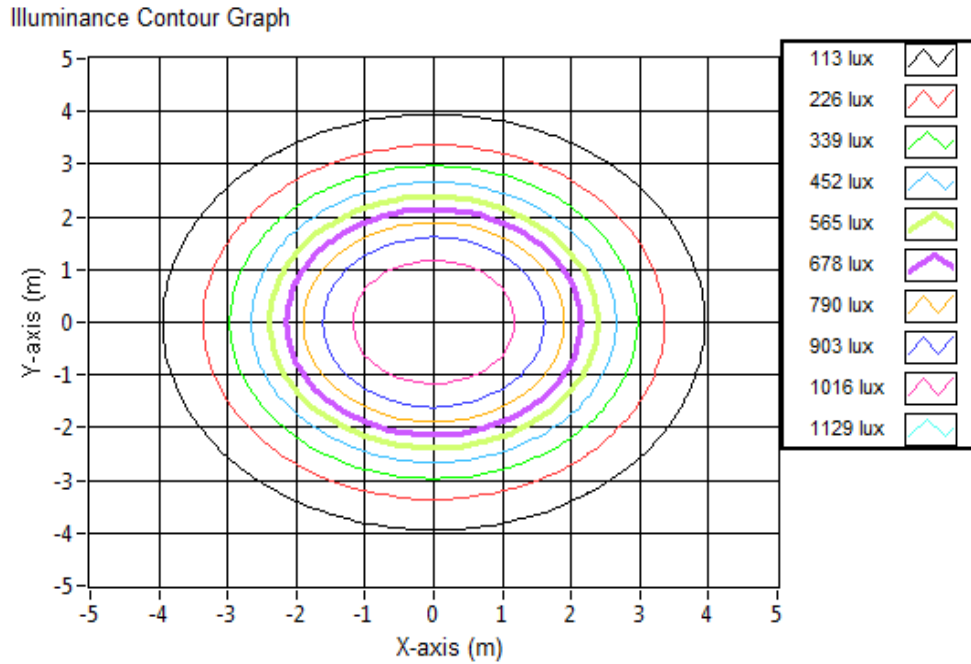
### Polar Plot:



## 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	7.72	7.72	1093.9
6.096	15.44	15.44	273.5
9.144	23.16	23.16	121.5
12.192	30.88	30.88	68.4
15.24	38.60	38.60	43.8
18.288	46.32	46.32	30.4
21.336	54.04	54.04	22.3
24.384	61.76	61.76	17.1
27.432	69.48	69.48	13.5
30.48	77.19	77.19	10.9

## Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L15101.  
Dialight unit model number HEDGMC4PN-xxx

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:

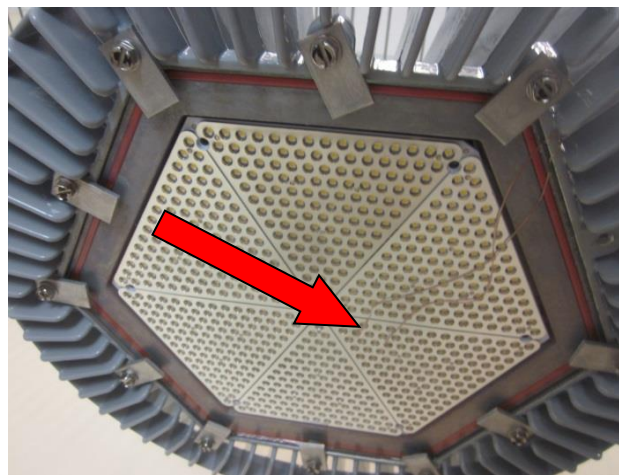
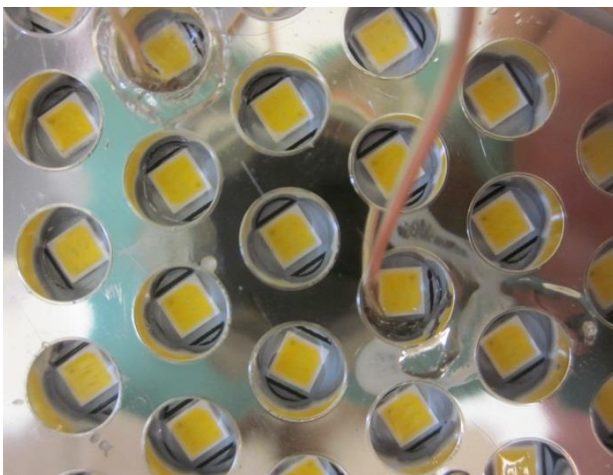
Maximum Power at Indicated Current: 0.35 (W)  
Maximum Source Temperature: 113.7 (°C)

### Test Conditions:

Temperature Measurement Location: See Photographs Below  
Ambient Temperature:  $25^{\circ} \pm 1^{\circ}$  (°C)  
Ambient temperature at time of measurement: 24.6 (°C)  
Relative humidity at time of measurement: 34%

### Results:

**Measured LED source temperature: 58.5 (°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