

# Test Report

Report Number: L15131

Date: Oct 16, 2015

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: HEGRC4KN-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:** October 14, 2015 through October 15, 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

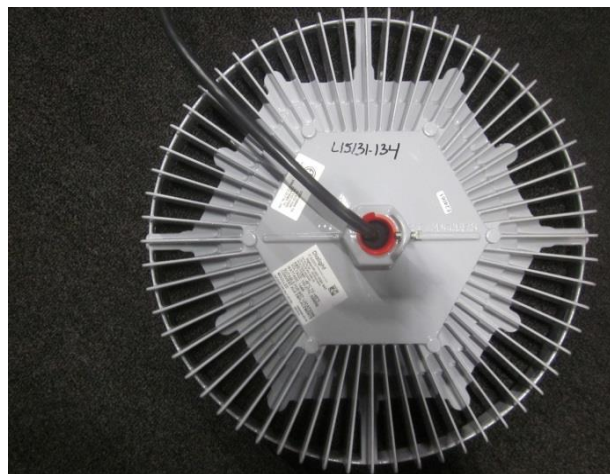
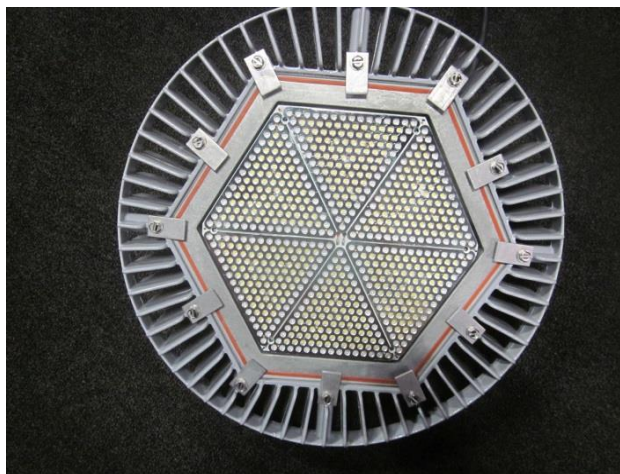
**Description of sample:**

Sample Number: L15131  
Manufacturer: Dialight Corporation  
Product Name: Vigilant  
Description: Vigilant Highbay With Glass Lens  
Model Number: HEGRC4KN-xxx

## Report Summary

Sample number L15131  
Dialight unit model number HEGRC4KN-xxx

### Photograph(s) of sample:



\*Photographs not to scale. For reference only.

### Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	17810 (lumens)	17638 (lumens)
Electrical Power:	144.3 (W)	144.4 (W)
Luminous Efficacy:	123.5 (lumens/W)	122.2 (lumens/W)

### Electrical Measurements:

Input Power (120VAC): 144.3 (W)  
 Power Factor (120VAC): 0.996  
 Current ATHD % (120VAC): 6.449  
 Input Power (277VAC): 141.7 (W)  
 Power Factor (277VAC): 0.969  
 Current ATHD % (277VAC): 13.73

### Color Measurements:

Correlated Color Temperature (CCT): 4922  
 Color Rendering Index (CRI): 78.4  
 Chromaticity Coordinate (x): 0.348  
 Chromaticity Coordinate (y): 0.357  
 Chromaticity Coordinate (u'): 0.211  
 Chromaticity Coordinate (v'): 0.325  
 DUV: 0.0015

### Temperature Measurements:

In Situ LED Source Temperature: 51.2 (°C)

## Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L15131.

Dialight unit model number HEGRC4KN-xxx

### Test Conditions:

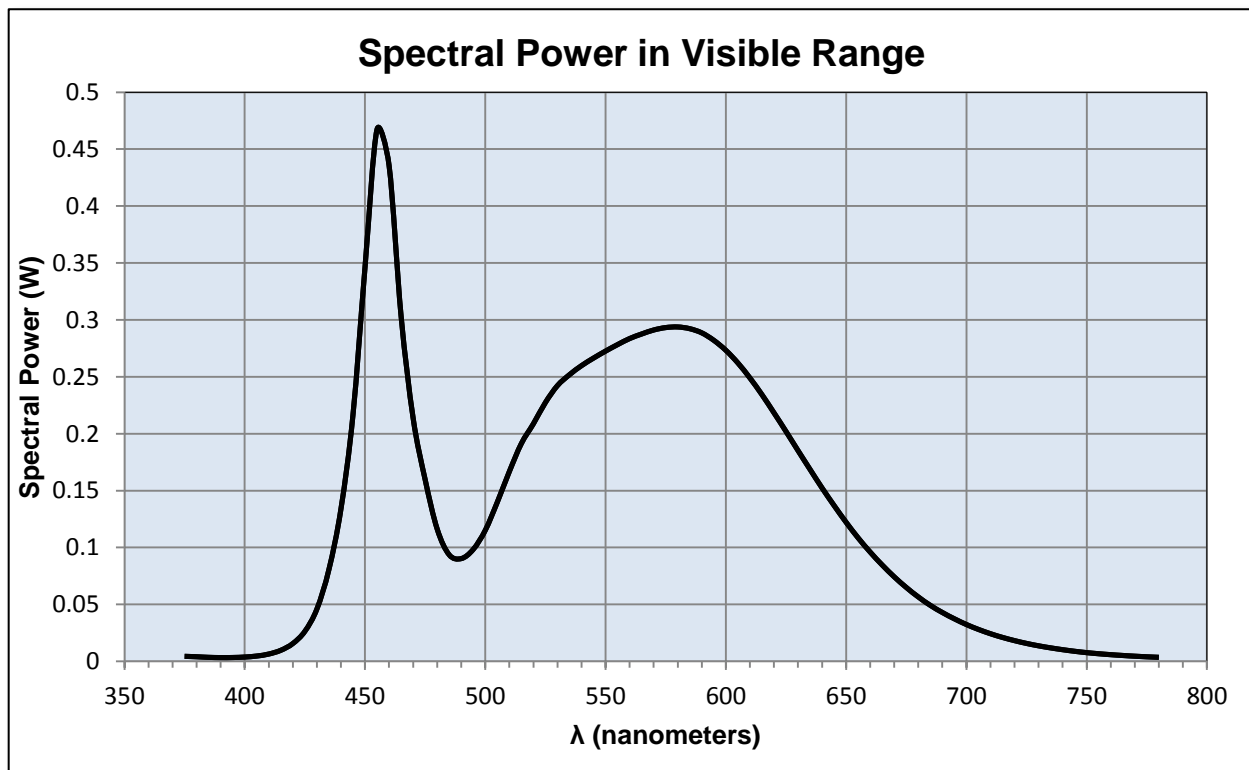
Ambient Temperature:  $25 \pm 1$  (°C)

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input Current: 1.206 (A)  
Input Power: 144.3 (W)  
Input Power Factor: 0.996  
Current ATHD: 6.449 (%)

### Photometric measurements:

Luminous Flux: 17810 (lumens)  
Luminous Efficacy: 123.5 (lumens/W)  
Correlated Color Temperature (CCT): 4922 (K)  
CRI -Ra: 78.4  
CRI -R9: -7.8  
DUV: 0.0015  
CIE Coordinate (x): 0.348  
CIE Coordinate (y): 0.357  
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:

$\lambda$ (nm)	(W/nm)	$\lambda$ (nm)	(W/nm)	$\lambda$ (nm)	(W/nm)
375	0.004	515	0.191	655	0.108
380	0.004	520	0.209	660	0.096
385	0.004	525	0.227	665	0.085
390	0.003	530	0.242	670	0.074
395	0.003	535	0.252	675	0.065
400	0.004	540	0.26	680	0.057
405	0.005	545	0.266	685	0.049
410	0.006	550	0.273	690	0.043
415	0.01	555	0.278	695	0.037
420	0.016	560	0.284	700	0.032
425	0.026	565	0.288	705	0.028
430	0.046	570	0.291	710	0.024
435	0.081	575	0.293	715	0.021
440	0.134	580	0.294	720	0.018
445	0.217	585	0.292	725	0.016
450	0.346	590	0.289	730	0.014
455	0.467	595	0.282	735	0.012
460	0.436	600	0.273	740	0.01
465	0.303	605	0.262	745	0.009
470	0.214	610	0.249	750	0.008
475	0.16	615	0.234	755	0.007
480	0.116	620	0.218	760	0.006
485	0.094	625	0.202	765	0.005
490	0.09	630	0.185	770	0.005
495	0.098	635	0.169	775	0.004
500	0.115	640	0.152	780	0.004
505	0.14	645	0.137		
510	0.167	650	0.122		

## Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L15131.  
Dialight unit model number HEGRC4KN-xxx

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input current: 1.2 (A)  
Input Power: 144.4 (W)  
Power Factor: 0.996

### Photometric measurements:

Absolute Luminous Flux: 17638 (lumens)  
Luminous Efficacy: 122.2 (lumens/W)

### Intensity Summary:

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	23	45	68	ACROSS	OUTPUT LUMENS
0	6873	6873	6873	6873	6873	
5	6836	6836	6836	6836	6836	256
15	6602	6602	6602	6602	6602	1428
25	6369	6369	6369	6369	6369	2557
35	6493	6493	6493	6493	6493	3642
45	6460	6460	6460	6460	6460	4750
55	3195	3195	3195	3195	3195	3999
65	218	218	218	218	218	951
75	22	22	22	22	22	46
85	3	3	3	3	3	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

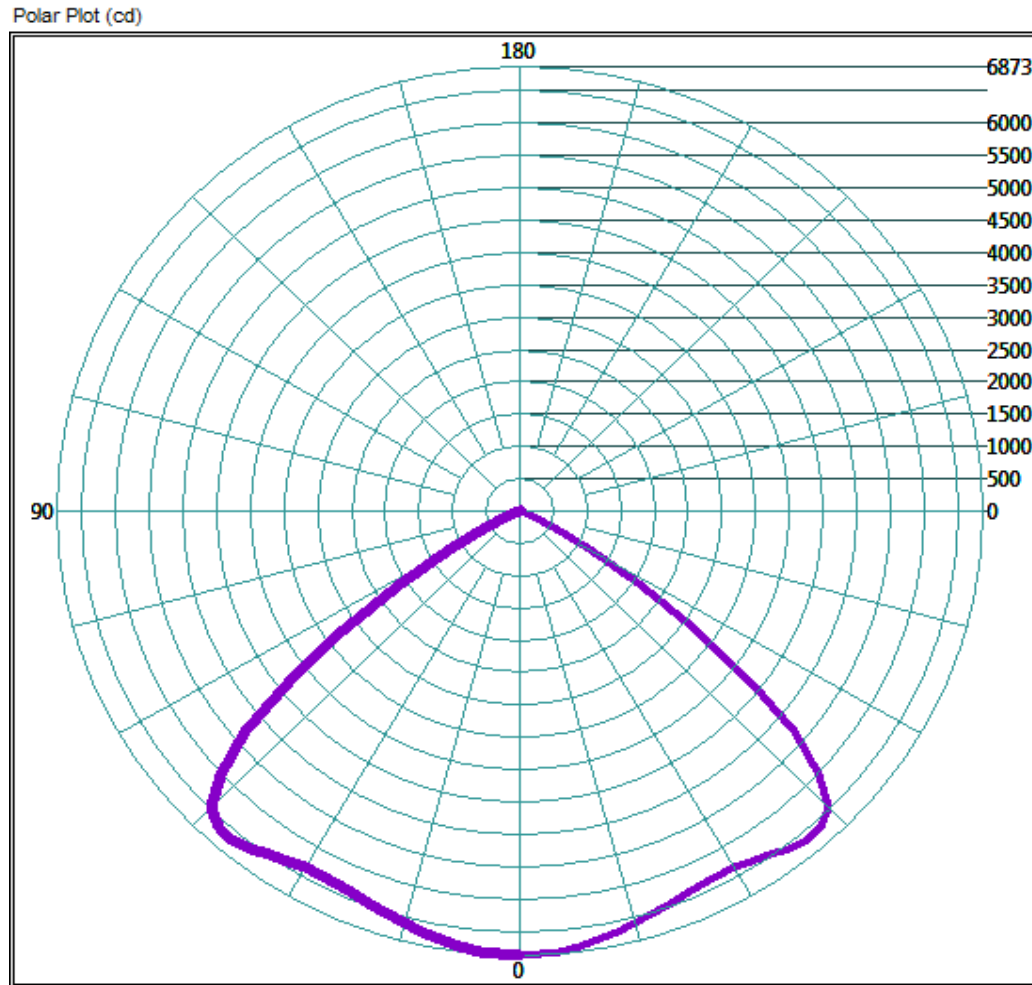
### ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	5916.64	33.5%
0-40	10151.52	57.6%
0-60	17392.8	98.6%
60-90	525.12	3.0%
0-90	17638.24	100.0%
90-180	0	0.0%
0-180	17638.24	100.0%

## Test Results: Goniometer

Results continued from previous page.

### Polar Plot:

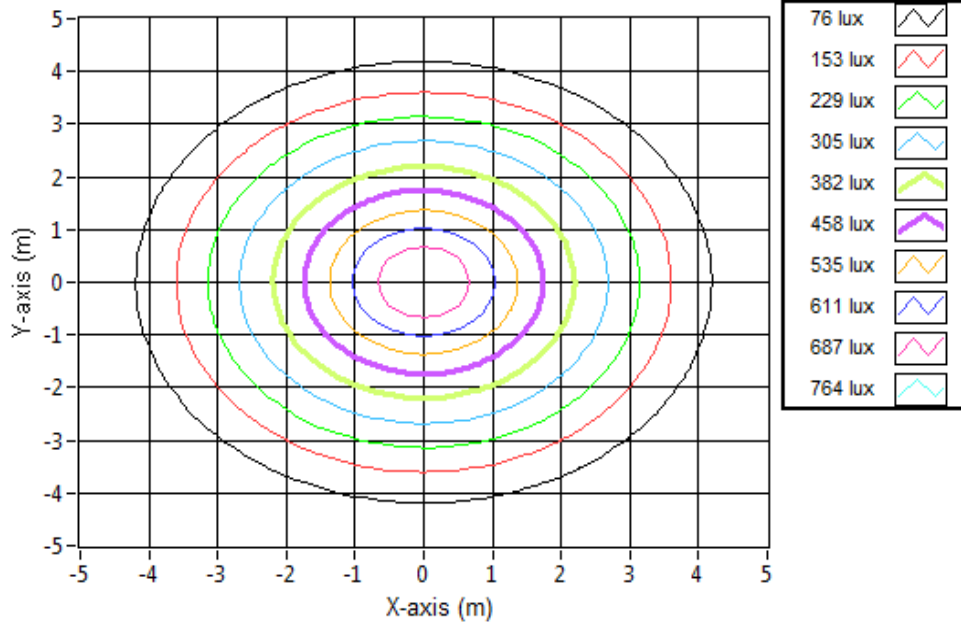


## Test Results: Goniometer

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	8.54	8.54	739.8
6.096	17.07	17.07	184.9
9.144	25.61	25.61	82.2
12.192	34.15	34.15	46.2
15.24	42.69	42.69	29.6
18.288	51.22	51.22	20.5
21.336	59.76	59.76	15.1
24.384	68.30	68.30	11.6
27.432	76.84	76.84	9.1
30.48	85.37	85.37	7.4

## Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L15131.  
Dialight unit model number HEGRC4KN-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:

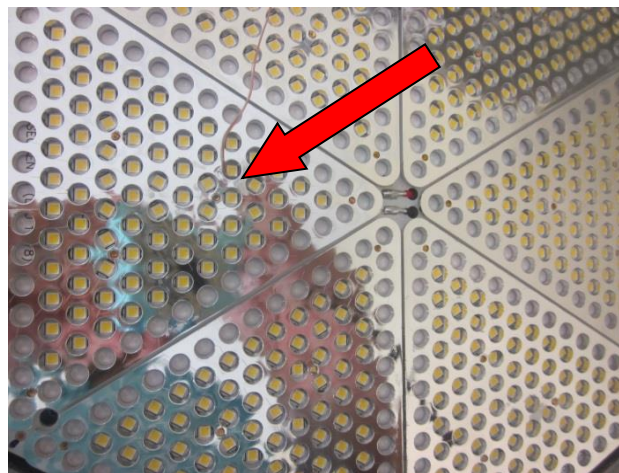
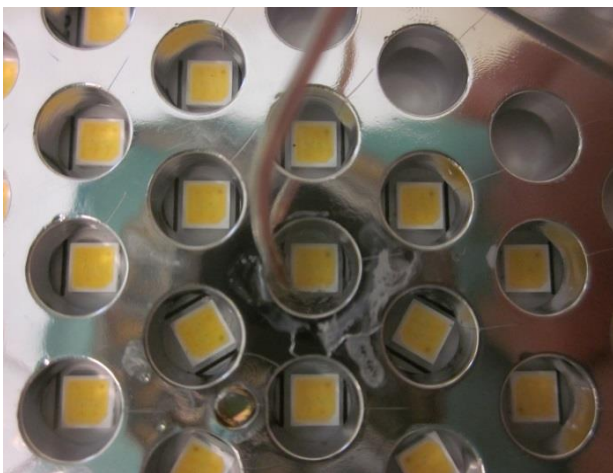
Maximum Power at Indicated Current: 0.35 (W)  
Maximum Source Temperature: 113.7 (°C)

### Test Conditions:

Temperature Measurement Location: See Photographs Below  
Ambient Temperature:  $25^{\circ} \pm 1^{\circ}$  (°C)  
Ambient temperature at time of measurement: 25.9 (°C)  
Relative humidity at time of measurement: 29%

### Results:

**Measured LED source temperature: 51.2 (°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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 Approved Signatory