Dialight OPTICS LABORATORY

NVLAP Lab Code 201033-0

Test Report

Report Number: L15022 Date: Mar 30, 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: HEGEC4DN-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: March 19, 2015 through March 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: L15022
Manufacturer: Dialight Corporation
Product Name: Vigilant Highbay
Description: Vigilant Highbay With Glass Lens
Model Number: HEGEC4DN-xxx

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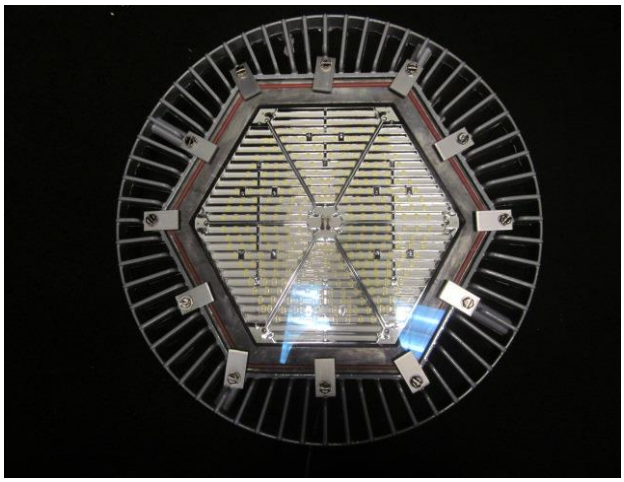
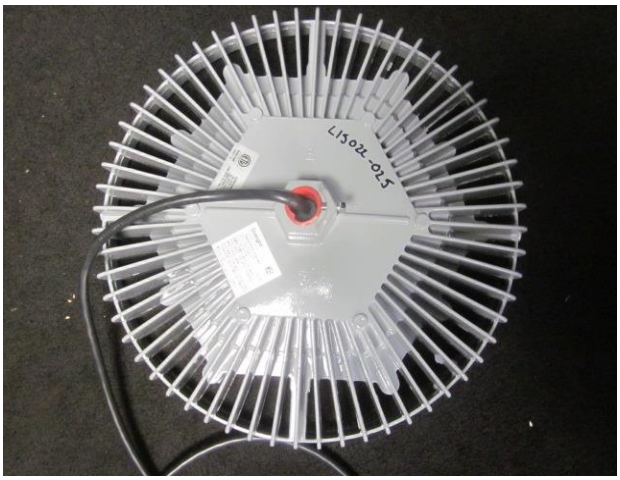
Report Summary

Sample number L15022

Dialight unit model number HEGEC4DN-xxx

Photograph(s) of sample:





*Photographs not to scale. For reference only.

Summary of Results:

	Integrating Sphere		Goniophotometer	
Luminous Flux:	11450	(lumens)	11268	(lumens)
Electrical Power:	89.2	(W)	89.4	(W)
Luminous Efficacy:	128.4	(lumens/W)	126.1	(lumens/W)

Electrical Measurements:

Input Power (120VAC):	89.2	(W)
Power Factor (120VAC):	0.99	
Current ATHD % (120VAC):	10.25	
Input Power (277VAC):	88.7	(W)
Power Factor (277VAC):	0.927	
Current ATHD % (277VAC):	17.15	

Color Measurements:

Correlated Color Temperature (CCT):	4936
Color Rendering Index (CRI):	77
Chromaticity Coordinate (x):	0.347
Chromaticity Coordinate (y):	0.355
Chromaticity Coordinate (u'):	0.212
Chromaticity Coordinate (v'):	0.487
DUV:	0.00082

Temperature Measurements:

In Situ LED Source Temperature:	41.6	(°C)

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Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L15022.
Dialight unit model number HEGEC4DN-xxx

Test Conditions:

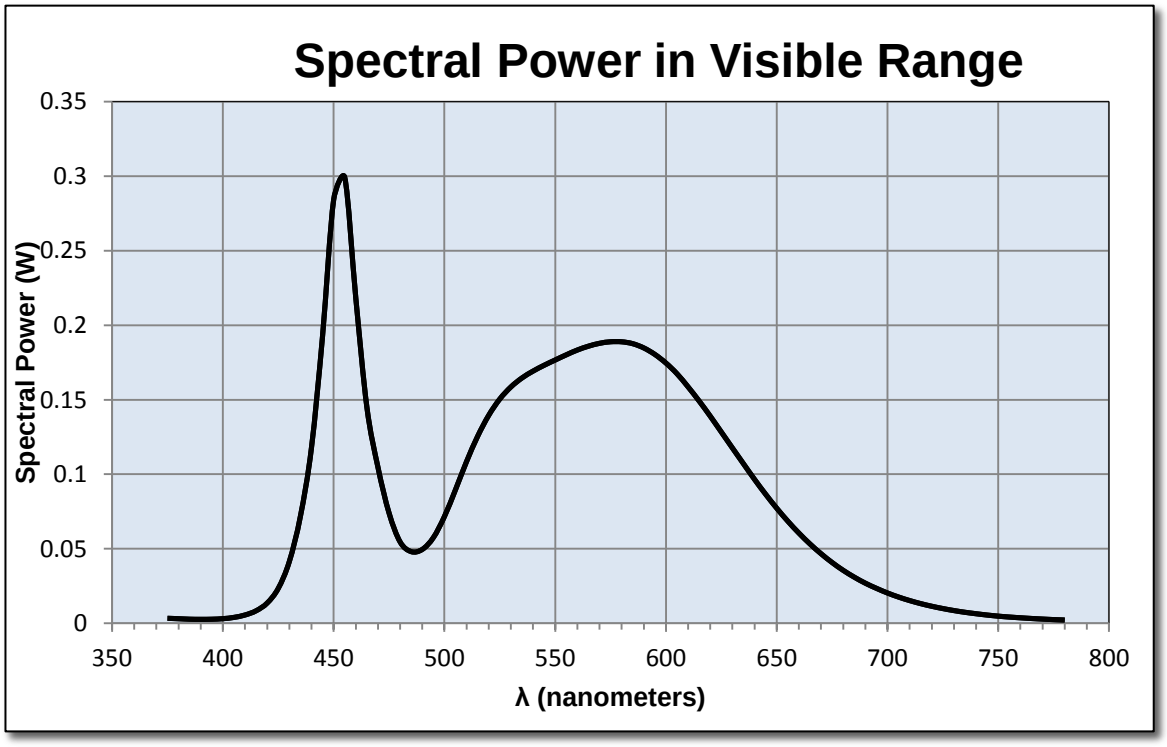
Ambient Temperature:	25 ± 1	(°C)

Electrical Measurements:

Input Voltage:	120	(VAC)
Input Current:	0.748	(A)
Input Power:	89.2	(W)
Input Power Factor:	0.99	
Current ATHD:	10.25	(%)

Photometric measurements:

Luminous Flux:	11450	(lumens)
Luminous Efficacy:	128.4	(lumens/W)
Correlated Color Temperature (CCT):	4936	(K)
CRI -Ra:	77	
CRI -R9:	-11.9	
DUV:	0.00082	
CIE Coordinate (x):	0.347	
CIE Coordinate (y):	0.355	
CIE Coordinate (u'):	0.212	
CIE Coordinate (v'):	0.487	



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	0.125	655	0.069
380	0.003	520	0.14	660	0.061
385	0.003	525	0.15	665	0.053
390	0.003	530	0.159	670	0.047
395	0.003	535	0.165	675	0.041
400	0.003	540	0.169	680	0.036
405	0.004	545	0.173	685	0.031
410	0.006	550	0.177	690	0.027
415	0.008	555	0.18	695	0.023
420	0.014	560	0.183	700	0.02
425	0.023	565	0.186	705	0.018
430	0.041	570	0.188	710	0.015
435	0.072	575	0.189	715	0.013
440	0.118	580	0.189	720	0.011
445	0.193	585	0.188	725	0.01
450	0.284	590	0.185	730	0.009
455	0.299	595	0.18	735	0.007
460	0.218	600	0.175	740	0.006
465	0.145	605	0.167	745	0.006
470	0.105	610	0.159	750	0.005
475	0.074	615	0.149	755	0.004
480	0.055	620	0.139	760	0.004
485	0.048	625	0.128	765	0.003
490	0.05	630	0.118	770	0.003
495	0.057	635	0.107	775	0.002
500	0.072	640	0.097	780	0.002
505	0.09	645	0.087		
510	0.109	650	0.077		

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Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L15022.
Dialight unit model number HEGEC4DN-xxx

Electrical Measurements:

Input Voltage:	120	(VAC)
Input current:	0.751	(A)
Input Power:	89.4	(W)
Power Factor:	0.991	

Photometric measurements:

Absolute Luminous Flux:	11268	(lumens)
Luminous Efficacy:	126.1	(lumens/W)

Intensity Summary:

INTENSITY (CANDLEPOWER) SUMMARY

ANGLE	ALONG	15	25	60	ACROSS	OUTPUT LUMENS
0	8166	8166	8166	8166	8166	
5	7710	7701	7747	7871	8113	296
15	5558	5624	5805	6603	7800	1485
25	3905	3952	4055	4898	7175	2193
35	3257	3334	3444	3594	6250	2519
45	1231	1405	1774	2912	4988	2360
55	78	113	154	1325	3345	1490
65	4	9	34	88	1798	700
75	0	0	3	4	495	211
85	0	0	0	0	0	15
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	

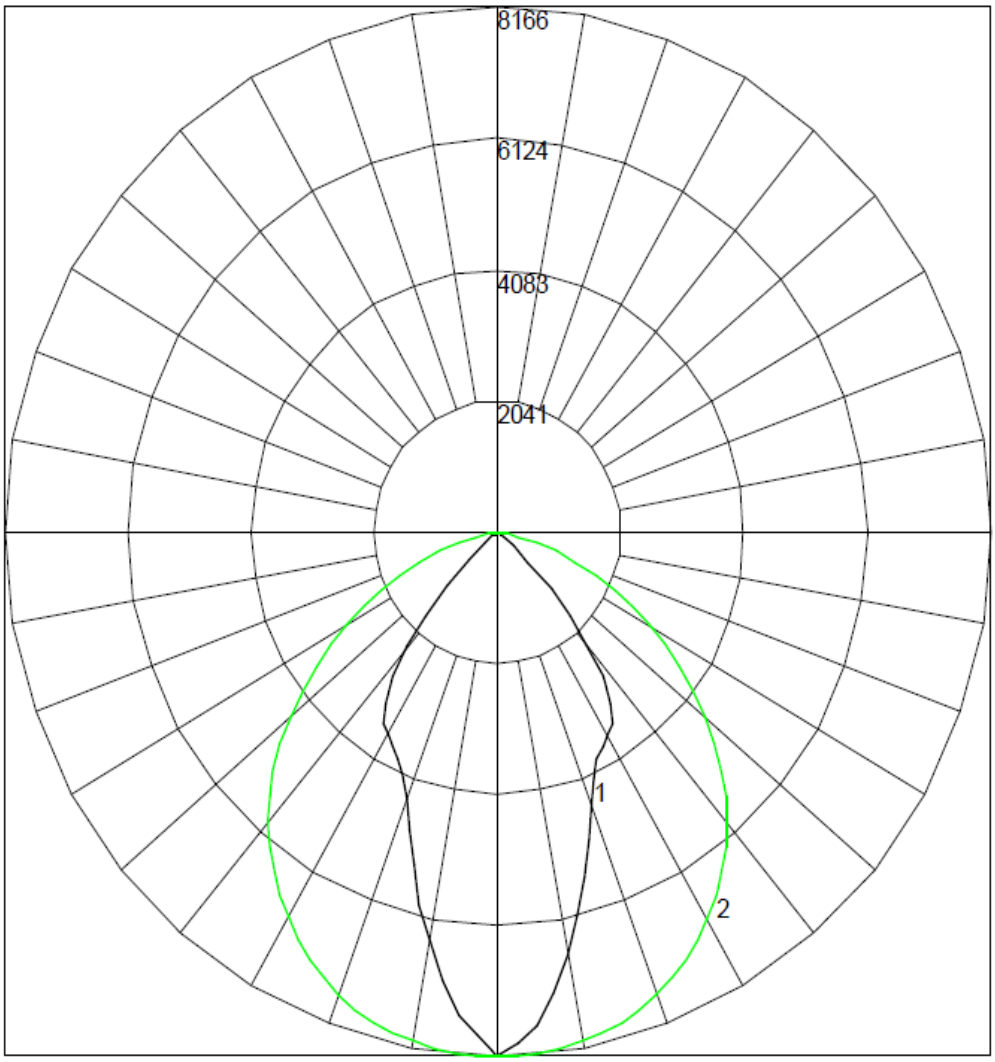
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	5206.74	46.2%
0-40	7745.08	68.7%
0-60	10771.92	95.6%
60-90	689.8	6.1%
0-90	11268.42	100.0%
90-180	0	0.0%
0-180	11268.42	100.0%

Test Results: Goniometer

Results continued from previous page.

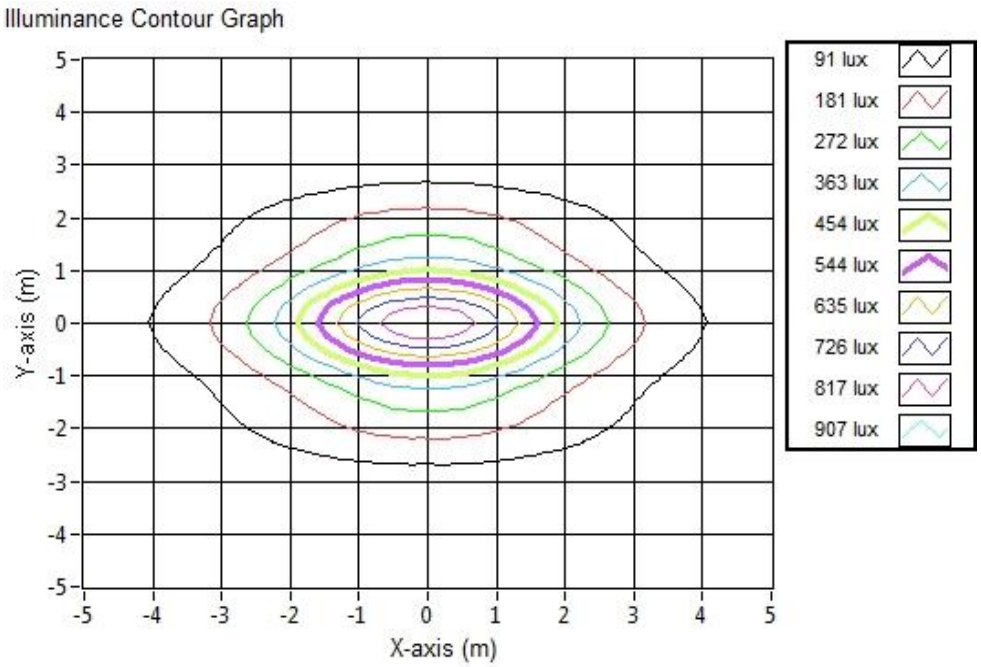
Polar Plot:



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	2.59	7.92	879.0
6.096	5.17	15.85	219.7
9.144	7.76	23.77	97.7
12.192	10.35	31.70	54.9
15.24	12.94	39.62	35.2
18.288	15.52	47.54	24.4
21.336	18.11	55.47	17.9
24.384	20.70	63.39	13.7
27.432	23.28	71.32	10.9
30.48	25.87	79.24	8.8

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Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L15022.
Dialight unit model number HEGEC4DN-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:

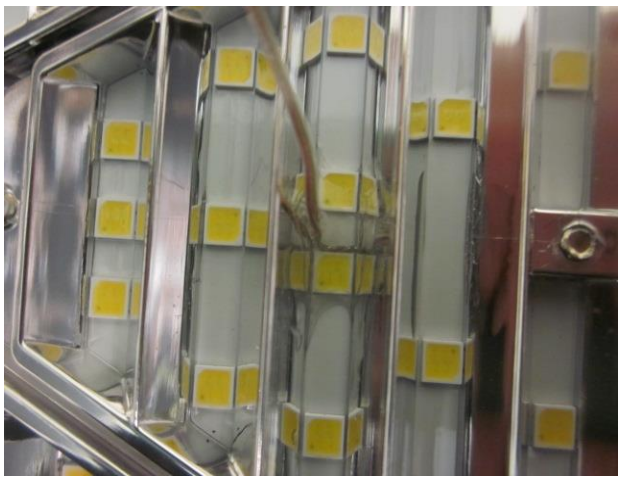
Maximum Power at Indicated Current:	0.35	(W)
Maximum Source Temperature:	113.7	(°C)

Test Conditions:

Temperature Measurement Location:	See Photographs Below	
Ambient Temperature:	25° ± 1‘	(°C)
Ambient temperature at time of measurement:	24.6	(°C)
Relative humidity at time of measurement:	10%	

Results:

Measured LED source temperature:	41.6	(°C)



Equipment Used:

Equipment Name	Model Number
Omega TC	Dpi8
Fluke 8808A Digit Multimeter	8808A
YOKOGAWA Digital Power Meter	760401
LSI Standard Lamps	#30279
LSI High Speed Mirror Goniometer	6240T
Instrument System Spectrometer	CAS140B-151
Instrument System Sphere Lamps (Osram Sylvania)	STD-20WF-3
Instrument System Sphere Lamps (Osram Sylvania)	STD-20WF-3
Instrument System Sphere Lamps (Osram Sylvania)	STD-20WF-3
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	445703
Extech Hygro-Thermometer	445703
Fluke 52II Thermometer	52II Thermometer
Volttech Power Analyzer	PM1000+
Tenma AC Power Source	72-7675
BK Precison	1715A
TDK-Lambda	GEN1500W
Fluke 8808A Digit Multimeter	8808A
TPI Digitial Thermometer 343	TPI 343
TPI Digitial Thermometer 343	TPI 343
Step-Up Transformer	
Omega TC	Dpi8-C24
Agilent True RMS OLED Multimeter	U1273A

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.
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Dialight Optics Laboratory
Optical Engineer
Approved Signatory