

Test Report

Report Number: L15119

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: HEGNC4GN-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 23, 2015 through June 30, 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

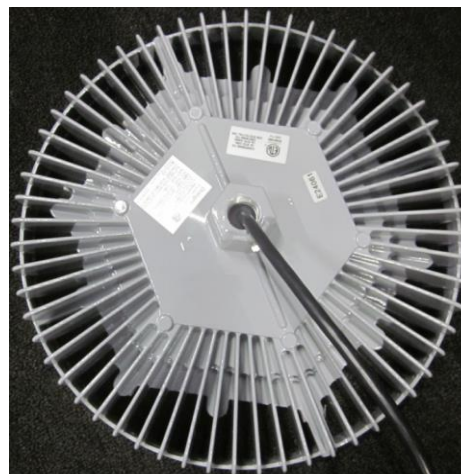
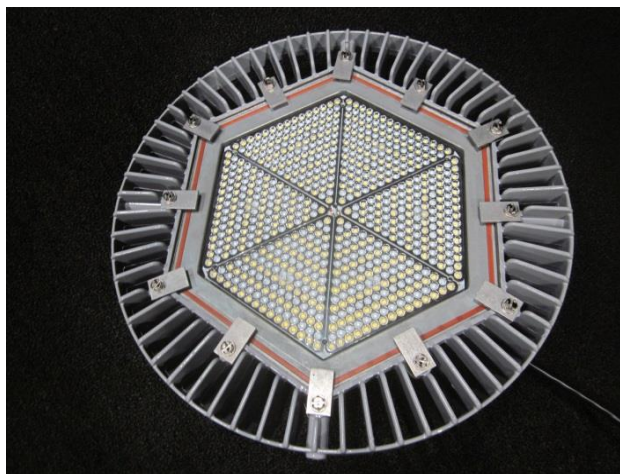
Description of sample:

Sample Number: L15119
Manufacturer: Dialight Corporation
Product Name: Vigilant Highbay
Description: Vigilant Highbay With Glass Lens
Model Number: HEGNC4GN-xxx

Report Summary

Sample number L15119
Dialight unit model number HEGNC4GN-xxx

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	14520 (lumens)	14424 (lumens)
Electrical Power:	112.6 (W)	113.7 (W)
Luminous Efficacy:	129 (lumens/W)	126.9 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 112.6 (W)
 Power Factor (120VAC): 0.992
 Current ATHD % (120VAC): 8.905
 Input Power (277VAC): 111.1 (W)
 Power Factor (277VAC): 0.938
 Current ATHD % (277VAC): 15.89

Color Measurements:

Correlated Color Temperature (CCT): 5047
 Color Rendering Index (CRI): 78.3
 Chromaticity Coordinate (x): 0.344
 Chromaticity Coordinate (y): 0.354
 Chromaticity Coordinate (u'): 0.21
 Chromaticity Coordinate (v'): 0.324
 DUV: 0.0018

Temperature Measurements:

In Situ LED Source Temperature: 50.9 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L15119.

Dialight unit model number HEGNC4GN-xxx

Test Conditions:

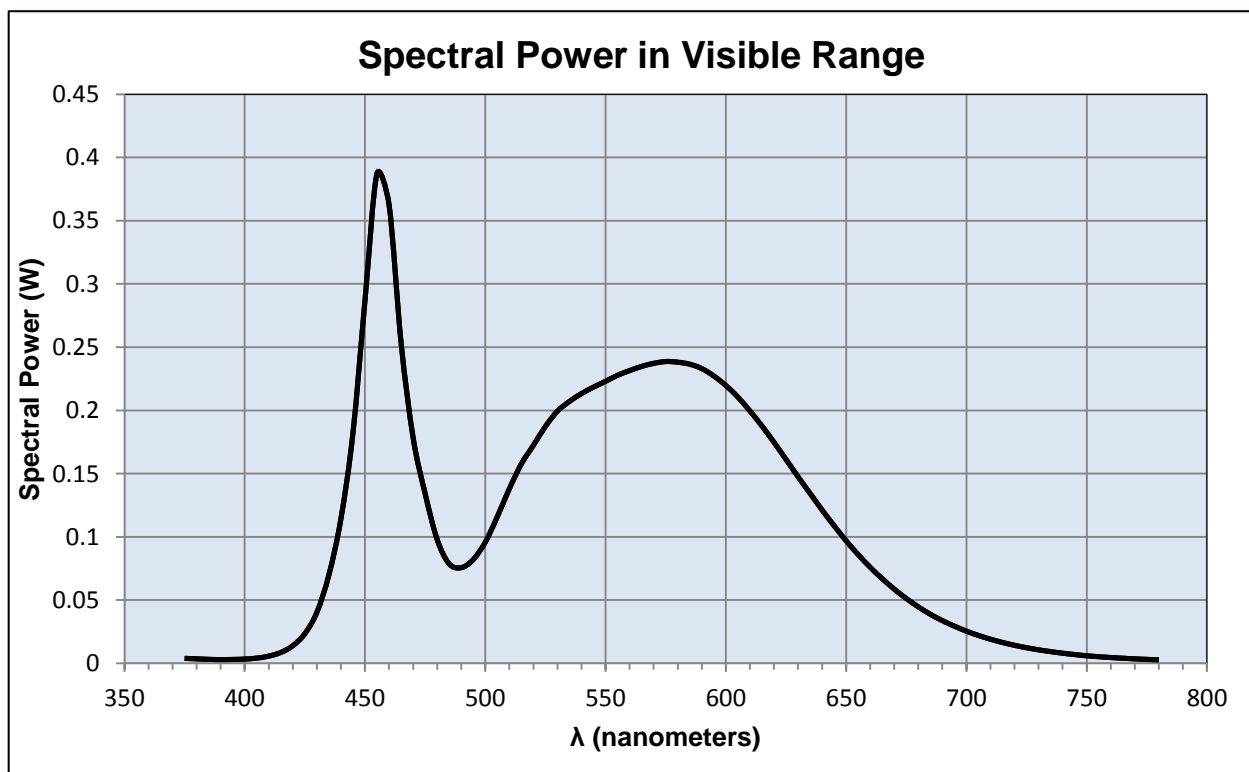
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
Input Current: 0.945 (A)
Input Power: 112.6 (W)
Input Power Factor: 0.992
Current ATHD: 8.905 (%)

Photometric measurements:

Luminous Flux: 14520 (lumens)
Luminous Efficacy: 129.0 (lumens/W)
Correlated Color Temperature (CCT): 5047 (K)
CRI -Ra: 78.3
CRI -R9: -11.1
DUV: 0.0018
CIE Coordinate (x): 0.344
CIE Coordinate (y): 0.354
CIE Coordinate (u'): 0.21
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	0.158	655	0.086
380	0.004	520	0.172	660	0.076
385	0.003	525	0.187	665	0.067
390	0.003	530	0.199	670	0.059
395	0.003	535	0.207	675	0.051
400	0.003	540	0.213	680	0.045
405	0.004	545	0.218	685	0.039
410	0.006	550	0.223	690	0.034
415	0.009	555	0.228	695	0.029
420	0.014	560	0.231	700	0.025
425	0.023	565	0.235	705	0.022
430	0.04	570	0.237	710	0.019
435	0.07	575	0.239	715	0.017
440	0.114	580	0.238	720	0.014
445	0.182	585	0.237	725	0.012
450	0.287	590	0.233	730	0.011
455	0.387	595	0.227	735	0.009
460	0.363	600	0.22	740	0.008
465	0.253	605	0.211	745	0.007
470	0.178	610	0.2	750	0.006
475	0.134	615	0.188	755	0.005
480	0.098	620	0.175	760	0.005
485	0.079	625	0.161	765	0.004
490	0.076	630	0.148	770	0.004
495	0.082	635	0.134	775	0.003
500	0.096	640	0.121	780	0.003
505	0.116	645	0.109		
510	0.138	650	0.097		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L15119.
Dialight unit model number HEGNC4GN-xxx

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 0.947 (A)
Input Power: 113.7 (W)
Power Factor: 0.993

Photometric measurements:

Absolute Luminous Flux: 14424 (lumens)
Luminous Efficacy: 126.9 (lumens/W)

Intensity Summary:

INTENSITY (CANDLEPOWER) SUMMARY						
ANGLE	ALONG	23	45	68	ACROSS	OUTPUT LUMENS
0	19759	19759	19759	19759	19759	
5	18022	18022	18022	18022	18022	691
15	10334	10334	10334	10334	10334	2697
25	6112	6112	6112	6112	6112	2883
35	4648	4648	4648	4648	4648	2874
45	3544	3544	3544	3544	3544	2872
55	1470	1470	1470	1470	1470	1972
65	83	83	83	83	83	396
75	19	19	19	19	19	30
85	3	3	3	3	3	9
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

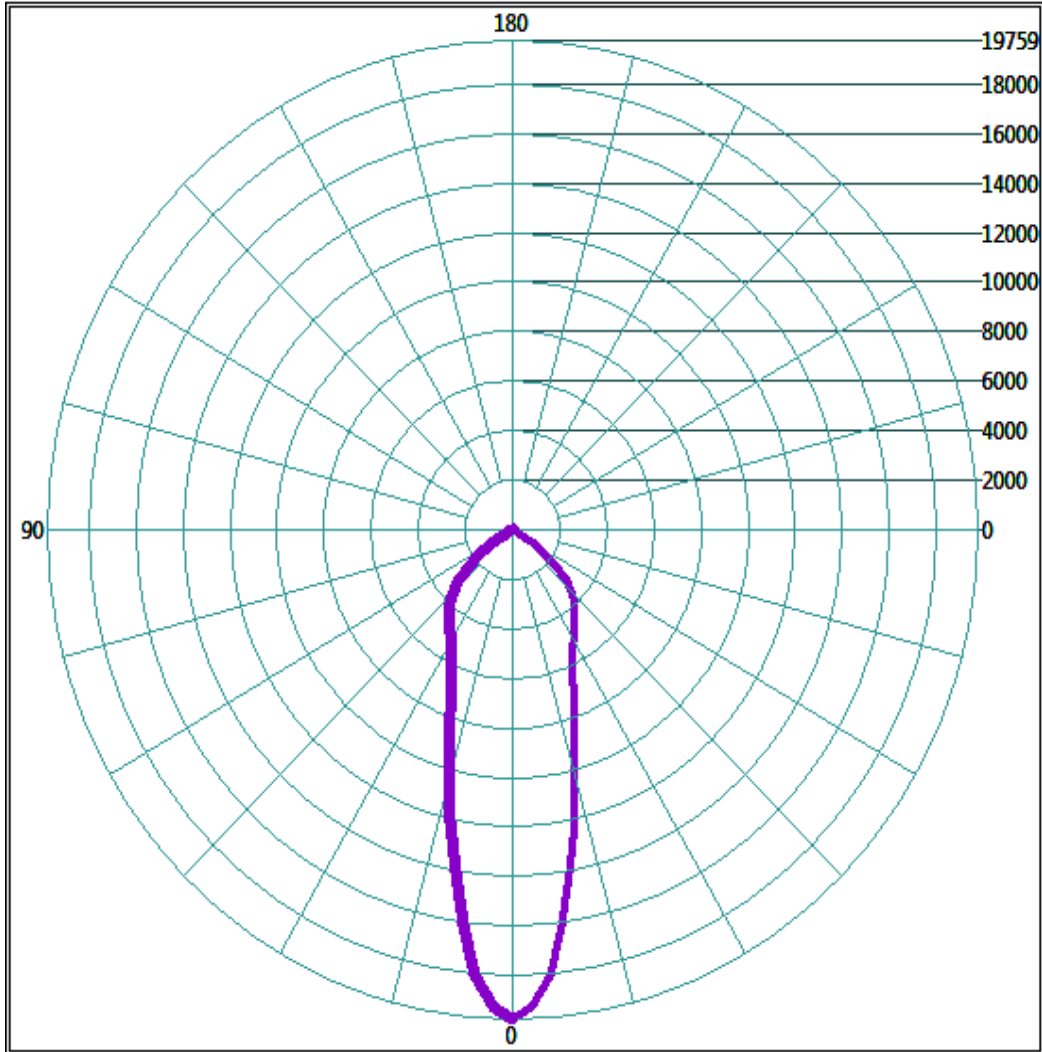
ZONE	LUMENS	% LUMINAIRE
0-30	7691.68	53.3%
0-40	10612	73.6%
0-60	14311.52	99.2%
60-90	225.44	1.6%
0-90	14423.2	100.0%
90-180	0	0.0%
0-180	14423.2	100.0%

Test Results: Goniometer

Results continued from previous page.

Polar Plot:

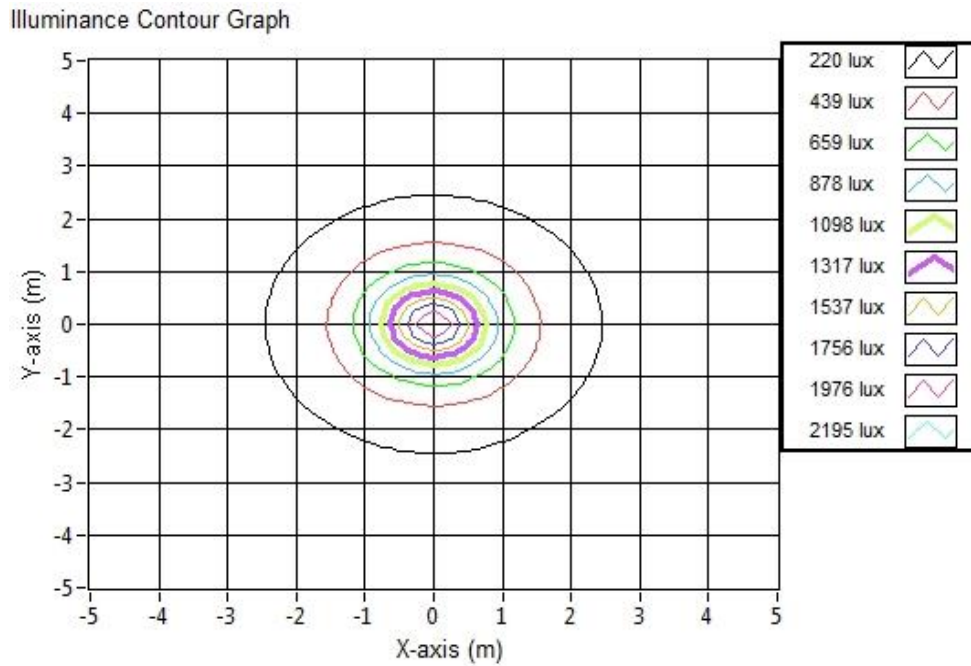
Polar Plot (cd)



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	1.72	1.72	2126.8
6.096	3.45	3.45	531.7
9.144	5.17	5.17	236.3
12.192	6.90	6.90	132.9
15.24	8.62	8.62	85.1
18.288	10.35	10.35	59.1
21.336	12.07	12.07	43.4
24.384	13.79	13.79	33.2
27.432	15.52	15.52	26.3
30.48	17.24	17.24	21.3

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L15119.
Dialight unit model number HEGNC4GN-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:

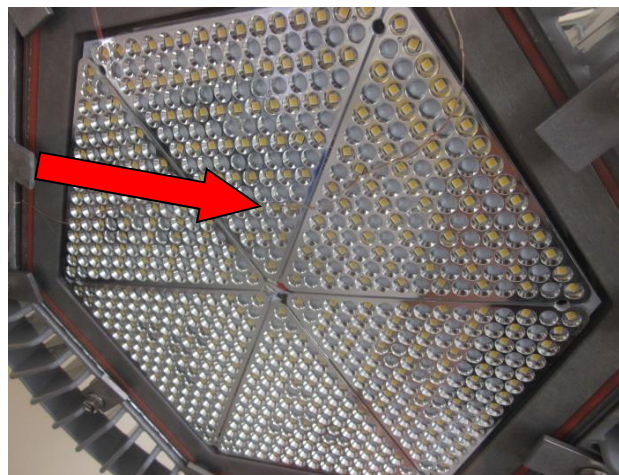
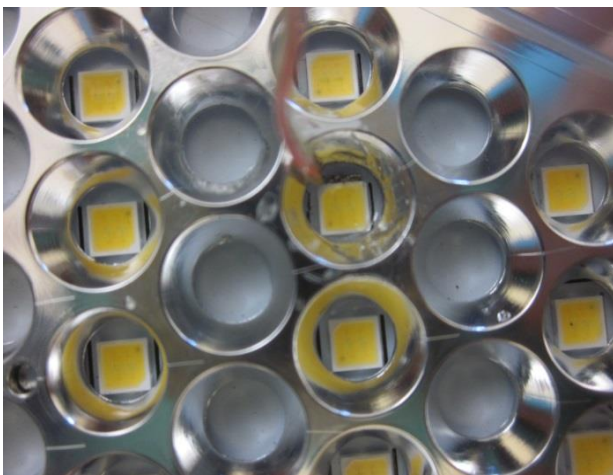
Maximum Power at Indicated Current: 0.35 (W)
Maximum Source Temperature: 113.7 (°C)

Test Conditions:

Temperature Measurement Location: See Photographs Below
Ambient Temperature: $25^{\circ} \pm 1^{\circ}$ (°C)
Ambient temperature at time of measurement: 25 (°C)
Relative humidity at time of measurement: 35%

Results:

Measured LED source temperature: 50.9 (°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
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.

Test Report Issued By:

Richard Huegi
 Dialight Optics Laboratory
 Senior Optical Engineering Technician
 Lighting Division

Test Report Reviewed and Approved By:

Vishnu Shastry
 Dialight Optics Laboratory
 Optical Engineer
 Approved Signatory