

Test Report

Report Number: L15115

Date: Aug 19, 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: HEGNC4DN-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 8, 2015 through July 18, 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):

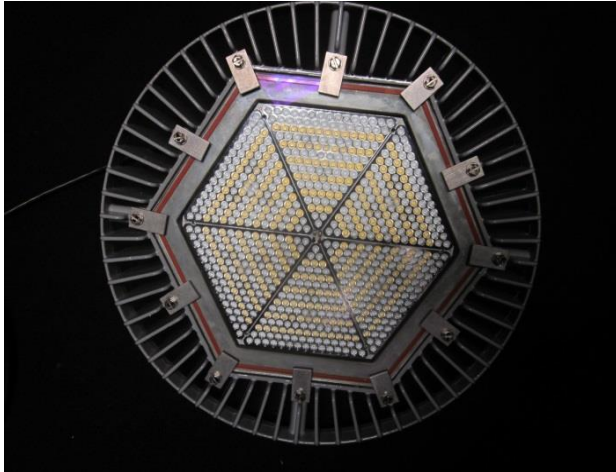
- IES LM-79:2008: Electrical and Photometric Measurements of Solid-State Lighting Products
- ANSI/UL 1598:2008: Underwriters Laboratories Inc. Standard for Safety: Luminaires
- ENERGY STAR Manufacturer's Guide for Qualifying Solid State Lighting Luminaires Version 2.1

Description of sample:

Sample Number: L15115
Manufacturer: Dialight Corporation
Product Name: Vigilant Highbay
Description: Vigilant Highbay With Glass Lens
Model Number: HEGNC4DN-xxx

Report Summary
Sample number L15115
Dialight unit model number HEGNC4DN-xxx

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	11200 (lumens)	11005 (lumens)
Electrical Power:	87.6 (W)	87.7 (W)
Luminous Efficacy:	127.9 (lumens/W)	125.5 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 87.6 (W)
 Power Factor (120VAC): 0.99
 Current ATHD % (120VAC): 10.01
 Input Power (277VAC): 87.3 (W)
 Power Factor (277VAC): 0.992
 Current ATHD % (277VAC): 17.58

Color Measurements:

Correlated Color Temperature (CCT): 4998
 Color Rendering Index (CRI): 79
 Chromaticity Coordinate (x): 0.345
 Chromaticity Coordinate (y): 0.353
 Chromaticity Coordinate (u'): 0.211
 Chromaticity Coordinate (v'): 0.324
 DUV: 0.0007

Temperature Measurements:

In Situ LED Source Temperature: 49.1 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L15115.

Dialight unit model number HEGNC4DN-xxx

Test Conditions:

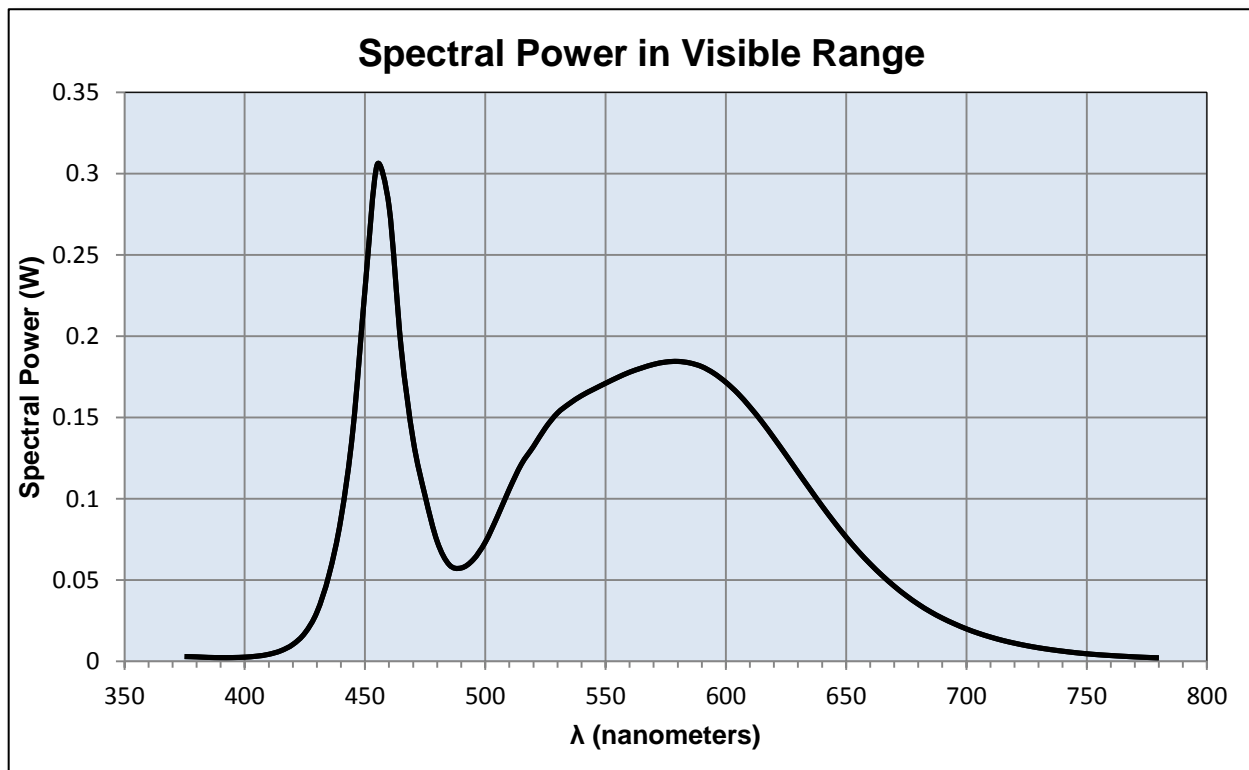
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
Input Current: 0.735 (A)
Input Power: 87.6 (W)
Input Power Factor: 0.99
Current ATHD: 10.01 (%)

Photometric measurements:

Luminous Flux: 11200 (lumens)
Luminous Efficacy: 127.9 (lumens/W)
Correlated Color Temperature (CCT): 4998 (K)
CRI -Ra: 79
CRI -R9: -6.7
DUV: 0.0007
CIE Coordinate (x): 0.345
CIE Coordinate (y): 0.353
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	0.003	515	0.121	655	0.068
380	0.003	520	0.132	660	0.06
385	0.002	525	0.144	665	0.053
390	0.002	530	0.153	670	0.046
395	0.002	535	0.159	675	0.04
400	0.003	540	0.163	680	0.035
405	0.003	545	0.167	685	0.031
410	0.004	550	0.171	690	0.027
415	0.006	555	0.175	695	0.023
420	0.01	560	0.178	700	0.02
425	0.017	565	0.18	705	0.017
430	0.03	570	0.183	710	0.015
435	0.053	575	0.184	715	0.013
440	0.088	580	0.184	720	0.011
445	0.143	585	0.183	725	0.01
450	0.229	590	0.181	730	0.008
455	0.305	595	0.177	735	0.007
460	0.28	600	0.172	740	0.006
465	0.193	605	0.165	745	0.005
470	0.136	610	0.156	750	0.005
475	0.102	615	0.147	755	0.004
480	0.074	620	0.137	760	0.004
485	0.059	625	0.127	765	0.003
490	0.057	630	0.116	770	0.003
495	0.063	635	0.106	775	0.002
500	0.073	640	0.096	780	0.002
505	0.089	645	0.086		
510	0.106	650	0.076		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L15115.
Dialight unit model number HEGNC4DN-xxx

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 0.738 (A)
Input Power: 87.7 (W)
Power Factor: 0.991

Photometric measurements:

Absolute Luminous Flux: 11005 (lumens)
Luminous Efficacy: 125.5 (lumens/W)

Intensity Summary:

INTENSITY (CANDLEPOWER) SUMMARY						
ANGLE	ALONG	23	45	68	ACROSS	OUTPUT LUMENS
0	15726	15726	15726	15726	15726	
5	14355	14355	14355	14355	14355	550
15	8010	8010	8010	8010	8010	2112
25	4606	4606	4606	4606	4606	2199
35	3470	3470	3470	3470	3470	2150
45	2671	2671	2671	2671	2671	2153
55	1107	1107	1107	1107	1107	1492
65	72	72	72	72	72	302
75	22	22	22	22	22	34
85	3	3	3	3	3	11
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

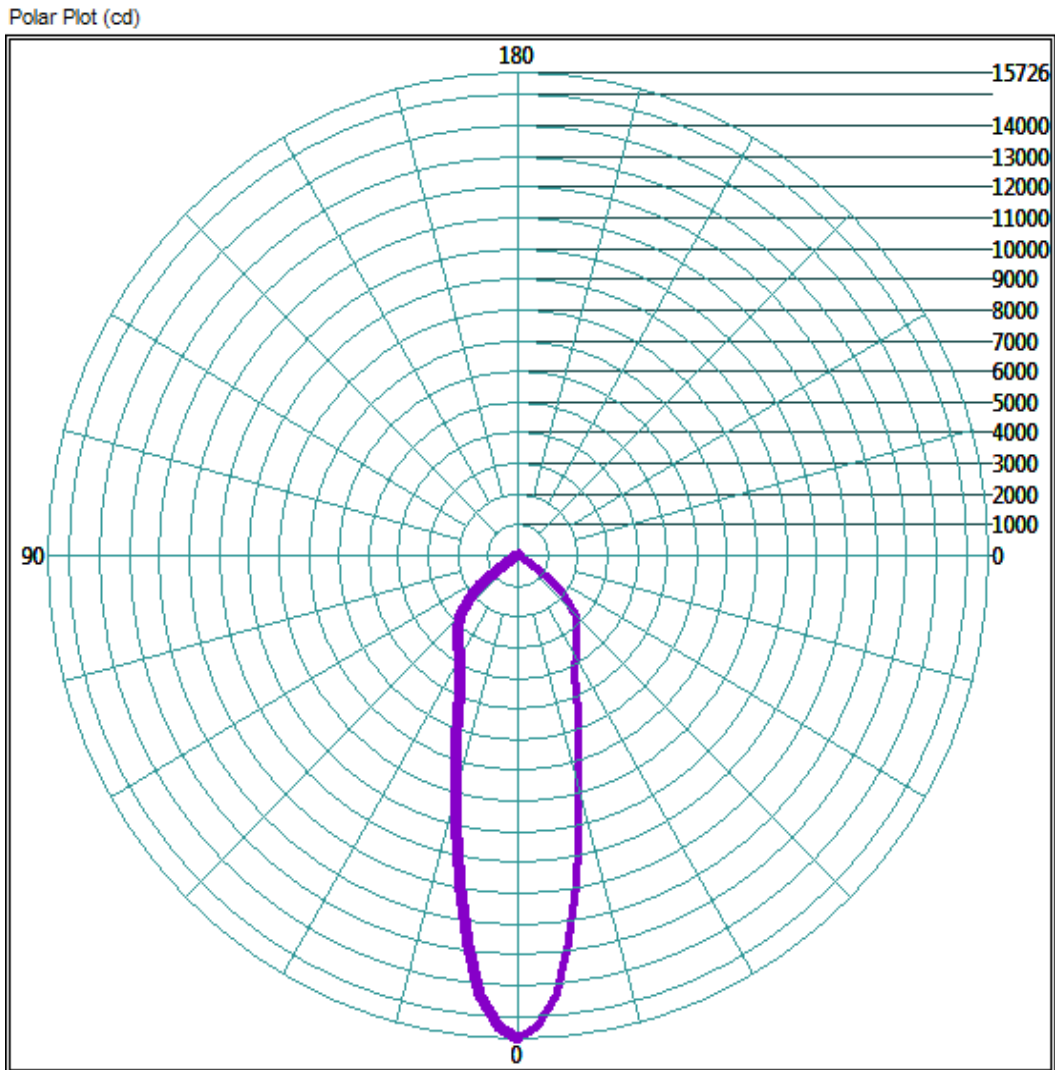
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	5926.72	53.9%
0-40	8108.8	73.7%
0-60	10901.44	99.1%
60-90	189.6	1.7%
0-90	11004.8	100.0%
90-180	0	0.0%
0-180	11004.8	100.0%

Test Results: Goniometer

Results continued from previous page.

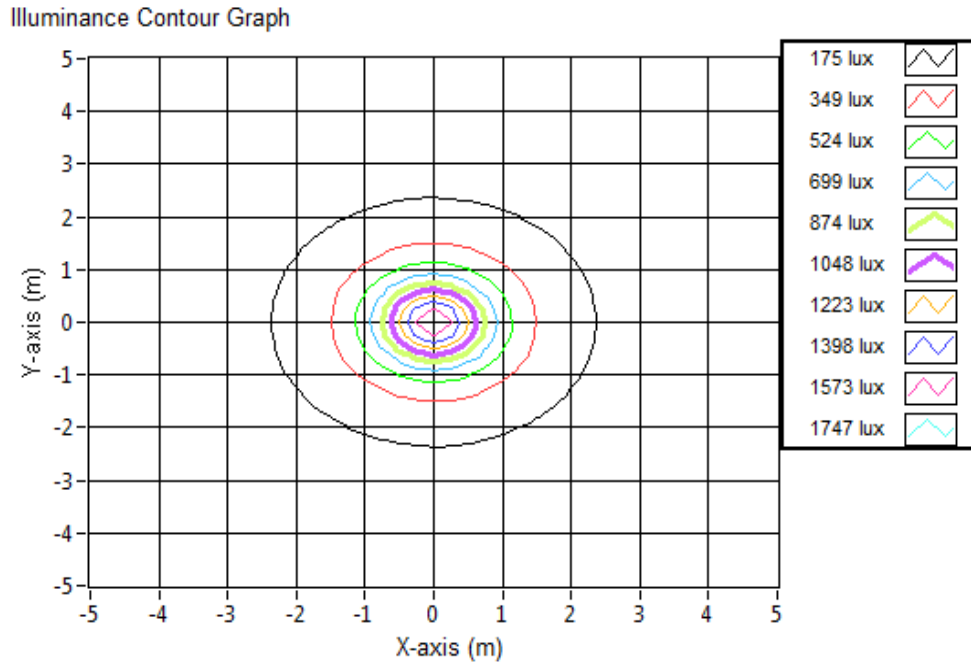
Polar Plot:



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	1.67	1.67	1692.8
6.096	3.34	3.34	423.2
9.144	5.01	5.01	188.1
12.192	6.68	6.68	105.8
15.24	8.35	8.35	67.7
18.288	10.02	10.02	47.0
21.336	11.69	11.69	34.5
24.384	13.36	13.36	26.4
27.432	15.03	15.03	20.9
30.48	16.70	16.70	16.9

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L15115.
Dialight unit model number HEGNC4DN-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:

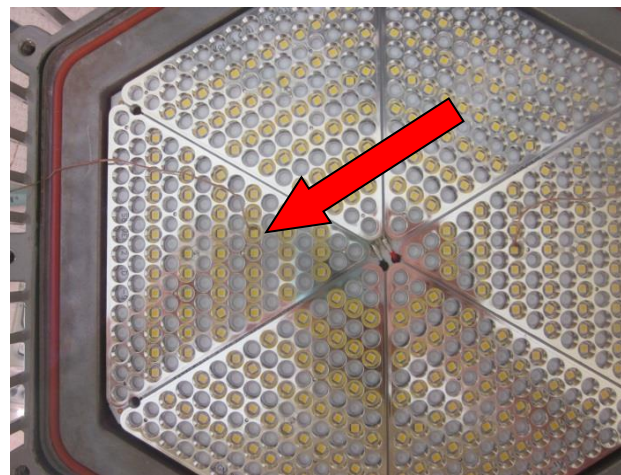
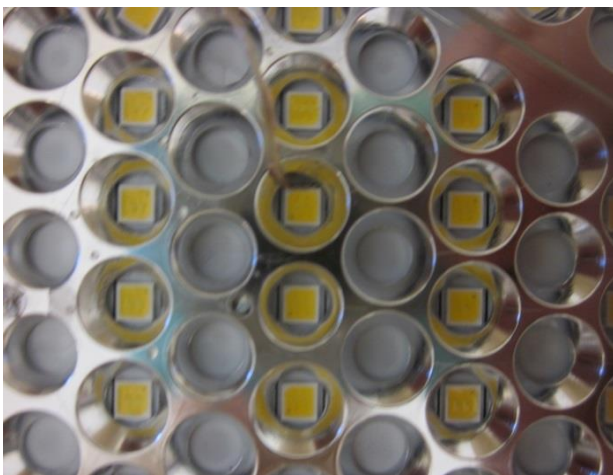
Maximum Power at Indicated Current: 0.35 (W)
Maximum Source Temperature: 113.7 (°C)

Test Conditions:

Temperature Measurement Location: See Photographs Below
Ambient Temperature: $25^{\circ} \pm 1^{\circ}$ (°C)
Ambient temperature at time of measurement: 25.1 (°C)
Relative humidity at time of measurement: 36%

Results:

Measured LED source temperature: 49.1 (°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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