

Test Report

Report Number: L15100

Date: Jul 8, 2015

Issued by:

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

Test of one 26k Vigilant Highbay With Glass Lens
Unit manufacturer: Dialight Corporation
Unit model number: HEGRN4PN-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: June 30, 2015 through July 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

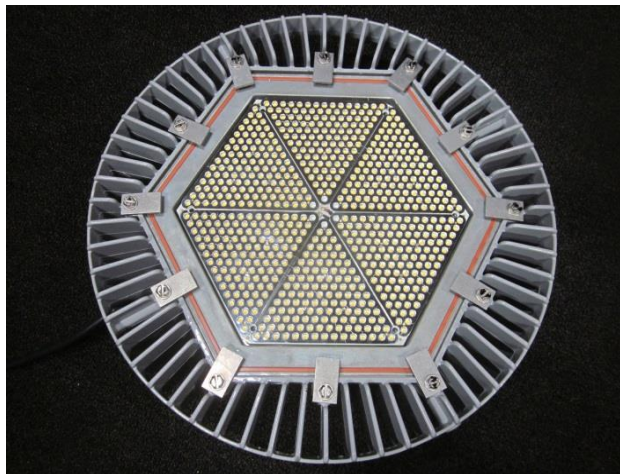
Description of sample:

Sample Number: L15100
Manufacturer: Dialight Corporation
Product Name: 26k Vigilant Highbay
Description: 26k Vigilant Highbay With Glass Lens
Model Number: HEGRN4PN-xxx

Report Summary

Sample number L15100
Dialight unit model number HEGRN4PN-xxx

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	27180 (lumens)	26816 (lumens)
Electrical Power:	212.7 (W)	212.9 (W)
Luminous Efficacy:	127.8 (lumens/W)	126 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 212.7 (W)
Power Factor (120VAC): 0.997
Current ATHD % (120VAC): 5.637
Input Power (277VAC): 206.3 (W)
Power Factor (277VAC): 0.953
Current ATHD % (277VAC): 11.89

Color Measurements:

Correlated Color Temperature (CCT): 3926
Color Rendering Index (CRI): 73.5
Chromaticity Coordinate (x): 0.385
Chromaticity Coordinate (y): 0.382
Chromaticity Coordinate (u'): 0.226
Chromaticity Coordinate (v'): 0.336
DUV: 0.0013

Temperature Measurements:

In Situ LED Source Temperature: 56.9 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L15100.
Dialight unit model number HEGRN4PN-xxx

Test Conditions:

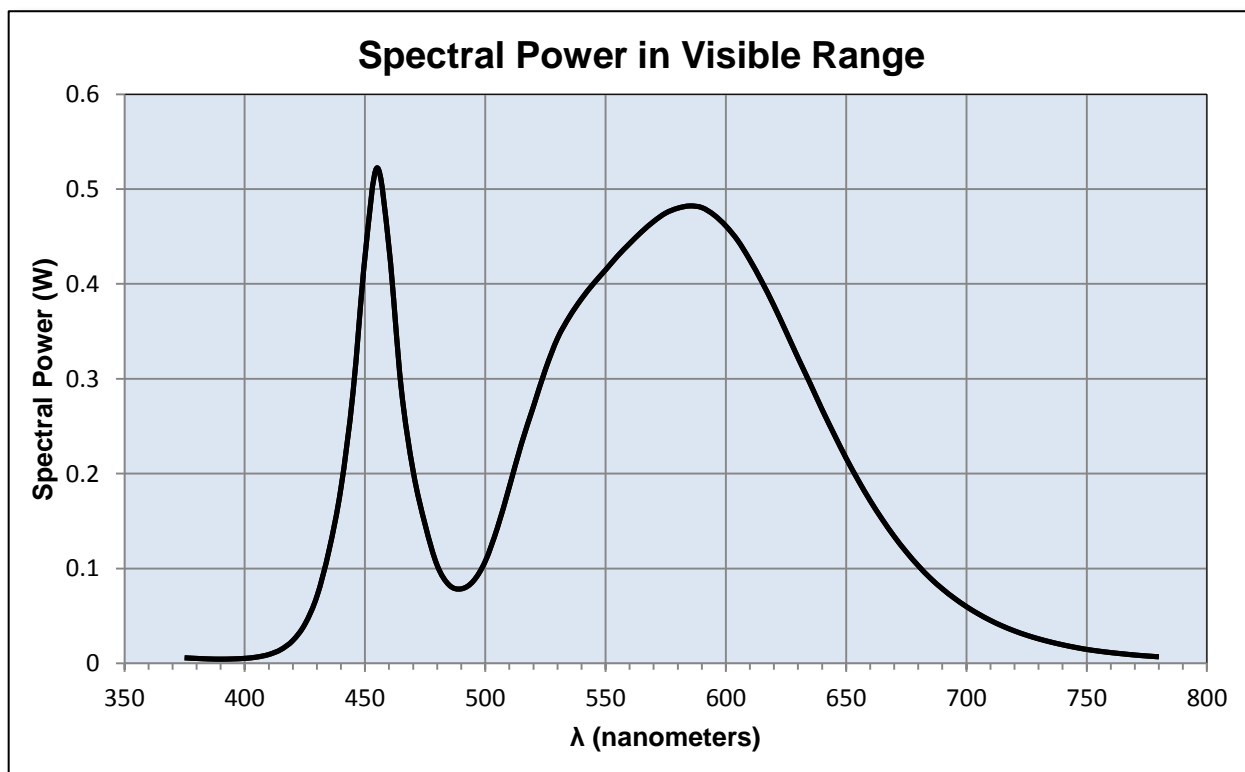
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
Input Current: 1.776 (A)
Input Power: 212.7 (W)
Input Power Factor: 0.997
Current ATHD: 5.637 (%)

Photometric measurements:

Luminous Flux: 27180 (lumens)
Luminous Efficacy: 127.8 (lumens/W)
Correlated Color Temperature (CCT): 3926 (K)
CRI -Ra: 73.5
CRI -R9: -21.7
DUV: 0.0013
CIE Coordinate (x): 0.385
CIE Coordinate (y): 0.382
CIE Coordinate (u'): 0.226
CIE Coordinate (v'): 0.336



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	0.006	515	0.231	655	0.193
380	0.005	520	0.271	660	0.171
385	0.005	525	0.31	665	0.152
390	0.004	530	0.342	670	0.134
395	0.005	535	0.365	675	0.118
400	0.005	540	0.384	680	0.103
405	0.007	545	0.4	685	0.09
410	0.009	550	0.415	690	0.079
415	0.014	555	0.429	695	0.069
420	0.024	560	0.443	700	0.06
425	0.041	565	0.455	705	0.052
430	0.071	570	0.466	710	0.045
435	0.119	575	0.475	715	0.039
440	0.185	580	0.48	720	0.034
445	0.285	585	0.482	725	0.03
450	0.429	590	0.48	730	0.026
455	0.522	595	0.473	735	0.023
460	0.438	600	0.461	740	0.02
465	0.291	605	0.446	745	0.017
470	0.203	610	0.425	750	0.015
475	0.146	615	0.402	755	0.013
480	0.103	620	0.377	760	0.011
485	0.082	625	0.35	765	0.01
490	0.079	630	0.322	770	0.009
495	0.087	635	0.295	775	0.008
500	0.108	640	0.268	780	0.007
505	0.143	645	0.242		
510	0.186	650	0.216		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L15100.
Dialight unit model number HEGRN4PN-xxx

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 1.778 (A)
Input Power: 212.9 (W)
Power Factor: 0.996

Photometric measurements:

Absolute Luminous Flux: 26816 (lumens)
Luminous Efficacy: 126.0 (lumens/W)

Intensity Summary:

INTENSITY (CANDLEPOWER) SUMMARY						
ANGLE	ALONG	23	45	68	ACROSS	OUTPUT LUMENS
0	10473	10473	10473	10473	10473	
5	10417	10417	10417	10417	10417	390
15	10050	10050	10050	10050	10050	2174
25	9849	9849	9849	9849	9849	3923
35	10457	10457	10457	10457	10457	5781
45	10311	10311	10311	10311	10311	7694
55	4074	4074	4074	4074	4074	5722
65	221	221	221	221	221	1083
75	18	18	18	18	18	42
85	3	3	3	3	3	8
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

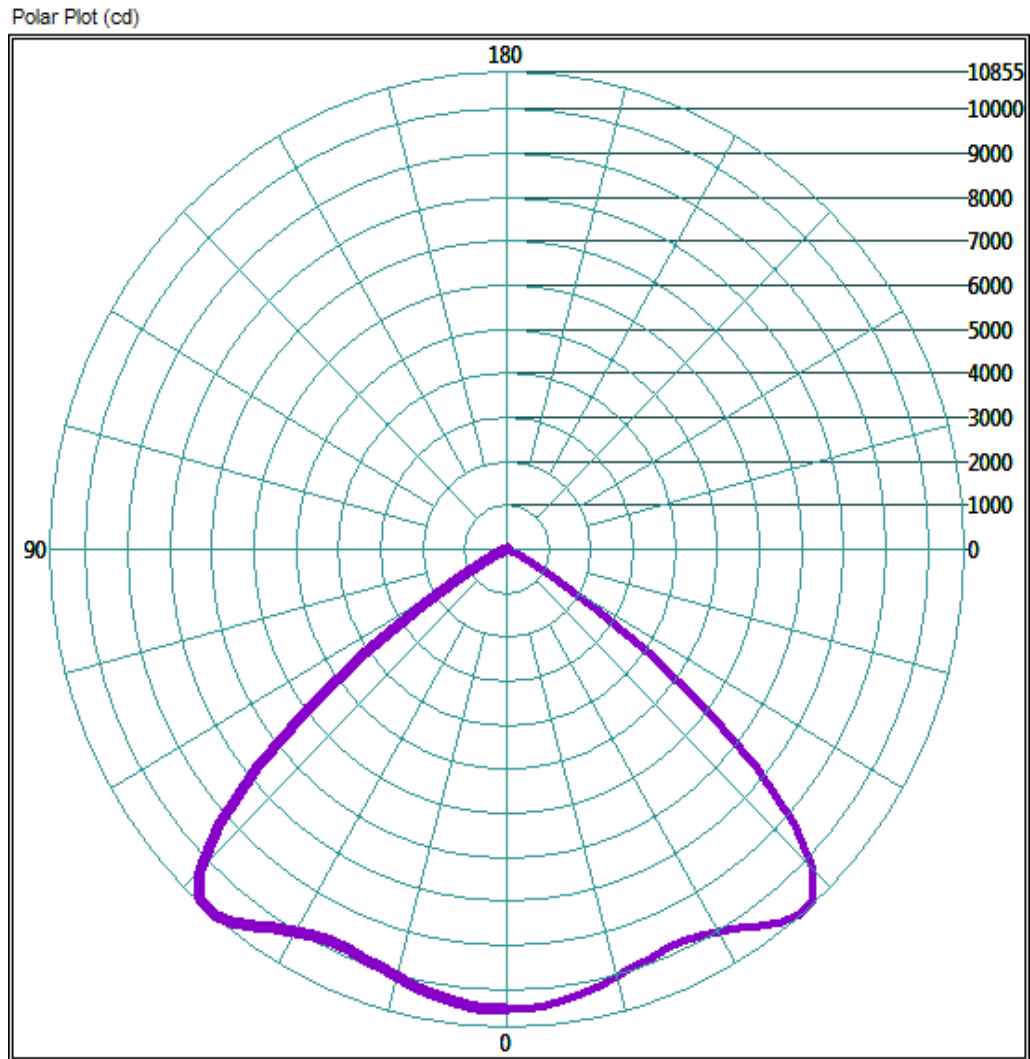
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	9116.8	34.0%
0-40	15965.12	59.5%
0-60	26568.32	99.1%
60-90	561.28	2.1%
0-90	26816.32	100.0%
90-180	0	0.0%
0-180	26816.32	100.0%

Test Results: Goniometer

Results continued from previous page.

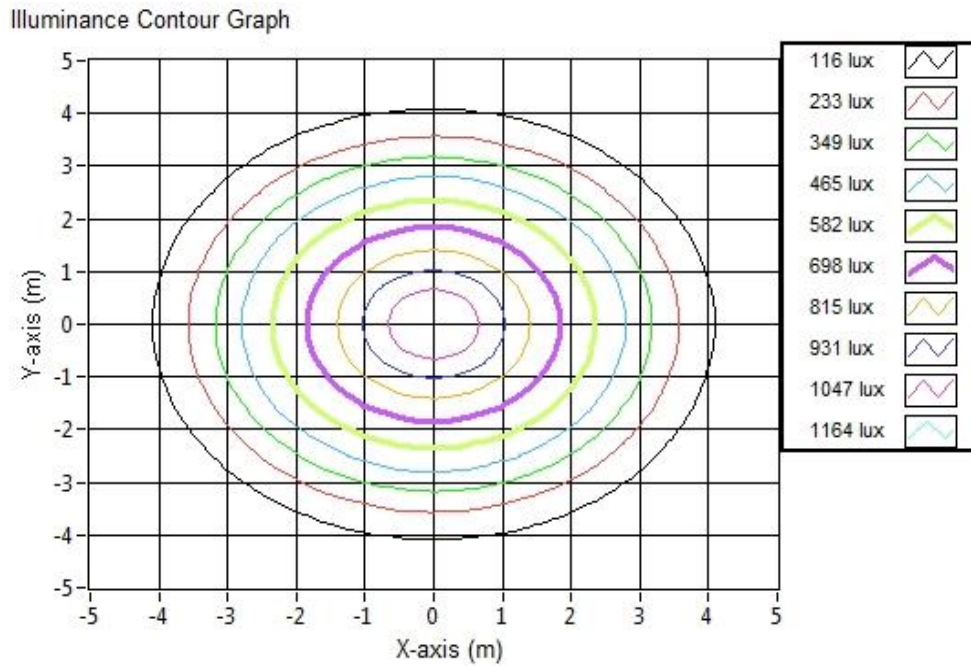
Polar Plot:



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	8.22	8.22	1127.3
6.096	16.45	16.45	281.8
9.144	24.67	24.67	125.3
12.192	32.89	32.89	70.5
15.24	41.11	41.11	45.1
18.288	49.34	49.34	31.3
21.336	57.56	57.56	23.0
24.384	65.78	65.78	17.6
27.432	74.00	74.00	13.9
30.48	82.23	82.23	11.3

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L15100.
Dialight unit model number HEGRN4PN-xxx

LED identified as Nichia part number NT2L757DT.

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:

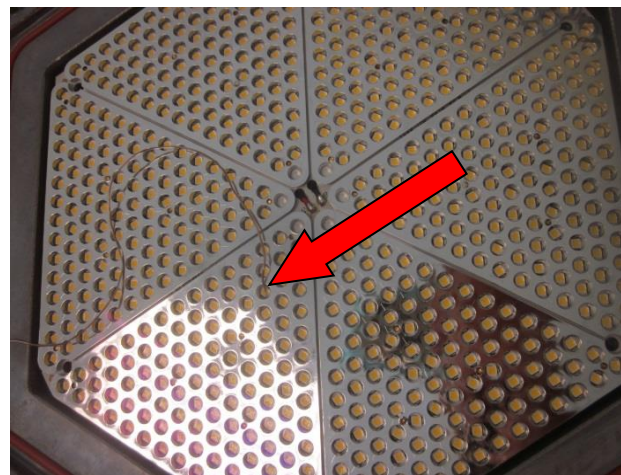
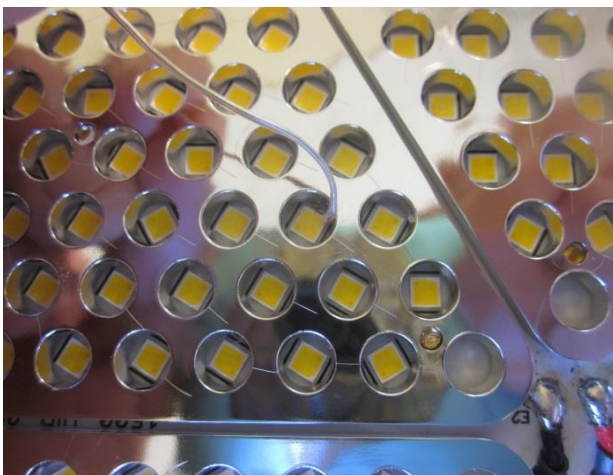
Maximum Power at Indicated Current: 0.35 (W)
Maximum Source Temperature: 113.7 (°C)

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: 20%

Results:

Measured LED source temperature: 56.9 (°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

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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