

# Test Report

Report Number: L15097

Date: Jul 29, 2015

Issued by:

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

Test of one 14k C1D2 Vigilant High Bay  
Unit manufacturer: Dialight Corporation  
Unit model number: HEDGMC4GN-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:** July 22, 2015 through July 28, 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

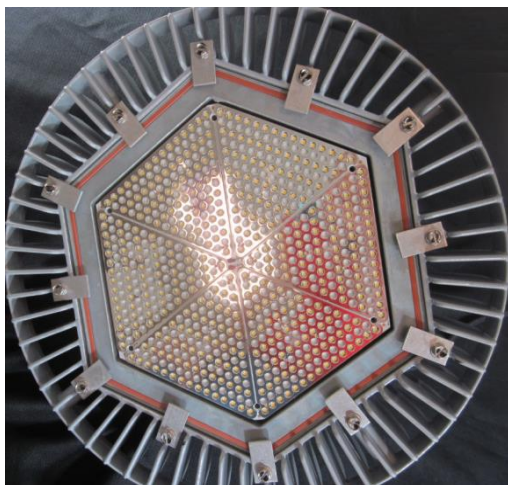
**Description of sample:**

Sample Number: L15097  
Manufacturer: Dialight Corporation  
Product Name: Vigilant High Bay  
Description: 14k C1D2 Vigilant High Bay  
Model Number: HEDGMC4GN-xxx

## Report Summary

Sample number L15097  
Dialight unit model number HEDGMC4GN-xxx

### Photograph(s) of sample:



\*Photographs not to scale. For reference only.

### Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	14040 (lumens)	13866 (lumens)
Electrical Power:	111.7 (W)	111.9 (W)
Luminous Efficacy:	125.7 (lumens/W)	123.9 (lumens/W)

### Electrical Measurements:

Input Power (120VAC): 111.7 (W)  
 Power Factor (120VAC): 0.992  
 Current ATHD % (120VAC): 9.431  
 Input Power (277VAC): 110.3 (W)  
 Power Factor (277VAC): 0.954  
 Current ATHD % (277VAC): 17.26

### Color Measurements:

Correlated Color Temperature (CCT): 4997  
 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: 0.00098

### Temperature Measurements:

In Situ LED Source Temperature: 44.1 (°C)

## Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L15097.  
Dialight unit model number HEDGMC4GN-xxx

### Test Conditions:

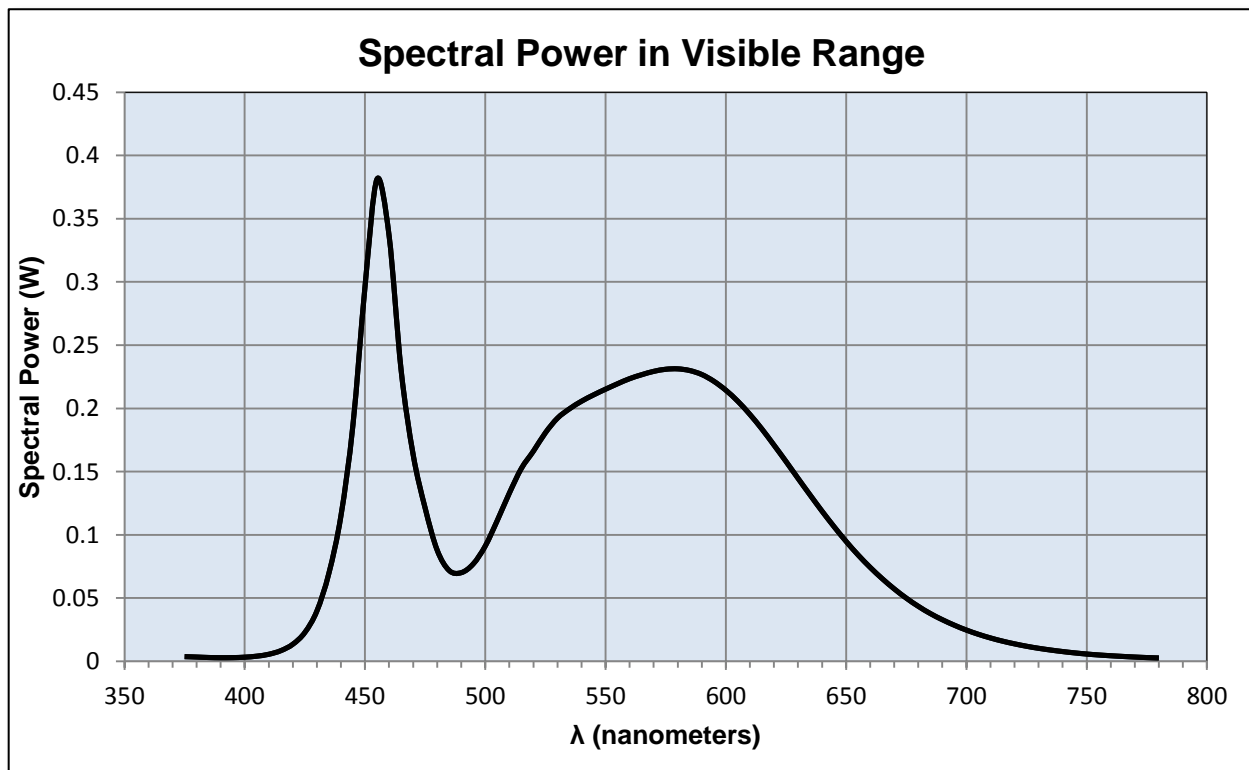
Ambient Temperature:  $25 \pm 1$  (°C)

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input Current: 0.936 (A)  
Input Power: 111.7 (W)  
Input Power Factor: 0.992  
Current ATHD: 9.431 (%)

### Photometric measurements:

Luminous Flux: 14040 (lumens)  
Luminous Efficacy: 125.7 (lumens/W)  
Correlated Color Temperature (CCT): 4997 (K)  
CRI -Ra: 78.6  
CRI -R9: -8.6  
DUV: 0.00098  
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	0.004	515	0.153	655	0.084
380	0.003	520	0.166	660	0.074
385	0.003	525	0.181	665	0.065
390	0.003	530	0.192	670	0.057
395	0.003	535	0.2	675	0.05
400	0.003	540	0.206	680	0.044
405	0.004	545	0.211	685	0.038
410	0.006	550	0.215	690	0.033
415	0.008	555	0.219	695	0.029
420	0.014	560	0.224	700	0.025
425	0.023	565	0.227	705	0.021
430	0.04	570	0.229	710	0.018
435	0.07	575	0.231	715	0.016
440	0.115	580	0.231	720	0.014
445	0.187	585	0.23	725	0.012
450	0.296	590	0.227	730	0.01
455	0.381	595	0.221	735	0.009
460	0.337	600	0.214	740	0.008
465	0.231	605	0.206	745	0.007
470	0.164	610	0.195	750	0.006
475	0.121	615	0.184	755	0.005
480	0.088	620	0.171	760	0.004
485	0.072	625	0.158	765	0.004
490	0.07	630	0.145	770	0.003
495	0.077	635	0.132	775	0.003
500	0.091	640	0.119	780	0.003
505	0.111	645	0.106		
510	0.133	650	0.095		

## Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L15097.  
Dialight unit model number HEDGMC4GN-xxx

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input current: 0.943 (A)  
Input Power: 111.9 (W)  
Power Factor: 0.992

### Photometric measurements:

Absolute Luminous Flux: 13866 (lumens)  
Luminous Efficacy: 123.9 (lumens/W)

### Intensity Summary:

<b>INTENSITY (CANDLEPOWER) SUMMARY</b>						
ANGLE	ALONG	23	45	68	ACROSS	OUTPUT LUMENS
0	5410	5410	5410	5410	5410	
5	5431	5431	5431	5431	5431	203
15	5670	5670	5670	5670	5670	1190
25	6196	6196	6196	6196	6196	2390
35	5923	5923	5923	5923	5923	3481
45	4245	4245	4245	4245	4245	3564
55	1734	1734	1734	1734	1734	2267
65	336	336	336	336	336	687
75	13	13	13	13	13	77
85	2	2	2	2	2	6
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

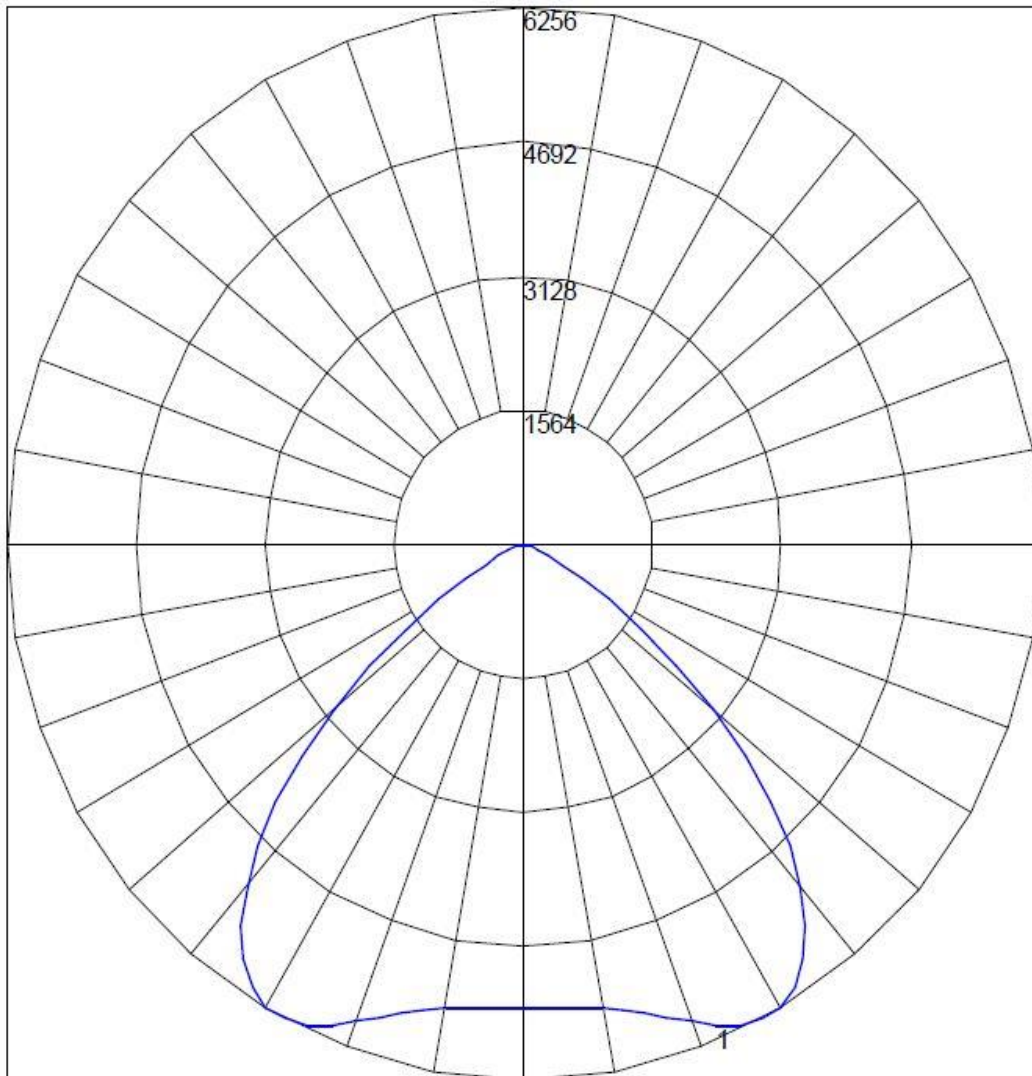
### ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	5430.72	39.2%
0-40	9122.56	65.8%
0-60	13571.84	97.9%
60-90	488.8	3.5%
0-90	13866.56	100.0%
90-180	0	0.0%
0-180	13866.56	100.0%

## Test Results: Goniometer

Results continued from previous page.

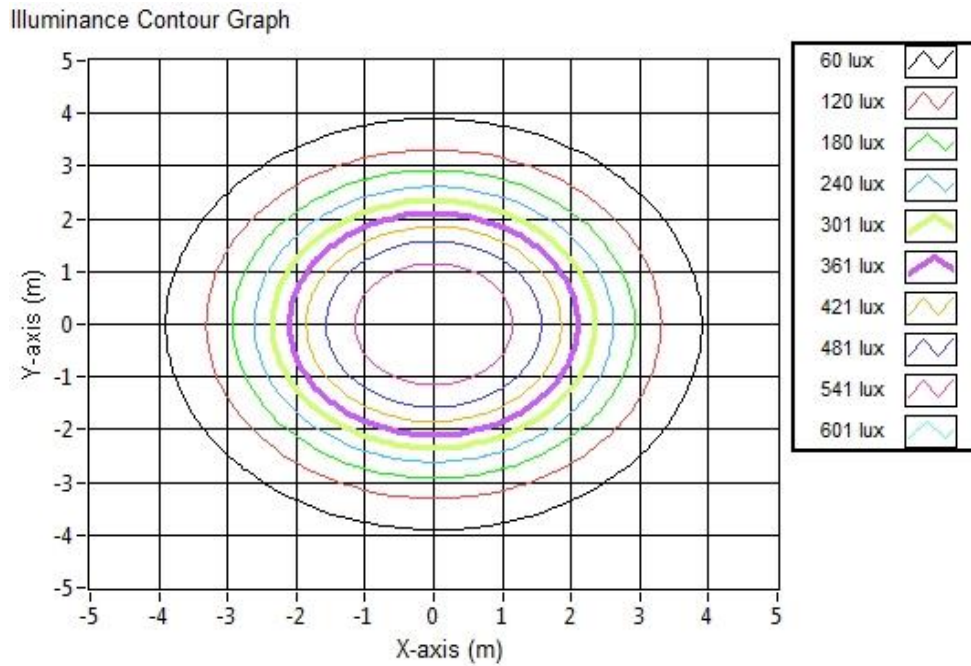
### Polar Plot:



## 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	7.56	7.56	582.4
6.096	15.13	15.13	145.6
9.144	22.69	22.69	64.7
12.192	30.25	30.25	36.4
15.24	37.82	37.82	23.3
18.288	45.38	45.38	16.2
21.336	52.94	52.94	11.9
24.384	60.51	60.51	9.1
27.432	68.07	68.07	7.2
30.48	75.63	75.63	5.8

## Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L15097.  
Dialight unit model number HEDGMC4GN-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:

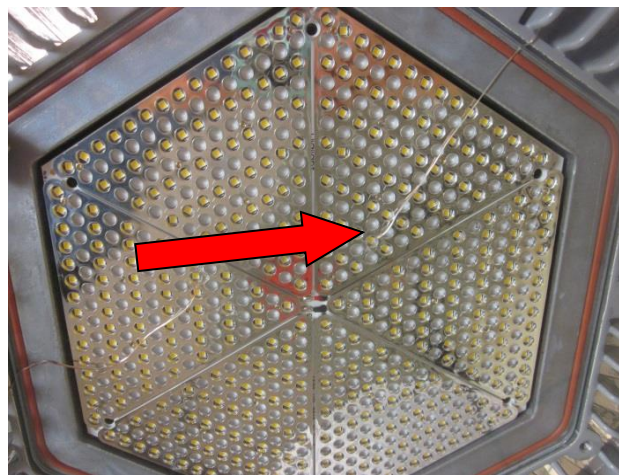
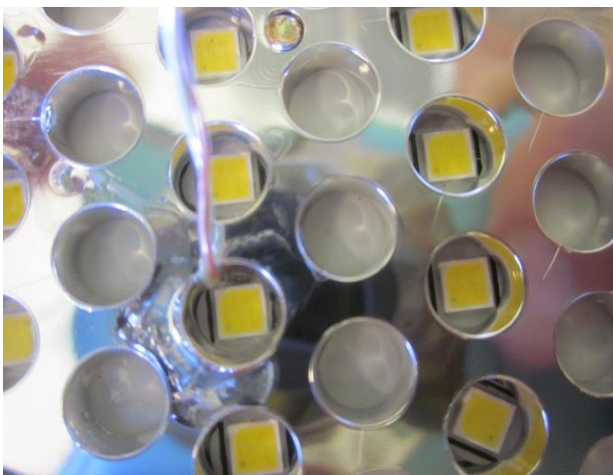
Maximum Power at Indicated Current: 0.35 (W)  
Maximum Source Temperature: 113.7 (°C)

### 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: 41%

### Results:

**Measured LED source temperature: 44.1 (°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