

# Test Report

Report Number: L15010

Date: 3/31/20015

Issued by:

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

Test of one Vigilant Highbay With Glass Lens  
Unit manufacturer: Dialight Corporation  
Unit model number: HEGRC4DN-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:** February 9, 2015 through March 23, 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

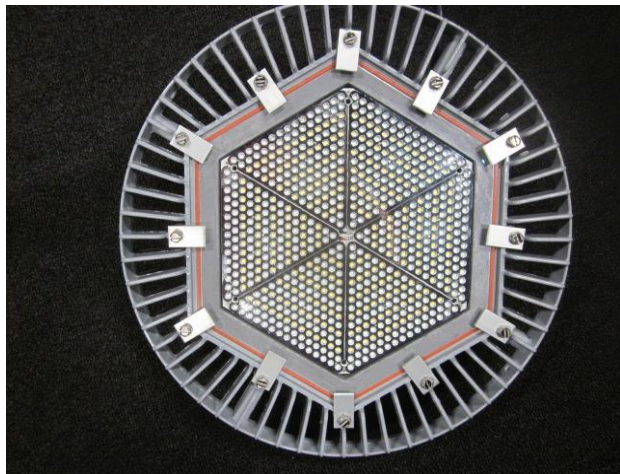
**Description of sample:**

Sample Number: L15010  
Manufacturer: Dialight Corporation  
Product Name: Vigilant Highbay  
Description: Vigilant Highbay With Glass Lens  
Model Number: HEGRC4DN-xxx

## Report Summary

Sample number L15010  
Dialight unit model number HEGRC4DN-xxx

### Photograph(s) of sample:



\*Photographs not to scale. For reference only.

### Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	10860 (lumens)	10854 (lumens)
Electrical Power:	87.9 (W)	88.4 (W)
Luminous Efficacy:	123.5 (lumens/W)	122.8 (lumens/W)

### Electrical Measurements:

Input Power (120VAC): 87.9 (W)  
 Power Factor (120VAC): 0.992  
 Current ATHD % (120VAC): 9.485  
 Input Power (277VAC): 87.2 (W)  
 Power Factor (277VAC): 0.923  
 Current ATHD % (277VAC): 16.58

### Color Measurements:

Correlated Color Temperature (CCT): 4936  
 Color Rendering Index (CRI): 77.5  
 Chromaticity Coordinate (x): 0.347  
 Chromaticity Coordinate (y): 0.356  
 Chromaticity Coordinate (u'): 0.211  
 Chromaticity Coordinate (v'): 0.325  
 DUV: 0.0014

### Temperature Measurements:

In Situ LED Source Temperature: 45.8 (°C)

## Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L15010.  
Dialight unit model number HEGRC4DN-xxx

### Test Conditions:

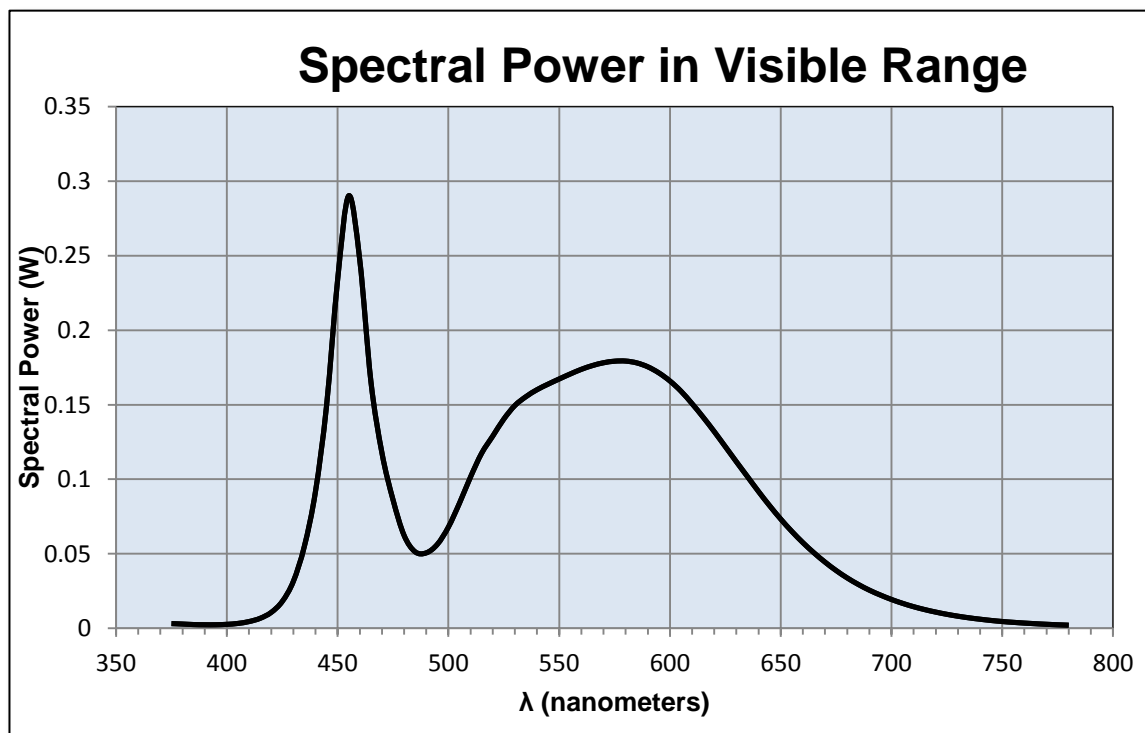
Ambient Temperature:  $25 \pm 1$  (°C)

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input Current: 0.734 (A)  
Input Power: 87.9 (W)  
Input Power Factor: 0.992  
Current ATHD: 9.485 (%)

### Photometric measurements:

Luminous Flux: 10860 (lumens)  
Luminous Efficacy: 123.5 (lumens/W)  
Correlated Color Temperature (CCT): 4936 (K)  
CRI -Ra: 77.5  
CRI -R9: -11  
DUV: 0.0014  
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	0.003	515	0.117	655	0.065
380	0.003	520	0.129	660	0.057
385	0.003	525	0.14	665	0.051
390	0.002	530	0.149	670	0.044
395	0.002	535	0.155	675	0.039
400	0.003	540	0.16	680	0.034
405	0.003	545	0.164	685	0.029
410	0.005	550	0.167	690	0.026
415	0.007	555	0.171	695	0.022
420	0.011	560	0.174	700	0.019
425	0.018	565	0.176	705	0.017
430	0.031	570	0.178	710	0.014
435	0.055	575	0.179	715	0.013
440	0.092	580	0.179	720	0.011
445	0.149	585	0.178	725	0.009
450	0.234	590	0.175	730	0.008
455	0.29	595	0.171	735	0.007
460	0.247	600	0.166	740	0.006
465	0.166	605	0.159	745	0.005
470	0.118	610	0.151	750	0.005
475	0.086	615	0.142	755	0.004
480	0.062	620	0.132	760	0.004
485	0.051	625	0.122	765	0.003
490	0.051	630	0.112	770	0.003
495	0.056	635	0.102	775	0.002
500	0.068	640	0.092	780	0.002
505	0.084	645	0.082		
510	0.102	650	0.073		

## Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L15010.  
Dialight unit model number HEGRC4DN-xxx

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input current: 0.743 (A)  
Input Power: 88.4 (W)  
Power Factor: 0.991

### Photometric measurements:

Absolute Luminous Flux: 10854 (lumens)  
Luminous Efficacy: 122.8 (lumens/W)

### Intensity Summary:

<b>INTENSITY (CANDLEPOWER) SUMMARY</b>						
ANGLE	ALONG	23	45	68	ACROSS	OUTPUT LUMENS
0	4162	4162	4162	4162	4162	
5	4141	4137	4140	4142	4144	155
15	4027	4021	4024	4028	4034	868
25	4160	4140	4153	4162	4169	1619
35	4882	4838	4832	4853	4881	2597
45	4508	4432	4418	4442	4450	3499
55	1013	979	976	988	985	1945
65	29	26	27	27	26	165
75	1	1	1	1	1	7
85	0	0	0	0	0	0
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

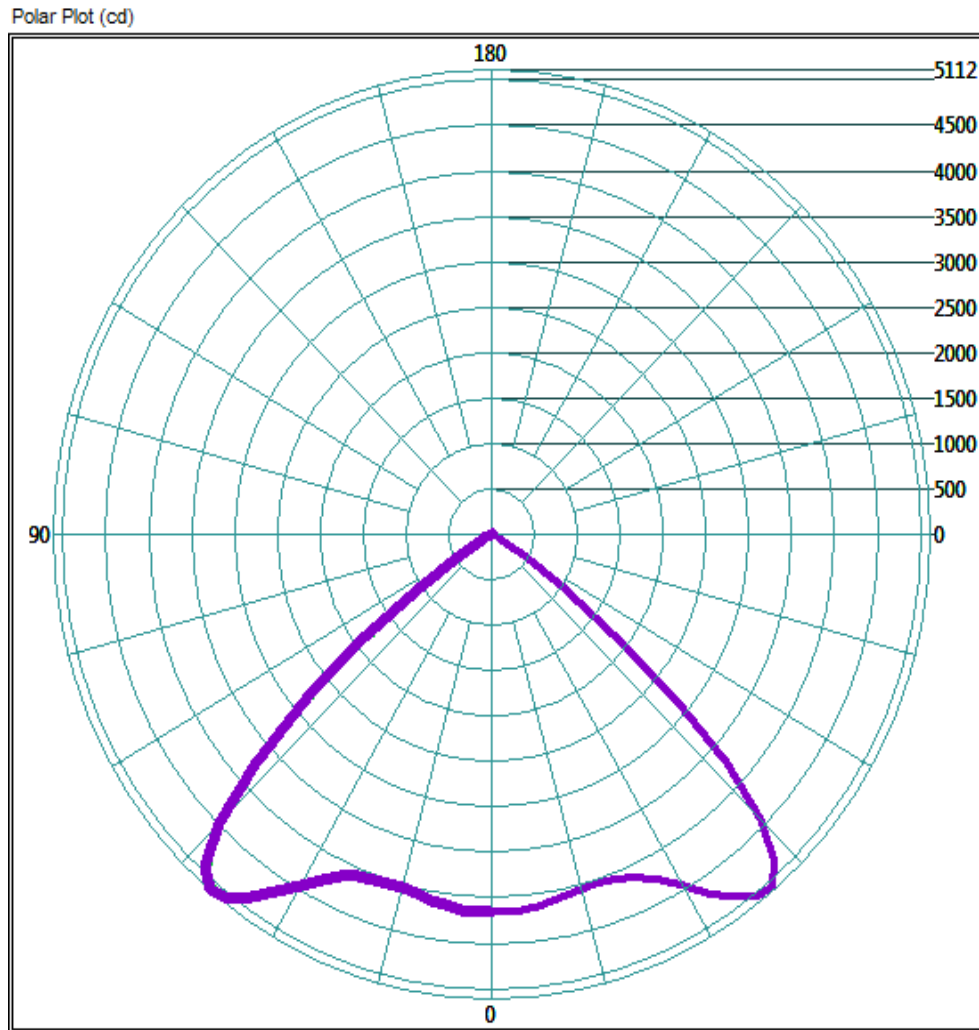
### ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	3792.4	34.9%
0-40	6969.72	64.2%
0-60	10826.3	99.7%
60-90	68.34	0.6%
0-90	10854.22	100.0%
90-180	0	0.0%
0-180	10854.22	100.0%

## Test Results: Goniometer

Results continued from previous page.

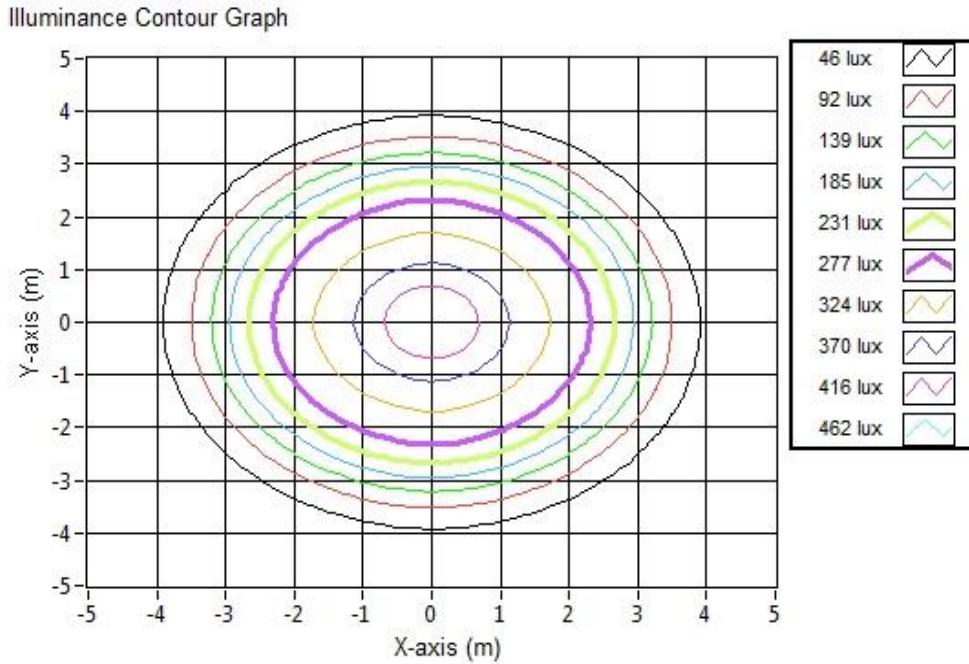
### Polar Plot:



## 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	7.78	7.74	448.0
6.096	15.56	15.47	112.0
9.144	23.34	23.21	49.8
12.192	31.11	30.94	28.0
15.24	38.89	38.68	17.9
18.288	46.67	46.42	12.4
21.336	54.45	54.15	9.1
24.384	62.23	61.89	7.0
27.432	70.01	69.62	5.5
30.48	77.79	77.36	4.5



## Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L15010.  
Dialight unit model number HEGRC4DN-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:

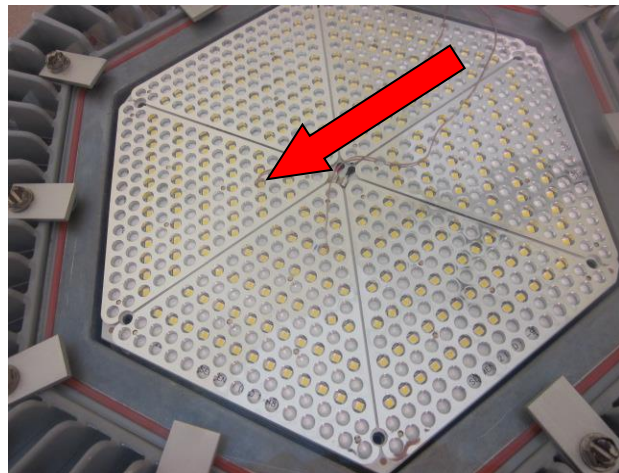
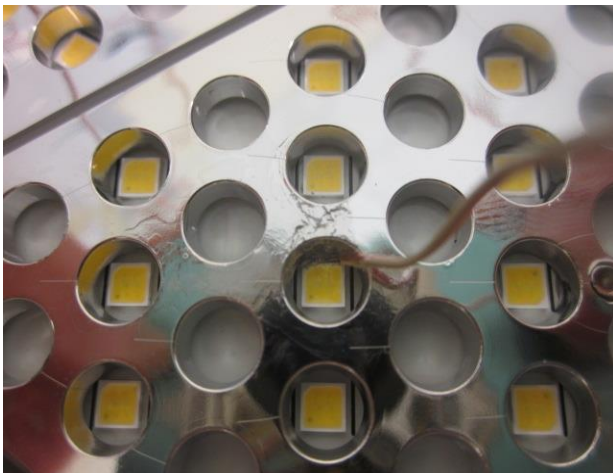
Maximum Power at Indicated Current: 0.35 (W)  
Maximum Source Temperature: 113.7 (°C)

### Test Conditions:

Temperature Measurement Location: See Photographs Below  
Ambient Temperature:  $25^{\circ} \pm 1^{\circ}$  (°C)  
Ambient temperature at time of measurement: 25.5 (°C)  
Relative humidity at time of measurement: 10%

### Results:

Measured LED source temperature: 45.8 (°C)





**Equipment Used:**

Equipment Name	Model Number
Omega TC	Dpi8
Fluke 8808A Digit Multimeter	8808A
YOKOGAWA Digital Power Meter	760401
LSI Standard Lamps	#30279
LSI High Speed Mirror Goniometer	6240T
Instrument System Spectrometer	CAS140B-151
Instrument System Sphere Lamps (Osram Sylvania)	STD-20WF-3
Instrument System Sphere Lamps (Osram Sylvania)	STD-20WF-3
Instrument System Sphere Lamps (Osram Sylvania)	STD-20WF-3
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	445703
Extech Hygro-Thermometer	445703
Fluke 52II Thermometer	52II Thermometer
Volttech Power Analyzer	PM1000+
Tenma AC Power Source	72-7675
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

**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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 Approved Signatory