

Test Report

Report Number: L15083

Date: Jul 1, 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: HEGNC4KN-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: June 16, 2015 through June 24, 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):

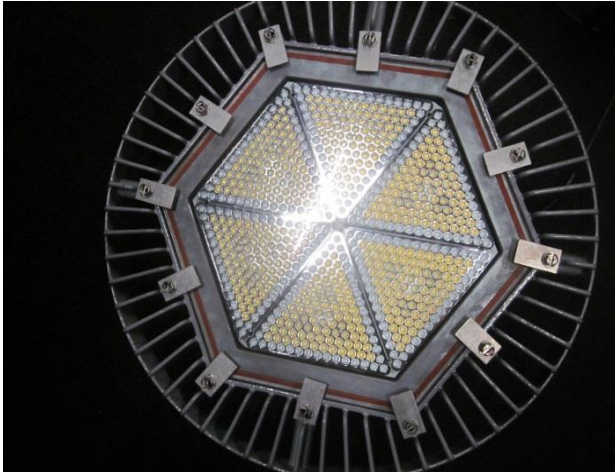
- IES LM-79:2008: Electrical and Photometric Measurements of Solid-State Lighting Products
- ANSI/UL 1598:2008: Underwriters Laboratories Inc. Standard for Safety: Luminaires
- ENERGY STAR Manufacturer's Guide for Qualifying Solid State Lighting Luminaires Version 2.1

Description of sample:

Sample Number: L15083
Manufacturer: Dialight Corporation
Product Name: Vigilant Highbay
Description: Vigilant Highbay With Glass Lens
Model Number: HEGNC4KN-xxx

Report Summary
Sample number L15083
Dialight unit model number HEGNC4KN-xxx

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	18260 (lumens)	18046 (lumens)
Electrical Power:	142.3 (W)	142.8 (W)
Luminous Efficacy:	128.2 (lumens/W)	126.4 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 142.3 (W)
 Power Factor (120VAC): 0.994
 Current ATHD % (120VAC): 8.078
 Input Power (277VAC): 139.9 (W)
 Power Factor (277VAC): 0.958
 Current ATHD % (277VAC): 13.23

Color Measurements:

Correlated Color Temperature (CCT): 4981
 Color Rendering Index (CRI): 79.5
 Chromaticity Coordinate (x): 0.346
 Chromaticity Coordinate (y): 0.353
 Chromaticity Coordinate (u'): 0.211
 Chromaticity Coordinate (v'): 0.324
 DUV: 0.00026

Temperature Measurements:

In Situ LED Source Temperature: 57.5 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L15083.
Dialight unit model number HEGNC4KN-xxx

Test Conditions:

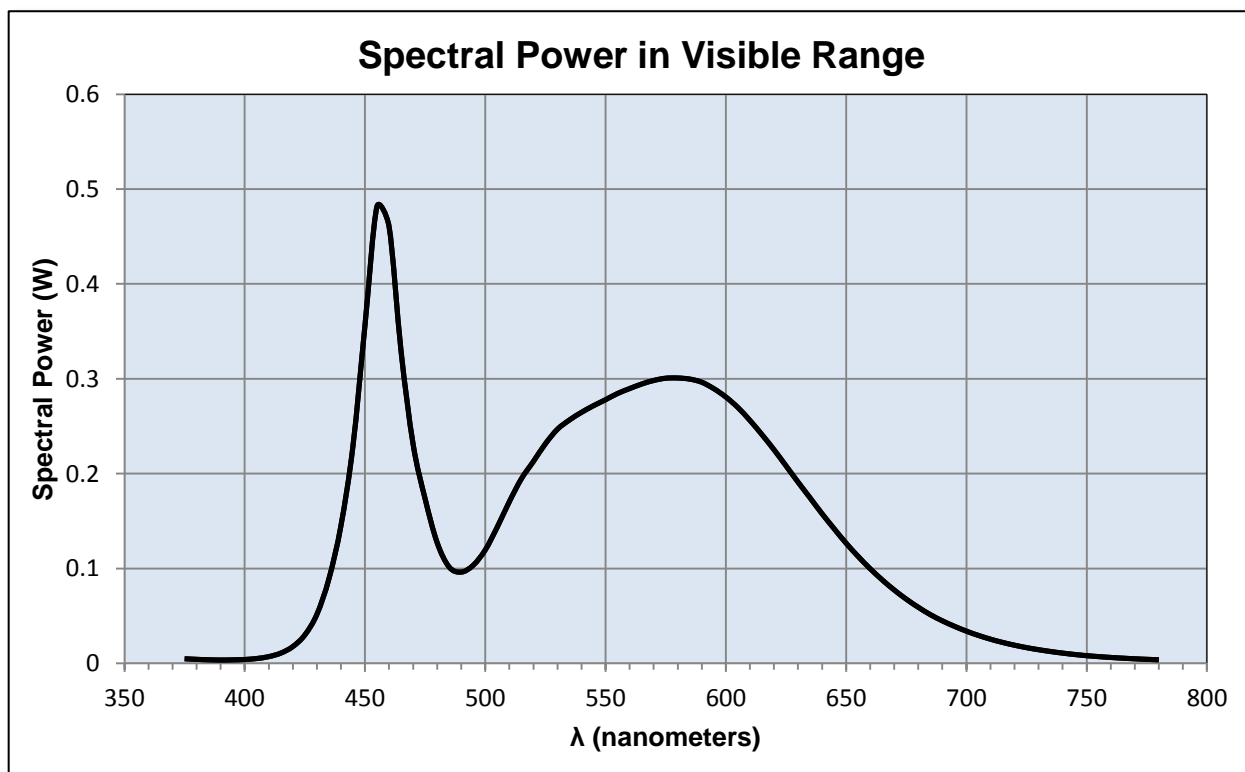
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
Input Current: 1.204 (A)
Input Power: 142.3 (W)
Input Power Factor: 0.994
Current ATHD: 8.078 (%)

Photometric measurements:

Luminous Flux: 18260 (lumens)
Luminous Efficacy: 128.2 (lumens/W)
Correlated Color Temperature (CCT): 4981 (K)
CRI -Ra: 79.5
CRI -R9: -4.3
DUV: 0.00026
CIE Coordinate (x): 0.346
CIE Coordinate (y): 0.353
CIE Coordinate (u'): 0.211
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	0.113
380	0.004	520	0.213	660	0.1
385	0.004	525	0.232	665	0.088
390	0.004	530	0.247	670	0.077
395	0.004	535	0.257	675	0.068
400	0.004	540	0.265	680	0.059
405	0.005	545	0.272	685	0.051
410	0.007	550	0.278	690	0.045
415	0.011	555	0.285	695	0.039
420	0.018	560	0.29	700	0.034
425	0.03	565	0.294	705	0.029
430	0.052	570	0.298	710	0.025
435	0.089	575	0.301	715	0.022
440	0.145	580	0.301	720	0.019
445	0.229	585	0.3	725	0.017
450	0.357	590	0.296	730	0.014
455	0.482	595	0.29	735	0.012
460	0.461	600	0.281	740	0.011
465	0.329	605	0.27	745	0.009
470	0.231	610	0.256	750	0.008
475	0.173	615	0.241	755	0.007
480	0.127	620	0.225	760	0.006
485	0.101	625	0.208	765	0.005
490	0.096	630	0.191	770	0.005
495	0.103	635	0.174	775	0.004
500	0.12	640	0.158	780	0.004
505	0.144	645	0.142		
510	0.17	650	0.127		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L15083.
Dialight unit model number HEGNC4KN-xxx

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 1.19 (A)
Input Power: 142.8 (W)
Power Factor: 0.994

Photometric measurements:

Absolute Luminous Flux: 18046 (lumens)
Luminous Efficacy: 126.4 (lumens/W)

Intensity Summary:

INTENSITY (CANDLEPOWER) SUMMARY						
ANGLE	ALONG	23	45	68	ACROSS	OUTPUT LUMENS
0	25134	25134	25134	25134	25134	
5	22995	22995	22995	22995	22995	881
15	13107	13107	13107	13107	13107	3429
25	7738	7738	7738	7738	7738	3659
35	5885	5885	5885	5885	5885	3642
45	4412	4412	4412	4412	4412	3608
55	1664	1664	1664	1664	1664	2347
65	97	97	97	97	97	431
75	23	23	23	23	23	38
85	3	3	3	3	3	10
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

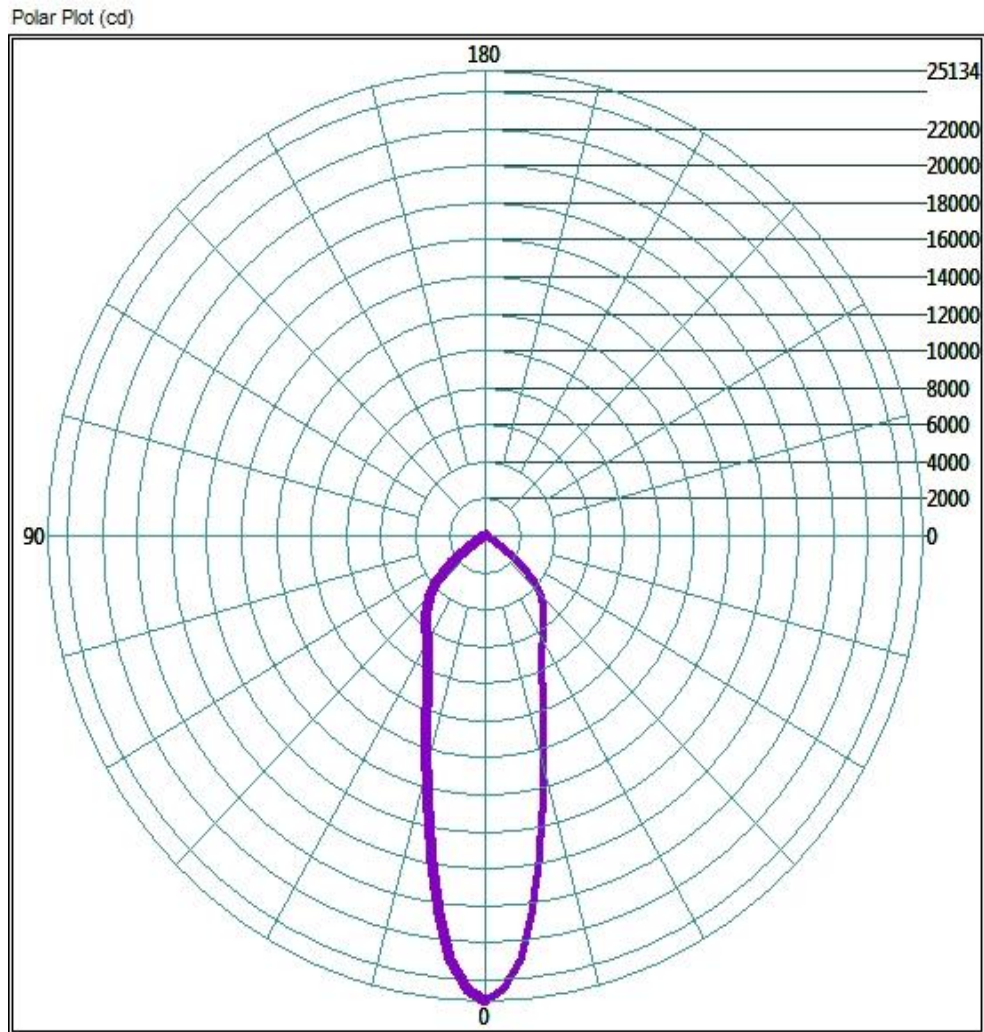
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	9770.56	54.1%
0-40	13463.84	74.6%
0-60	17918.56	99.3%
60-90	248.48	1.4%
0-90	18045.92	100.0%
90-180	0	0.0%
0-180	18045.92	100.0%

Test Results: Goniometer

Results continued from previous page.

Polar Plot:

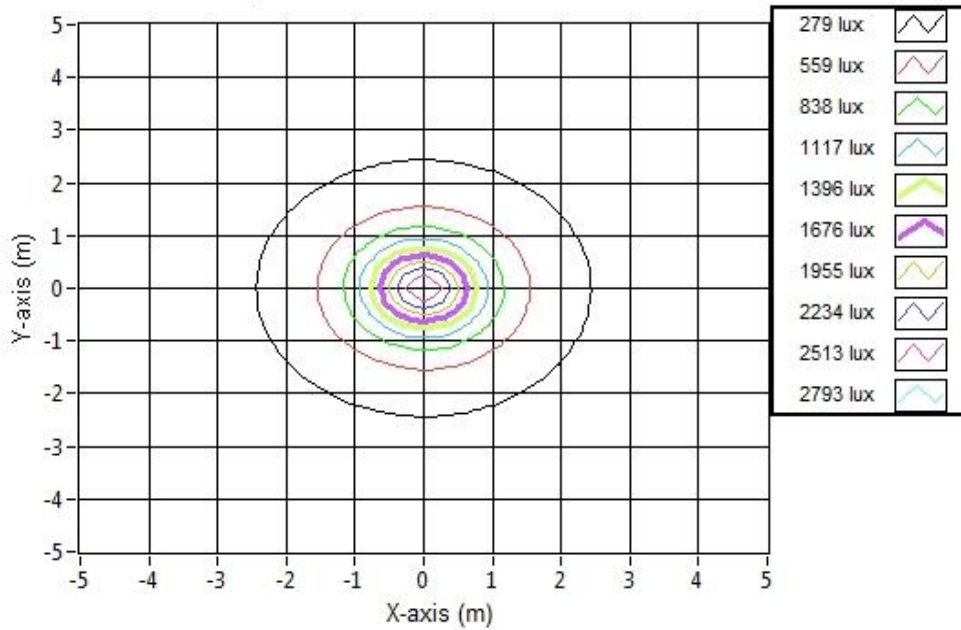


Test Results: Goniometer

Results continued from previous page.

Illuminance Plot:

Illuminance Contour Graph



Illuminance-Cone of Light:

Mounting Height (m)	Beam Cone Width (m)	Orthogonal Beam Cone Width (m)	Projected Illuminance (lux)
3.048	1.72	1.72	2705.4
6.096	3.44	3.44	676.3
9.144	5.16	5.16	300.6
12.192	6.88	6.88	169.1
15.24	8.60	8.60	108.2
18.288	10.32	10.32	75.1
21.336	12.04	12.04	55.2
24.384	13.76	13.76	42.3
27.432	15.48	15.48	33.4
30.48	17.20	17.20	27.1

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L15083.

Dialight unit model number HEGNC4KN-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

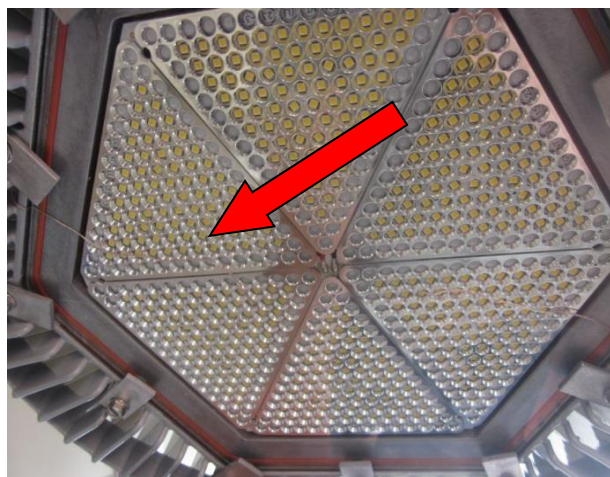
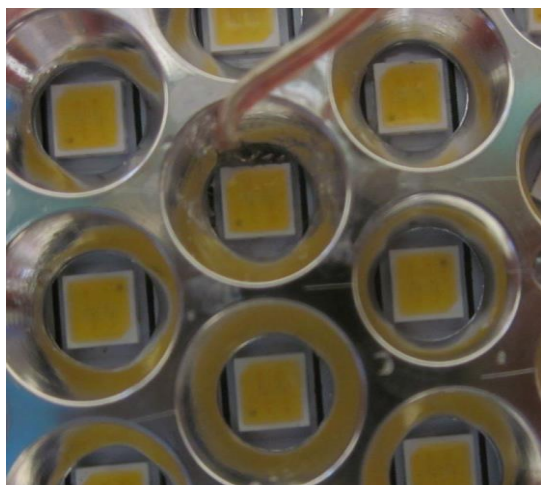
Ambient Temperature: $25^{\circ} \pm 1^{\circ}$ (°C)

Ambient temperature at time of measurement: 25.8 (°C)

Relative humidity at time of measurement: 29%

Results:

Measured LED source temperature: 57.5 (°C)



Equipment Used:

Equipment Name	Model Number
Omega TC	Dpi8
Fluke 8808A Digit Multimeter	8808A
YOKOGAWA Digital Power Meter	11/26/3981
LSI High Speed Mirror Goniometer	6240T
Instrument System Spectrometer	CAS140B-151
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	4/16/3120
Extech Hygro-Thermometer	4/16/3120
Fluke 52II Thermometer	52II Thermometer
Volttech Power Analyzer	PM1000+
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
Adaptive Power Systems AC Power Supply	FC-210

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.

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