Dialight OPTICS LABORATORY

NVLAP Lab Code 201033-0

Test Report

Report Number: L14119 Date: Nov 19, 2014

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: HEGMN4DN-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: November 12, 2014 through November 14, 2014

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: L14119
Manufacturer: Dialight Corporation
Product Name: Vigilant
Description: Vigilant Highbay With Glass Lens
Model Number: HEGMN4DN-xxx

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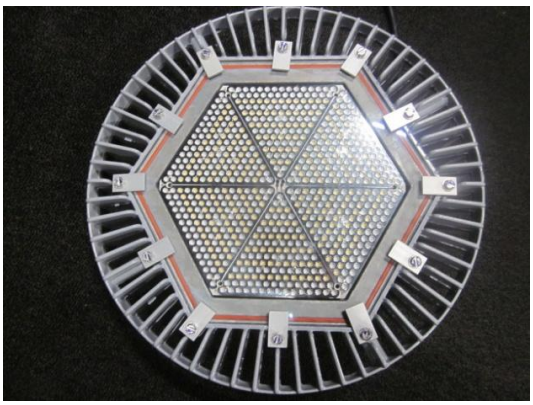
Report Summary

Sample number L14119

Dialight unit model number HEGMN4DN-xxx

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	Integrating Sphere		Goniophotometer	
Luminous Flux:	11050	(lumens)	11034	(lumens)
Electrical Power:	88.2	(W)	88.5	(W)
Luminous Efficacy:	125.2	(lumens/W)	124.8	(lumens/W)

Electrical Measurements:

Input Power (120VAC):	88.2	(W)
Power Factor (120VAC):	0.990	
Current ATHD % (120VAC):	9.878	
Input Power (277VAC):	87.6	(W)
Power Factor (277VAC):	0.923	
Current ATHD % (277VAC):	17.225	

Color Measurements:

Correlated Color Temperature (CCT):	3859
Color Rendering Index (CRI):	73.4
Chromaticity Coordinate (x):	0.3877
Chromaticity Coordinate (y):	0.3835
Chromaticity Coordinate (u'):	0.2272
Chromaticity Coordinate (v'):	0.3371
DUV:	0.0011

Temperature Measurements:

In Situ LED Source Temperature:	45.1	(°C)

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Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L14119.
Dialight unit model number HEGMN4DN-xxx

Test Conditions:

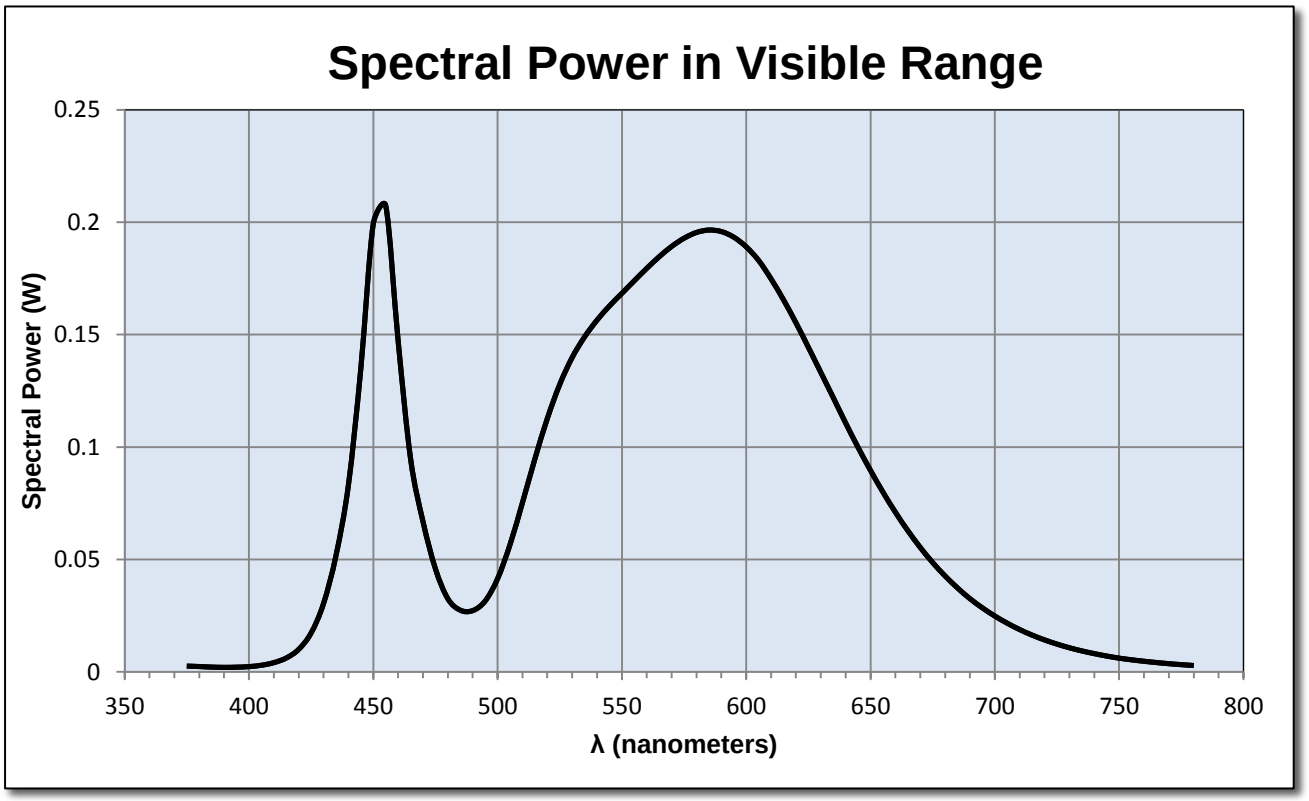
Ambient Temperature:	25 ± 1	(°C)

Electrical Measurements:

Input Voltage:	120	(VAC)
Input Current:	0.7413	(A)
Input Power:	88.2	(W)
Input Power Factor:	0.99	
Current ATHD:	9.878	(%)

Photometric measurements:

Luminous Flux:	11050	(lumens)
Luminous Efficacy:	125.2	(lumens/W)
Correlated Color Temperature (CCT):	3859	(K)
CRI -Ra:	73.4	
CRI -R9:	-18.9	
DUV:	0.0011	
CIE Coordinate (x):	0.3877	
CIE Coordinate (y):	0.3835	
CIE Coordinate (u'):	0.2272	
CIE Coordinate (v'):	0.3371	



Test Results: Integrating Sphere

Results continued from previous page.

Tabulated Spectral Power in Visible Range:

λ(nm)	(W/nm)	λ(nm)	(W/nm)	λ(nm)	(W/nm)
375	0.003	515	0.095	655	0.080
380	0.002	520	0.113	660	0.071
385	0.002	525	0.128	665	0.063
390	0.002	530	0.140	670	0.055
395	0.002	535	0.149	675	0.049
400	0.002	540	0.156	680	0.043
405	0.003	545	0.163	685	0.037
410	0.004	550	0.168	690	0.033
415	0.006	555	0.174	695	0.028
420	0.01	560	0.179	700	0.025
425	0.017	565	0.185	705	0.022
430	0.03	570	0.189	710	0.019
435	0.052	575	0.193	715	0.016
440	0.083	580	0.195	720	0.014
445	0.135	585	0.197	725	0.012
450	0.199	590	0.196	730	0.011
455	0.207	595	0.193	735	0.009
460	0.147	600	0.189	740	0.008
465	0.095	605	0.183	745	0.007
470	0.067	610	0.175	750	0.006
475	0.046	615	0.165	755	0.005
480	0.033	620	0.155	760	0.005
485	0.027	625	0.144	765	0.004
490	0.027	630	0.133	770	0.004
495	0.032	635	0.122	775	0.003
500	0.041	640	0.111	780	0.003
505	0.057	645	0.100		
510	0.075	650	0.090		

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Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L14119.
Dialight unit model number HEGMN4DN-xxx

Electrical Measurements:

Input Voltage:	120	(VAC)
Input current:	0.7426	(A)
Input Power:	88.5	(W)
Power Factor:	0.9908	

Photometric measurements:

Absolute Luminous Flux:	11034.2	(lumens)
Luminous Efficacy:	124.8	(lumens/W)

Intensity Summary:

INTENSITY (CANDLEPOWER) SUMMARY

ANGLE	ALONG	22.5	45	67.5	ACROSS	OUTPUT LUMENS
0	4393	4393	4393	4393	4393	
5	4378	4374	4373	4373	4375	164
15	4302	4299	4300	4300	4296	923
25	4383	4379	4383	4370	4373	1723
35	4371	4375	4379	4354	4369	2505
45	3525	3547	3534	3505	3532	2823
55	1756	1788	1785	1748	1762	2106
65	314	316	323	312	311	713
75	15	14	13	14	15	75
85	0	0	0	0	0	3
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	

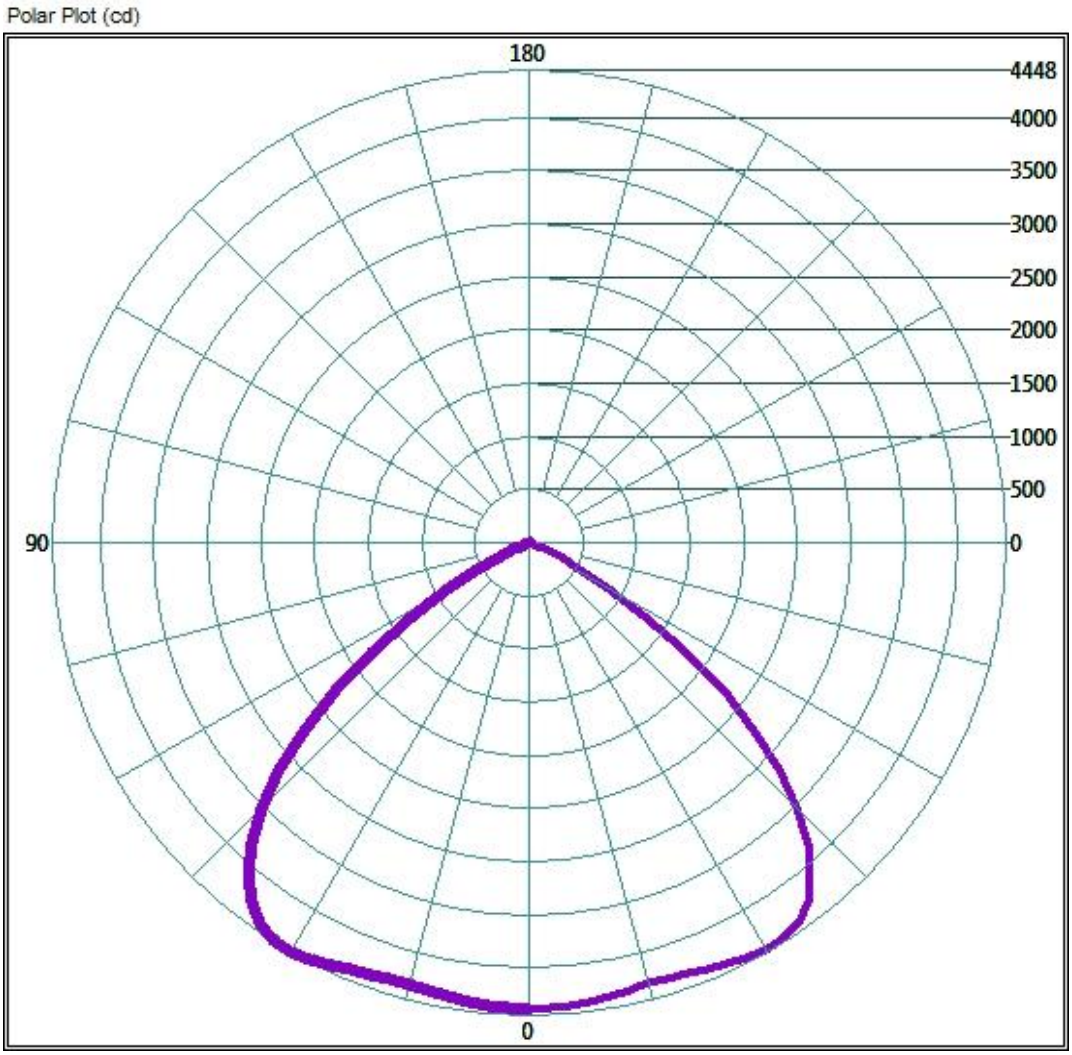
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	3974.92	36.0%
0-40	6742.84	61.1%
0-60	10745.44	97.4%
60-90	493.7	4.5%
0-90	11034.16	100.0%
90-180	0	0.0%
0-180	11034.16	100.0%

Test Results: Goniometer

Results continued from previous page.

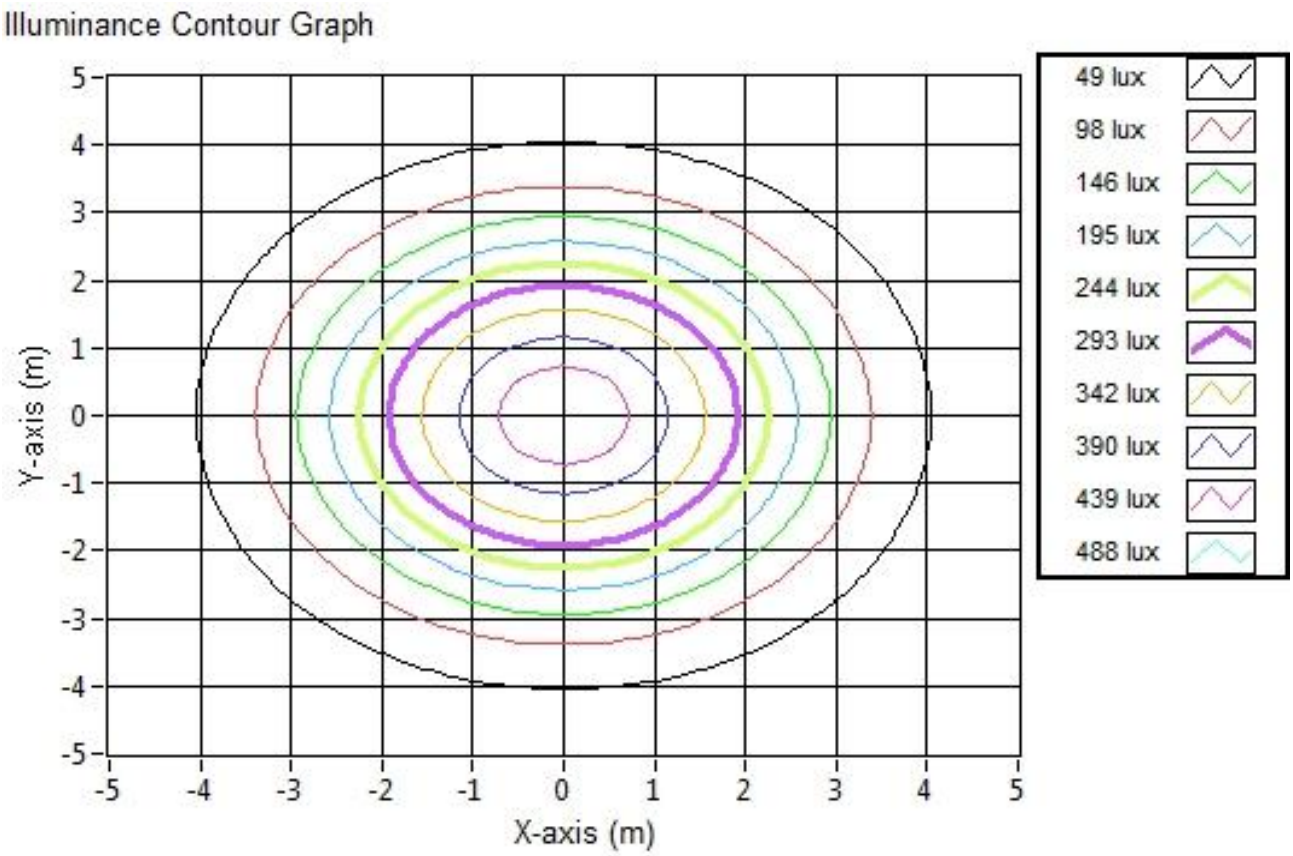
Polar Polt:



Test Results: Goniometer

Results continued from previous page.

Illuminance Plots:



Illuminance-Cone of Light:

Mounting Height (m)	Beam Cone Width (m)	Orthogonal Beam Cone Width (m)	Projected Illuminance (lux)
3.048	8.03	8.05	472.8
6.096	16.05	16.10	118.2
9.144	24.08	24.14	52.5
12.192	32.11	32.19	29.6
15.24	40.13	40.24	18.9
18.288	48.16	48.29	13.1
21.336	56.19	56.34	9.6
24.384	64.21	64.38	7.4
27.432	72.24	72.43	5.8
30.48	80.27	80.48	4.7

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Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L14119.
Dialight unit model number HEGMN4DN-xxx

LED identified as Nichia part number Nichia NT2W757DT 5000K.

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:

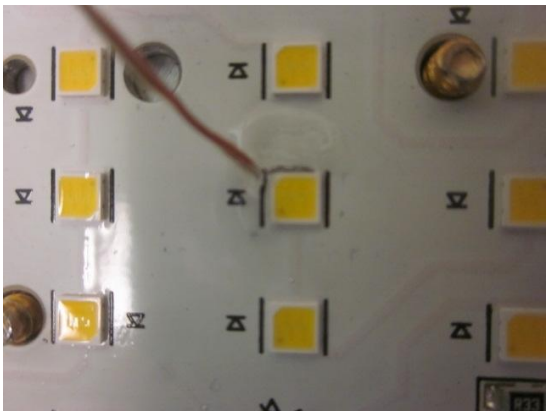
Maximum Power at Indicated Current:	0.35	(W)
Maximum Source Temperature:	113.7	(°C)

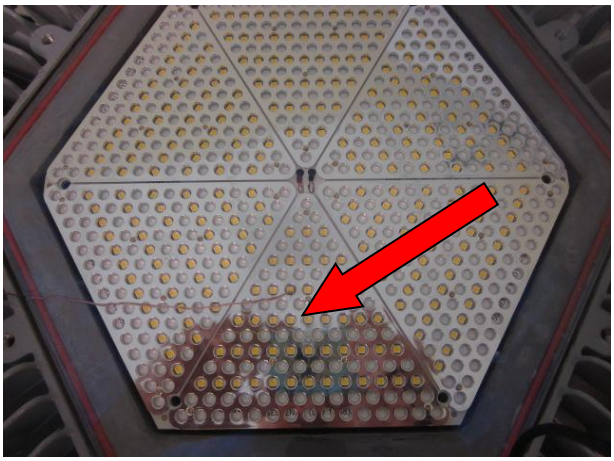
Test Conditions:

Temperature Measurement Location:	See Photographs Below	
Ambient Temperature:	25° ± 1°	(°C)
Ambient temperature at time of measurement:	24.8	(°C)
Relative humidity at time of measurement:	18%	

Results:

Measured LED source temperature:	45.1	(°C)





Equipment Used:

Equipment Name	Model Number	Calibration Due Date
Omega TC	Dpi8	3/7/2015
Fluke 8808A Digit Multimeter	8808A	4/7/2015
YOKOGAWA Digital Power Meter	760401	4/7/2015
LSI Standard Lamps	#30279	4/17/2015
LSI High Speed Mirror Goniometer	6240T	-
Instrument System Spectrometer	CAS140B-151	-
Instrument System Sphere Lamps (Osram Sylvania)	STD-20WF-3	4/17/2015
Instrument System Sphere Lamps (Osram Sylvania)	STD-20WF-3	4/17/2015
Instrument System Sphere Lamps (Osram Sylvania)	STD-20WF-3	4/17/2015
Instrument System 1.5 Meter Sphere	ISP1500	-
Volttech Power Analyzer	PM1000+	4/17/2015
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	3/6/2015
Volttech Power Analyzer	PM1000+	4/17/2015
Tenma AC Power Source	72-7675	-
BK Precison	1715A	-
TDK-Lambda	GEN1500W	-
Fluke 8808A Digit Multimeter	8808A	4/14/2015
TPI Digitial Thermometer 343	343	4/17/2015
TPI Digitial Thermometer 343	343	4/17/2015

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.

Test Report Issued By:

Richard Huegi
Dialight Optics Laboratory
Senior Optical Engineering Technician
Lighting Division

Test Report Reviewed and Approved By:

Cecil Thomas
Dialight Optics Laboratory
Optical Engineering Manager
Approved Signatory