Dialight OPTICS LABORATORY

NVLAP Lab Code 201033-0

Test Report

Report Number: L14059 Date: Sep 16, 2014

Issued by:
Dialight Optics Laboratory
1501 Route 34 South, Farmingdale, NJ 07727

Test of one Vigilant Highbay fixture
Unit manufacturer: Dialight Corporation
Unit model number: HEGMC4GN-SNG

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: September 12, 2014 through September 16, 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: L14059
Manufacturer: Dialight Corporation
Product Name: Vigilant Highbay
Description: Vigilant Highbay Fixture With Glass Lens
Model Number: HEGMC4GN-SNG

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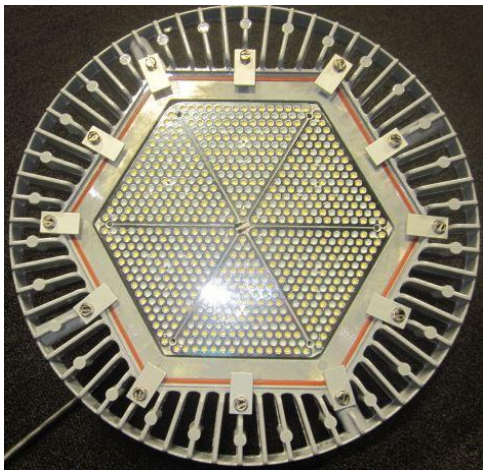
Report Summary

Sample number L14059
Dialight unit model number HEGMC4GN-SNG

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	Integrating Sphere	Goniophotometer
Luminous Flux:	14540 (lumens)	14375 (lumens)
Electrical Power:	113.7 (W)	113.7 (W)
Luminous Efficacy:	127.9 (lumens/W)	126.4 (lumens/W)

Electrical Measurements:

Input Power (120VAC):	113.7	(W)
Power Factor (120VAC):	0.992	
Current ATHD % (120VAC):	9.01	
Input Power (277VAC):	111.9	(W)
Power Factor (277VAC):	0.939	
Current ATHD % (277VAC):	16.02	

Color Measurements:

Correlated Color Temperature (CCT):	4879
Color Rendering Index (CRI):	77.6
Chromaticity Coordinate (x):	0.349
Chromaticity Coordinate (y):	0.36
Chromaticity Coordinate (u'):	0.211
Chromaticity Coordinate (v'):	0.326
DUV:	0.0025

Temperature Measurements:

In Situ LED Source Temperature:	51.0	(°C)

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Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L14059.
Dialight unit model number HEGMC4GN-SNG

Test Conditions:

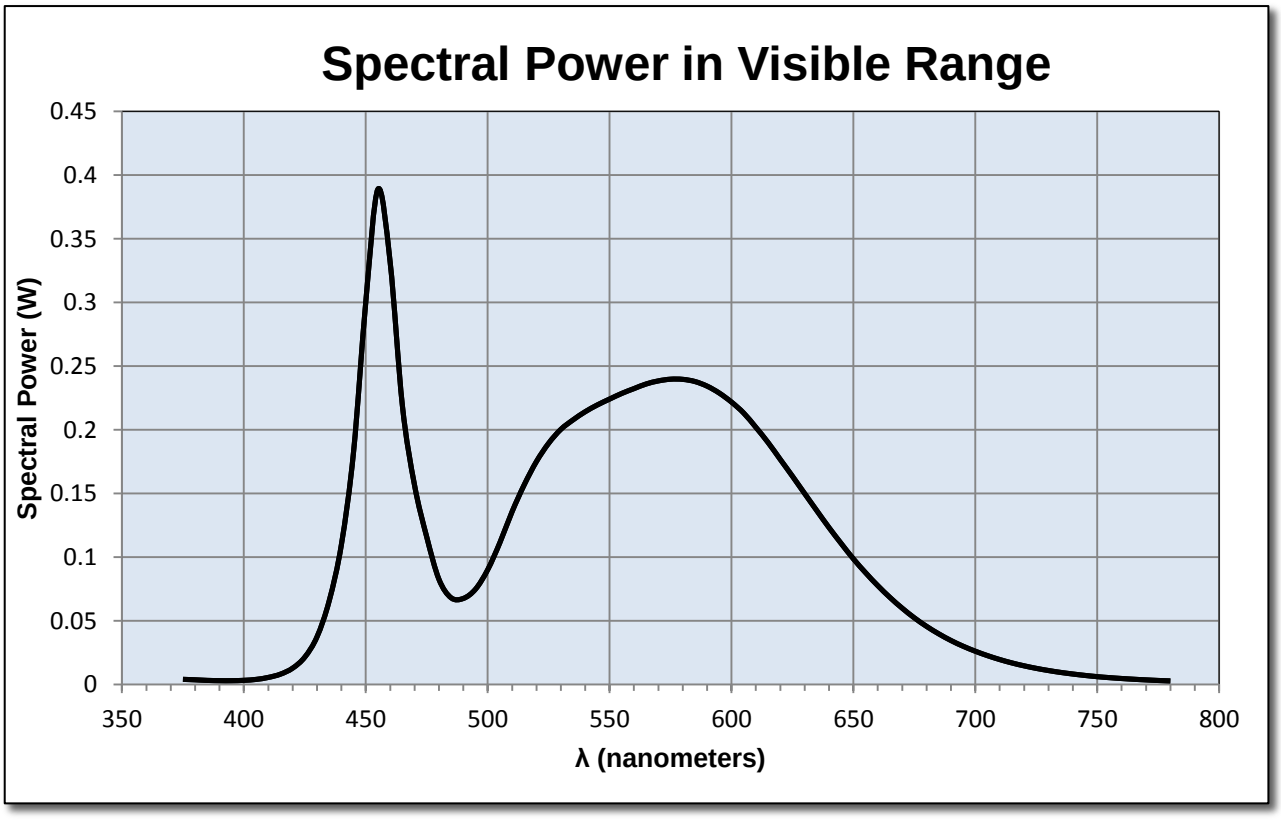
Ambient Temperature:	25 ± 1	(°C)

Electrical Measurements:

Input Voltage:	120	(VAC)
Input Current:	0.955	(A)
Input Power:	113.7	(W)
Input Power Factor:	0.992	
Current ATHD:	9.01	(%)

Photometric measurements:

Luminous Flux:	14540	(lumens)
Luminous Efficacy:	127.9	(lumens/W)
Correlated Color Temperature (CCT):	4879	(K)
CRI -Ra:	77.6	
CRI -R9:	-10.2	
DUV:	0.0025	
CIE Coordinate (x):	0.349	
CIE Coordinate (y):	0.36	
CIE Coordinate (u'):	0.211	
CIE Coordinate (v'):	0.326	



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	0.004	515	0.157	655	0.088
380	0.004	520	0.175	660	0.078
385	0.003	525	0.19	665	0.068
390	0.003	530	0.2	670	0.06
395	0.003	535	0.208	675	0.052
400	0.003	540	0.214	680	0.046
405	0.004	545	0.22	685	0.04
410	0.006	550	0.224	690	0.035
415	0.008	555	0.229	695	0.03
420	0.013	560	0.232	700	0.026
425	0.022	565	0.236	705	0.023
430	0.038	570	0.238	710	0.02
435	0.066	575	0.24	715	0.017
440	0.11	580	0.24	720	0.015
445	0.183	585	0.238	725	0.013
450	0.301	590	0.234	730	0.011
455	0.389	595	0.229	735	0.01
460	0.332	600	0.222	740	0.008
465	0.219	605	0.213	745	0.007
470	0.157	610	0.202	750	0.006
475	0.116	615	0.19	755	0.005
480	0.083	620	0.177	760	0.005
485	0.068	625	0.164	765	0.004
490	0.068	630	0.15	770	0.004
495	0.075	635	0.137	775	0.003
500	0.09	640	0.123	780	0.003
505	0.112	645	0.111		
510	0.136	650	0.099		

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Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L14059.
Dialight unit model number HEGMC4GN-SNG

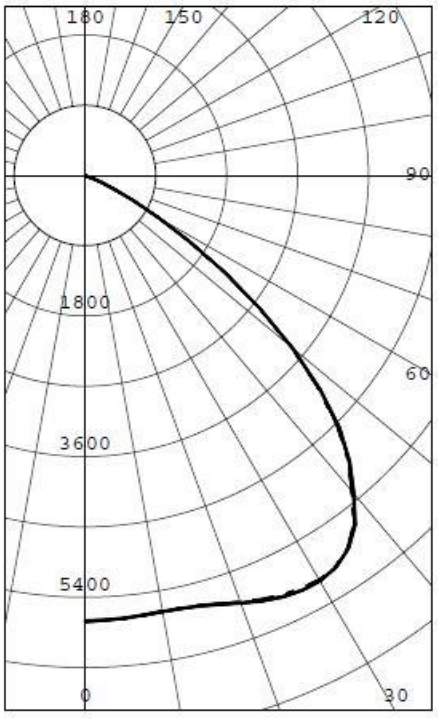
Electrical Measurements:

Input Voltage:	120	(VAC)
Input current:	0.95	(A)
Input Power:	113.7	(W)
Power Factor:	0.993	

Photometric measurements:

Absolute Luminous Flux:	14375	(lumens)
Luminous Efficacy:	126.4	(lumens/W)

Intensity Summary:



INTENSITY(CANDLEPOWER) SUMMARY

ANGLE	ALONG	22.5	45	67.5	ACROSS	OUTPUT LUMENS
0	5708	5708	5708	5708	5708	
5	5694	5696	5696	5696	5692	551
15	5698	5701	5700	5713	5708	1622
25	5925	5932	5948	5955	5953	2743
35	5814	5814	5819	5827	5830	3599
45	4519	4539	4538	4511	4565	3429
55	2150	2152	2157	2157	2172	1940
65	399	402	423	404	402	465
75	10	10	11	11	11	25
85	0	0	0	0	0	0
90	0	0	0	0	0	
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	

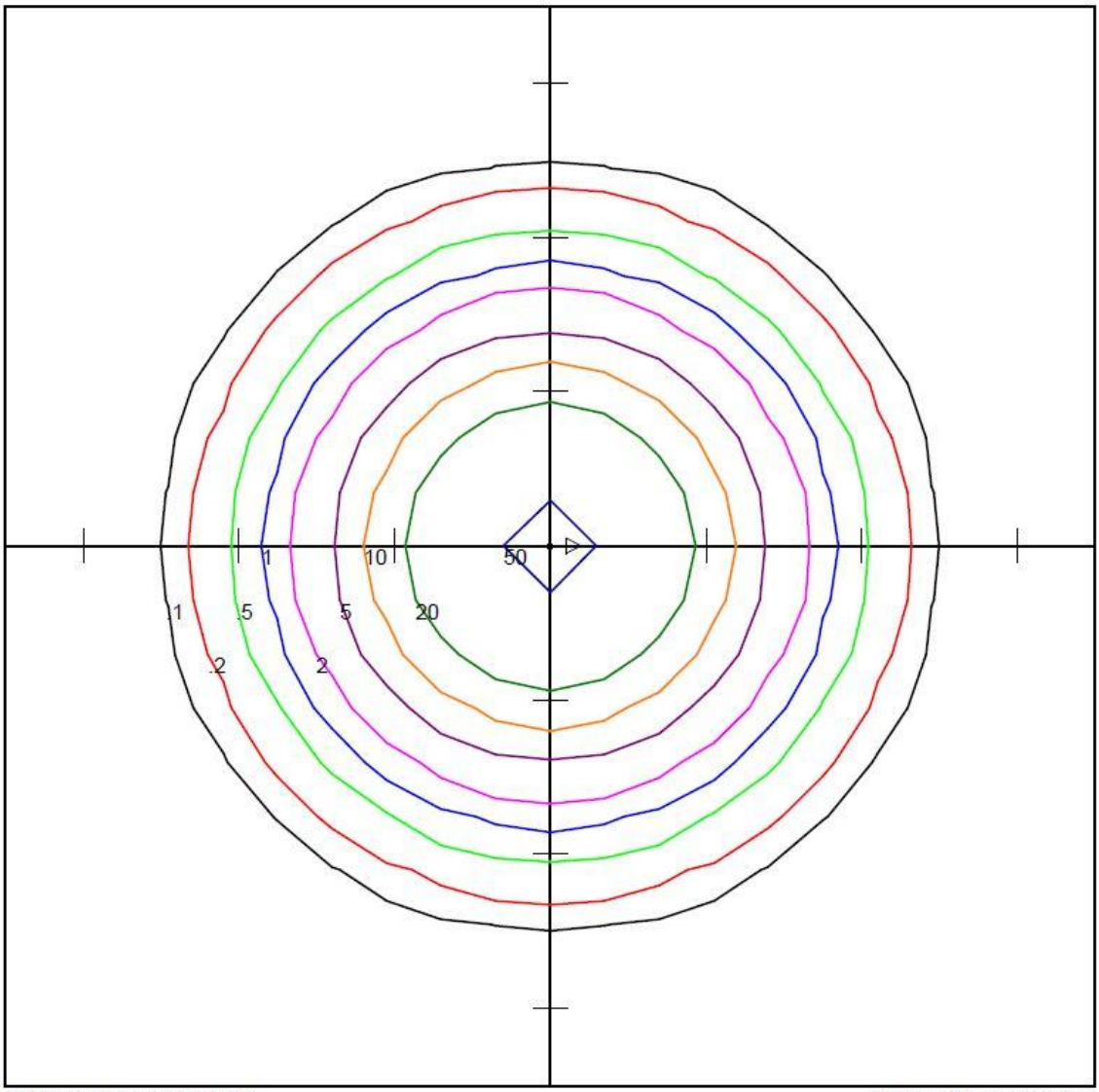
ZONAL LUMENS AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	4917	34.20
0-40	8515	59.24
0-60	13885	96.59
0-90	14375	100.00
40-90	5859	40.76
60-90	490	3.41
90-180	0	0.00
0-180	14375	100.00

Test Results: Goniometer

Results continued from previous page.

Iso-illuminance Plot:



DIALIGHT COPORATION
HEGMC4GN
MOD: HEGMC4GN
LED

Horizontal Footcandles
Scale: 1 Inch = 10 Ft.
Light Loss Factor = 1.00
Lumens Per Lamp = N.A. (absolute photometry)
Luminaire Lumens = 14393
Mounting Height = 10.00 Ft
Maximum Calculated Value = 57.08 Fc
Arrangement: Single

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L14059.
Dialight unit model number HEGMC4GN-SNG

LED identified as NICHIA part number NT2W757DT.

LED drive current (as indicated by customer): 77 (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:

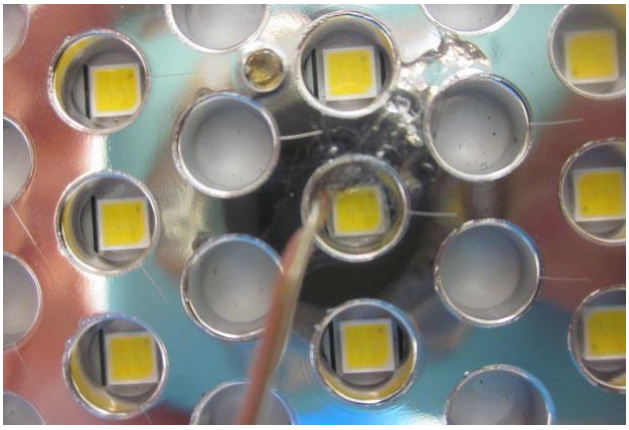
Maximum Power at Indicated Current:	0.27	(W)	
Maximum Source Temperature:	115.1	(°C)	(Tj - [power dissipation * Rth])

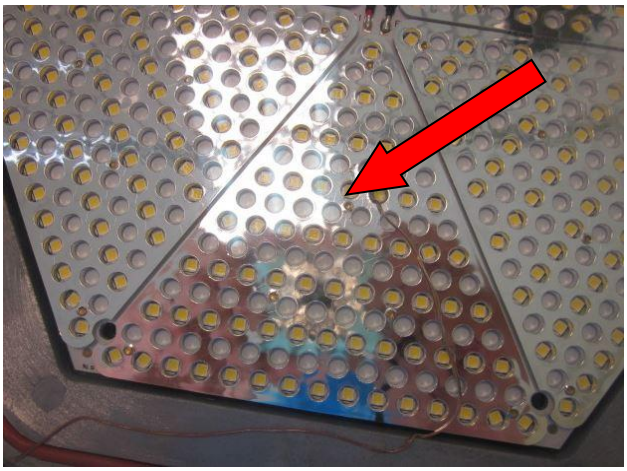
Test Conditions:

Temperature Measurement Location:	See Photographs Below	
Ambient Temperature:	25° ± 1‘	(°C)
Ambient temperature at time of measurement:	24.7	(°C)
Relative humidity at time of measurement:	41%	

Results:

Measured LED source temperature: 51 (°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