Dialight
OPTICS LABORATORY

NVLAP Lab Code 201033-0

Test Report

Report Number: L14172 Date: Jan 13, 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: HEGRC4GN-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: December 31, 2014 through January 13, 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: L14172
Manufacturer: Dialight Corporation
Product Name: Vigilant
Description: Vigilant Highbay With Glass Lens
Model Number: HEGRC4GN-xxx

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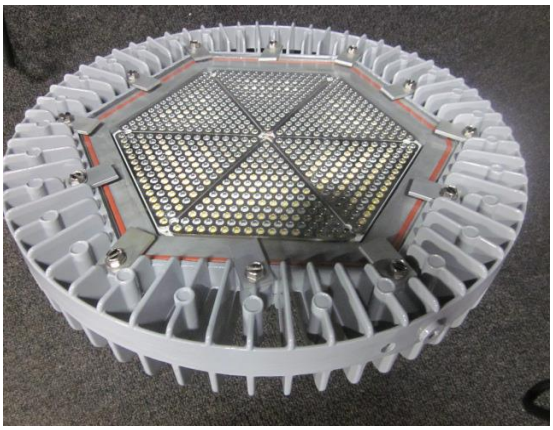
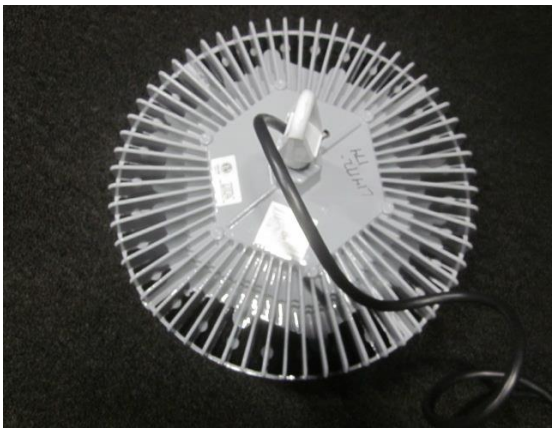
NVLAP Lab Code 201033-0

Report Summary

Sample number L14172
Dialight unit model number HEGRC4GN-xxx

Photograph(s) of sample:





*Photographs not to scale. For reference only.

Summary of Results:

	Integrating Sphere	Goniophotometer
Luminous Flux:	13900 (lumens)	13984 (lumens)
Electrical Power:	112.2 (W)	112.3 (W)
Luminous Efficacy:	123.9 (lumens/W)	124.6 (lumens/W)

Electrical Measurements:

Input Power (120VAC):	112.2	(W)
Power Factor (120VAC):	0.992	
Current ATHD % (120VAC):	9.134	
Input Power (277VAC):	110.5	(W)
Power Factor (277VAC):	0.938	
Current ATHD % (277VAC):	16.239	

Color Measurements:

Correlated Color Temperature (CCT):	4874
Color Rendering Index (CRI):	77.5
Chromaticity Coordinate (x):	0.3495
Chromaticity Coordinate (y):	0.3607
Chromaticity Coordinate (u'):	0.2109
Chromaticity Coordinate (v'):	0.3265
DUV:	0.0028

Temperature Measurements:

In Situ LED Source Temperature:	45.9	(°C)

Dialight OPTICS LABORATORY

NVLAP Lab Code 201033-0

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L14172.
Dialight unit model number HEGRC4GN-xxx

Test Conditions:

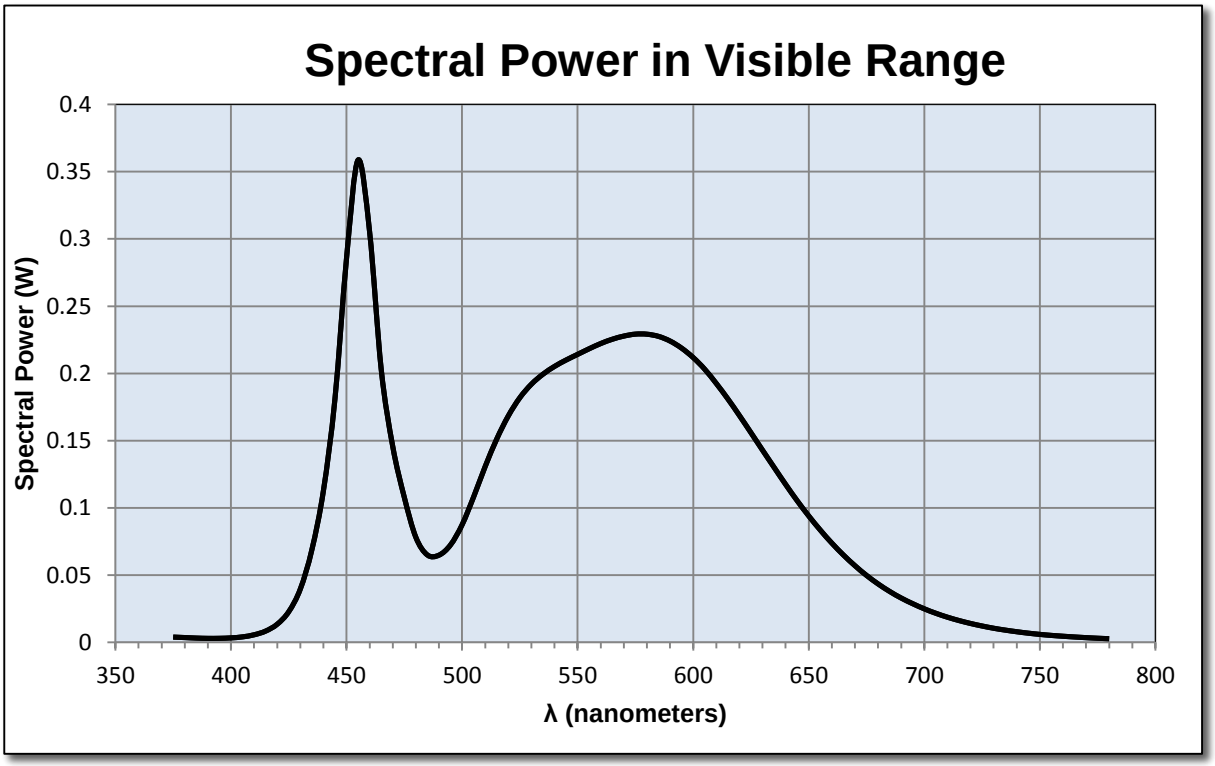
Ambient Temperature:	25 ± 1	(°C)

Electrical Measurements:

Input Voltage:	120	(VAC)
Input Current:	0.941	(A)
Input Power:	112.2	(W)
Input Power Factor:	0.992	
Current ATHD:	9.134	(%)

Photometric measurements:

Luminous Flux:	13900	(lumens)
Luminous Efficacy:	123.9	(lumens/W)
Correlated Color Temperature (CCT):	4874	(K)
CRI -Ra:	77.5	
CRI -R9:	-11.1	
DUV:	0.0028	
CIE Coordinate (x):	0.3495	
CIE Coordinate (y):	0.3607	
CIE Coordinate (u'):	0.2109	
CIE Coordinate (v'):	0.3265	



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	0.151	655	0.084
380	0.004	520	0.168	660	0.074
385	0.003	525	0.182	665	0.065
390	0.003	530	0.192	670	0.057
395	0.003	535	0.199	675	0.050
400	0.003	540	0.205	680	0.043
405	0.004	545	0.210	685	0.038
410	0.006	550	0.214	690	0.033
415	0.008	555	0.218	695	0.029
420	0.013	560	0.222	700	0.025
425	0.023	565	0.225	705	0.022
430	0.04	570	0.228	710	0.019
435	0.069	575	0.229	715	0.016
440	0.113	580	0.229	720	0.014
445	0.181	585	0.228	725	0.012
450	0.286	590	0.224	730	0.011
455	0.359	595	0.219	735	0.009
460	0.305	600	0.212	740	0.008
465	0.203	605	0.203	745	0.007
470	0.146	610	0.193	750	0.006
475	0.108	615	0.181	755	0.005
480	0.078	620	0.169	760	0.005
485	0.065	625	0.156	765	0.004
490	0.065	630	0.143	770	0.004
495	0.072	635	0.130	775	0.003
500	0.087	640	0.117	780	0.003
505	0.108	645	0.105		
510	0.131	650	0.094		

Dialight OPTICS LABORATORY

NVLAP Lab Code 201033-0

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L14172.
Dialight unit model number HEGRC4GN-xxx

Electrical Measurements:

Input Voltage:	120	(VAC)
Input current:	0.914	(A)
Input Power:	112.3	(W)
Power Factor:	0.9925	

Photometric measurements:

Absolute Luminous Flux:	13984.2	(lumens)
Luminous Efficacy:	124.6	(lumens/W)

Intensity Summary:

INTENSITY (CANDLEPOWER) SUMMARY

ANGLE	ALONG	22.5	45	67.5	ACROSS	OUTPUT LUMENS
0	5499	5499	5499	5499	5499	
5	5469	5472	5465	5469	5482	205
15	5300	5299	5296	5300	5315	1144
25	5336	5307	5312	5327	5348	2098
35	5920	5878	5892	5921	5952	3218
45	5531	5468	5477	5534	5560	4256
55	1656	1627	1638	1652	1662	2696
65	63	60	61	62	59	348
75	8	7	8	8	7	18
85	0	0	0	0	0	1
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	

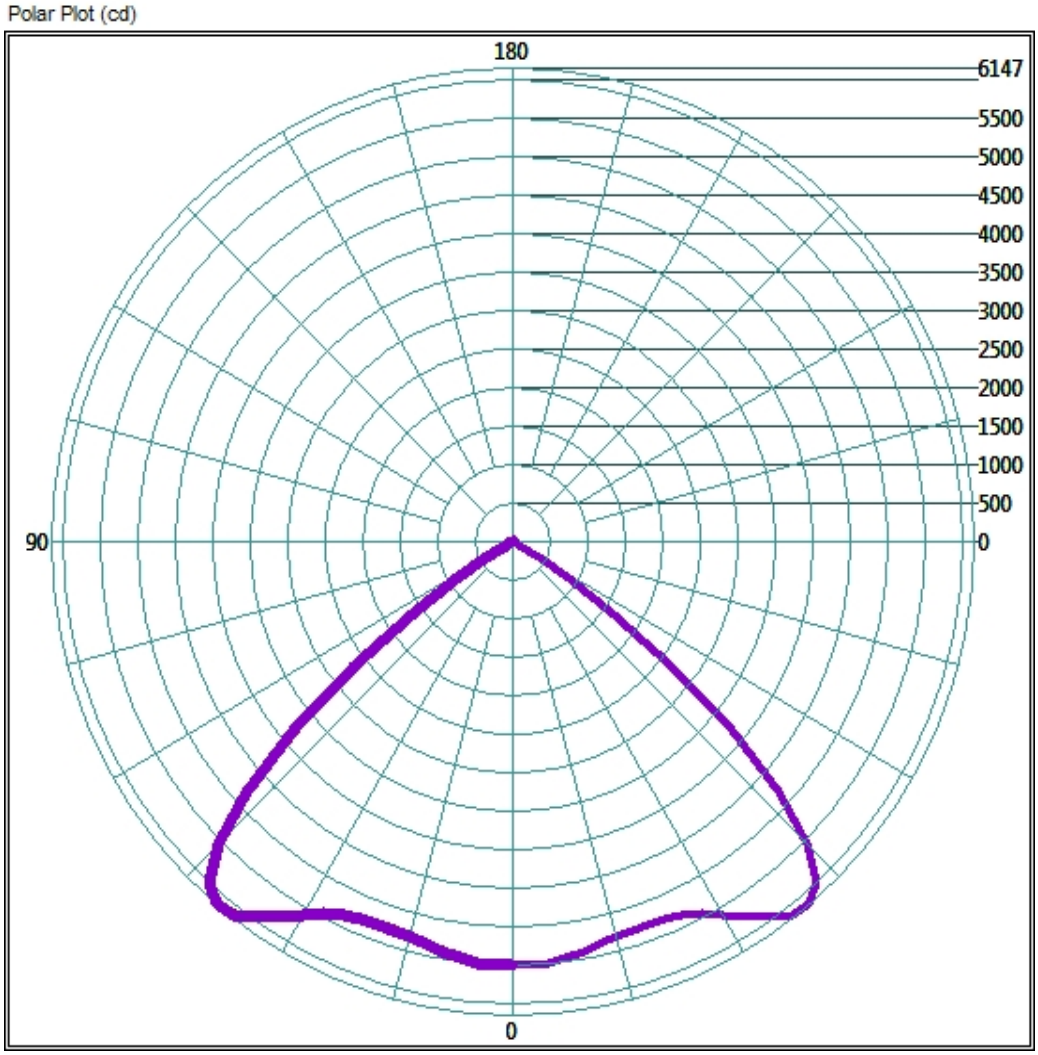
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	4892.88	35.0%
0-40	8751.7	62.6%
0-60	13912.74	99.5%
60-90	165.02	1.2%
0-90	13984.12	100.0%
90-180	0	0.0%
0-180	13984.12	100.0%

Test Results: Goniometer

Results continued from previous page.

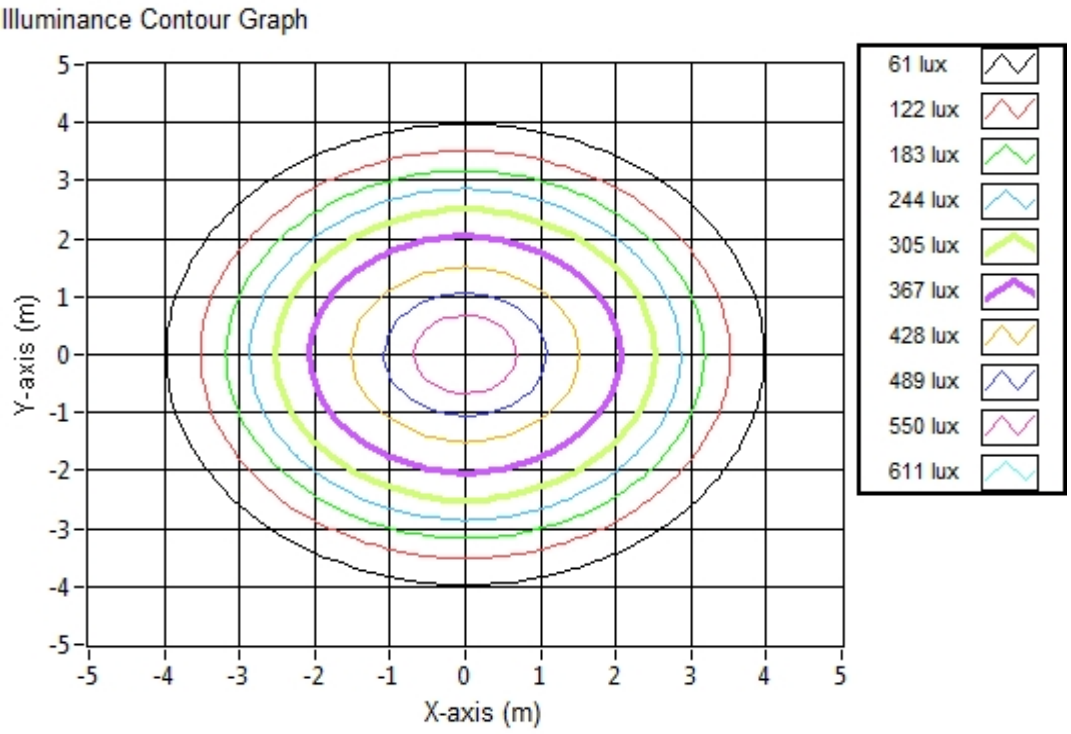
Polar Polt:



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	7.89	7.90	591.9
6.096	15.79	15.81	148.0
9.144	23.68	23.71	65.8
12.192	31.58	31.62	37.0
15.24	39.47	39.52	23.7
18.288	47.36	47.43	16.4
21.336	55.26	55.33	12.1
24.384	63.15	63.23	9.2
27.432	71.04	71.14	7.3
30.48	78.94	79.04	5.9

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L14172.
Dialight unit model number HEGRC4GN-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:

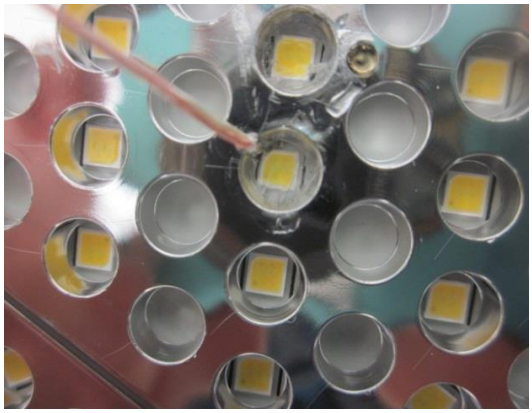
Maximum Power at Indicated Current:	0.35	(W)
Maximum Source Temperature:	113.7	(°C)

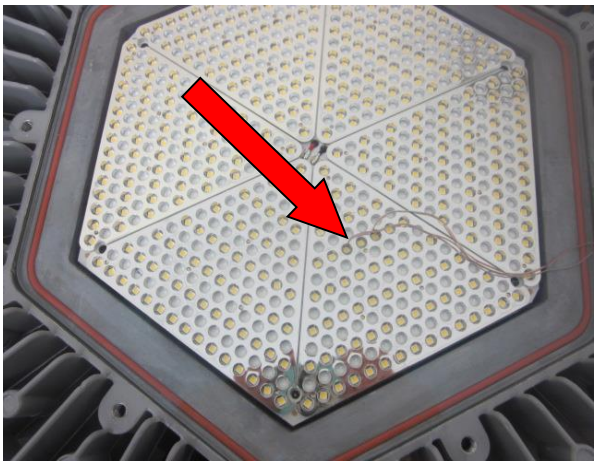
Test Conditions:

Temperature Measurement Location:	See Photographs Below	
Ambient Temperature:	25° ± 1°	(°C)
Ambient temperature at time of measurement:	25.5	(°C)
Relative humidity at time of measurement:	10%	

Results:

Measured LED source temperature:	45.9	(°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:

Vishnu Shastry
Dialight Optics Laboratory
Optical Engineer
Approved Signatory