

Test Report

Report Number: L15030

Date: Mar 20, 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: HEGEC4KN-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 13, 2015 through March 20, 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

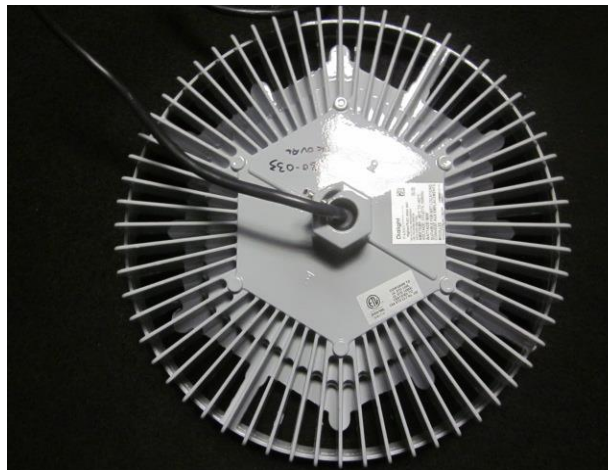
Description of sample:

Sample Number: L15030
Manufacturer: Dialight Corporation
Product Name: Vigilant Highbay
Description: Vigilant Highbay With Glass Lens
Model Number: HEGEC4KN-xxx

Report Summary

Sample number L15030
Dialight unit model number HEGEC4KN-xxx

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	18130 (lumens)	18365 (lumens)
Electrical Power:	143.2 (W)	143.8 (W)
Luminous Efficacy:	126.6 (lumens/W)	127.8 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 143.2 (W)
 Power Factor (120VAC): 0.994
 Current ATHD % (120VAC): 7.936
 Input Power (277VAC): 140.2 (W)
 Power Factor (277VAC): 0.964
 Current ATHD % (277VAC): 11.81

Color Measurements:

Correlated Color Temperature (CCT): 4942
 Color Rendering Index (CRI): 78.1
 Chromaticity Coordinate (x): 0.347
 Chromaticity Coordinate (y): 0.354
 Chromaticity Coordinate (u'): 0.212
 Chromaticity Coordinate (v'): 0.324
 DUV: 0.00031

Temperature Measurements:

In Situ LED Source Temperature: 54.6 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L15030.
Dialight unit model number HEGEC4KN-xxx

Test Conditions:

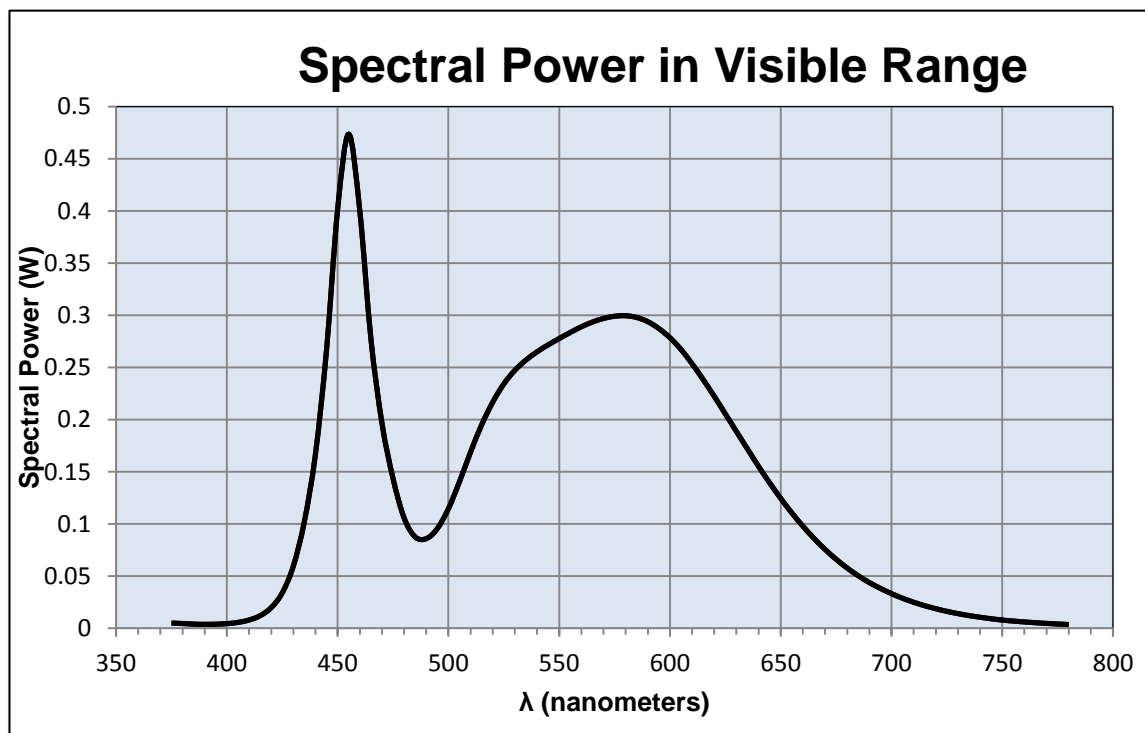
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
Input Current: 1.19 (A)
Input Power: 143.2 (W)
Input Power Factor: 0.994
Current ATHD: 7.936 (%)

Photometric measurements:

Luminous Flux: 18130 (lumens)
Luminous Efficacy: 126.6 (lumens/W)
Correlated Color Temperature (CCT): 4942 (K)
CRI -Ra: 78.1
CRI -R9: -8.3
DUV: 0.00031
CIE Coordinate (x): 0.347
CIE Coordinate (y): 0.354
CIE Coordinate (u'): 0.212
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	0.005	515	0.195	655	0.111
380	0.005	520	0.217	660	0.098
385	0.004	525	0.234	665	0.086
390	0.004	530	0.247	670	0.076
395	0.004	535	0.257	675	0.066
400	0.004	540	0.265	680	0.058
405	0.006	545	0.272	685	0.05
410	0.008	550	0.278	690	0.044
415	0.012	555	0.284	695	0.038
420	0.02	560	0.289	700	0.033
425	0.034	565	0.293	705	0.029
430	0.06	570	0.297	710	0.025
435	0.103	575	0.299	715	0.022
440	0.167	580	0.3	720	0.019
445	0.267	585	0.298	725	0.016
450	0.402	590	0.294	730	0.014
455	0.474	595	0.287	735	0.012
460	0.4	600	0.278	740	0.011
465	0.278	605	0.267	745	0.009
470	0.197	610	0.253	750	0.008
475	0.144	615	0.238	755	0.007
480	0.106	620	0.222	760	0.006
485	0.088	625	0.206	765	0.005
490	0.086	630	0.189	770	0.005
495	0.096	635	0.172	775	0.004
500	0.115	640	0.155	780	0.004
505	0.141	645	0.139		
510	0.169	650	0.125		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L15030.
Dialight unit model number HEGEC4KN-xxx

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 1.204 (A)
Input Power: 143.8 (W)
Power Factor: 0.995

Photometric measurements:

Absolute Luminous Flux: 18365 (lumens)
Luminous Efficacy: 127.8 (lumens/W)

Intensity Summary:

ANGLE	ALONG	<u>INTENSITY (CANDLEPOWER) SUMMARY</u>				OUTPUT LUMENS
		67.5	112.5	270	ACROSS	
0	12516	12611	12611	12564	0	
5	11957	12455	12441	12016	0	467
15	8744	11646	11214	9591	0	2415
25	6352	9797	9264	6993	0	3635
35	4582	7480	6988	5528	0	4151
45	1151	5115	4872	3434	0	3759
55	43	3246	3182	626	0	2367
65	0	985	810	55	0	1193
75	0	10	3	0	0	350
85	0	0	0	0	0	27
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

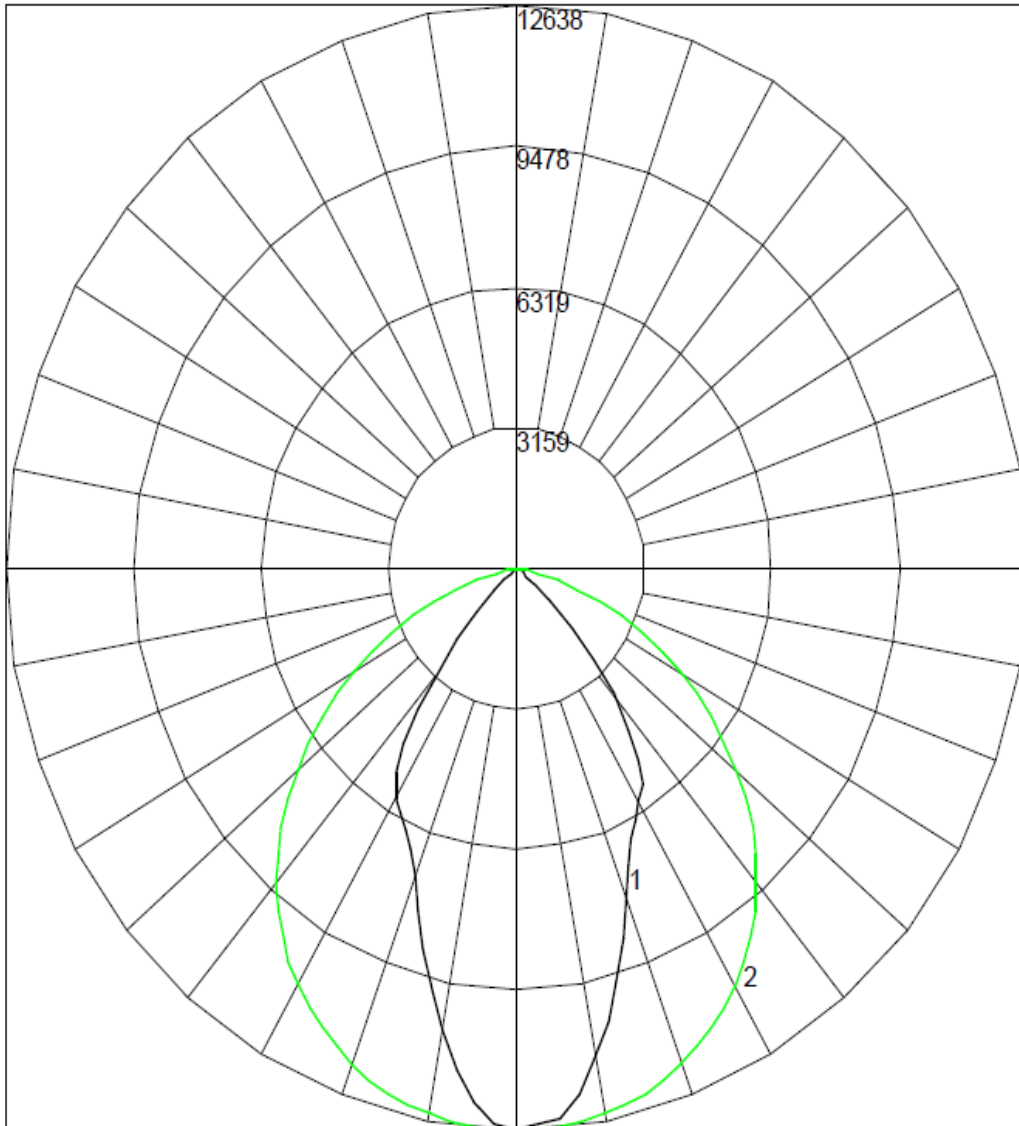
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	8561.71	46.6%
0-40	12681.11	69.1%
0-60	17512.07	95.4%
60-90	1180.11	6.4%
0-90	18364.57	100.0%
90-180	0	0.0%
0-180	18364.57	100.0%

Test Results: Goniometer

Results continued from previous page.

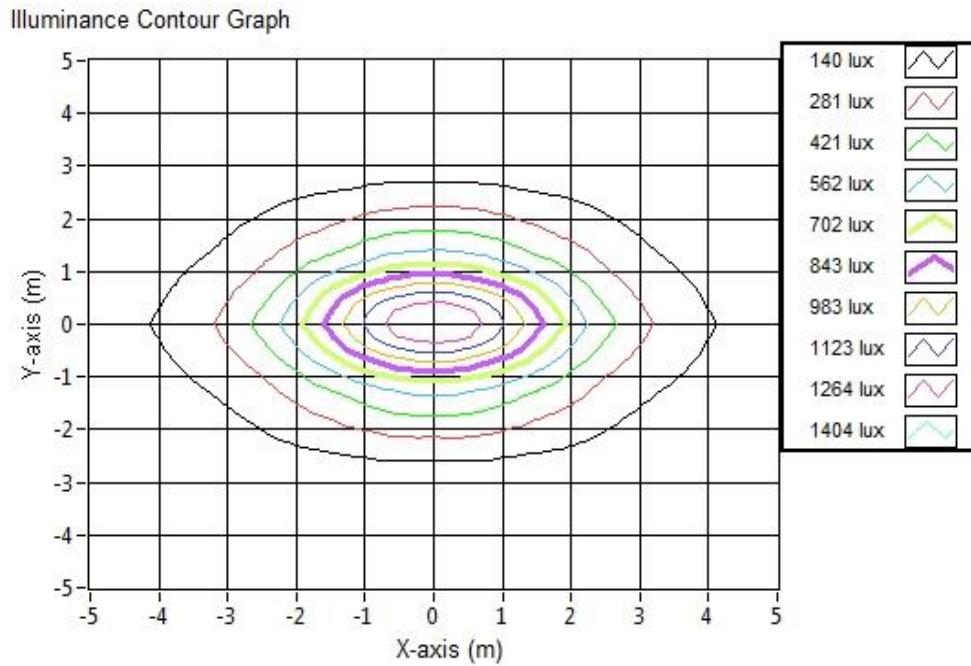
Polar Plot:



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)
3.047	3.13	8.16	1361.2
6.095	6.26	16.32	340.2
9.144	9.40	24.49	151.1
12.192	12.53	32.65	85.0
15.24	15.66	40.82	54.4
18.288	18.80	48.98	37.8
21.336	21.93	57.14	27.8
24.384	25.06	65.31	21.3
27.432	28.19	73.47	16.8
30.48	31.33	81.63	13.6

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L15030.
Dialight unit model number HEGEC4KN-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:

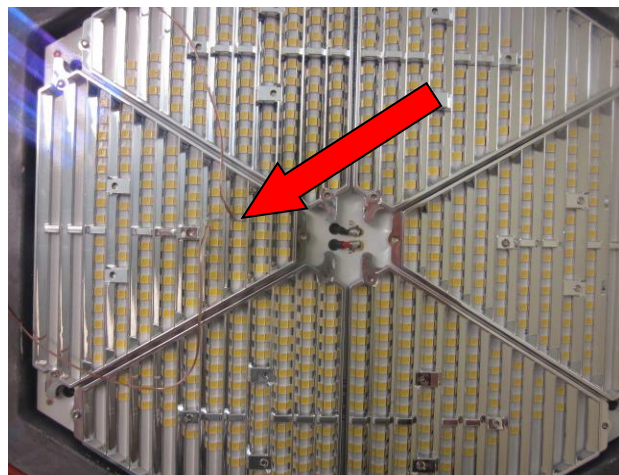
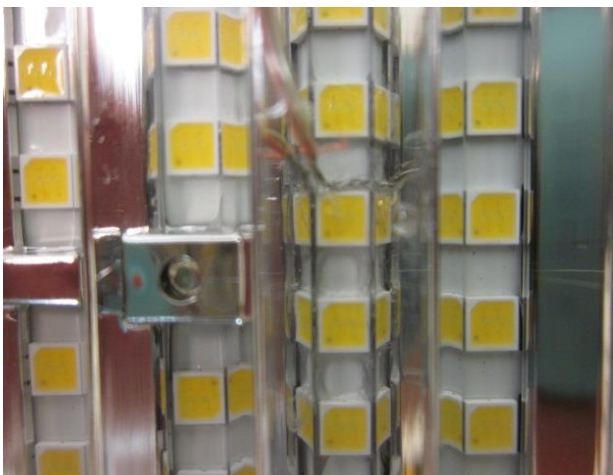
Maximum Power at Indicated Current: 0.35 (W)
Maximum Source Temperature: 113.7 (°C)

Test Conditions:

Temperature Measurement Location: See Photographs Below
Ambient Temperature: $25^{\circ} \pm 1^{\circ}$ (°C)
Ambient temperature at time of measurement: 24.3 (°C)
Relative humidity at time of measurement: 10%

Results:

Measured LED source temperature: 54.6 (°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 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

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.

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 Optical Engineer
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