

Test Report

Report Number: L16030

Date: Apr 8, 2016

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: HEGMM4Kx-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 31, 2016 through April 8, 2016

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

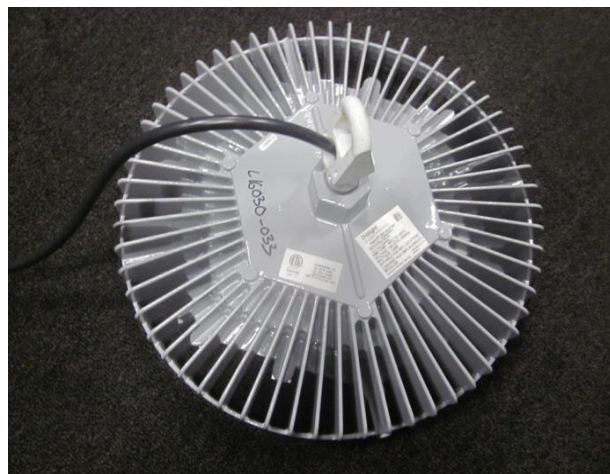
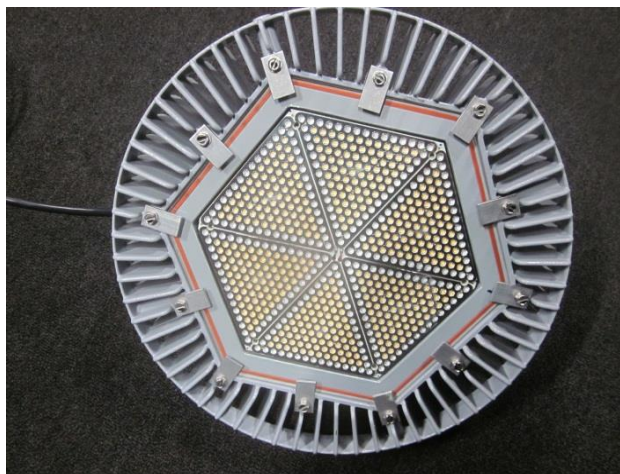
Description of sample:

Sample Number: L16030
Manufacturer: Dialight Corporation
Product Name: Vigilant Highbay
Description: Vigilant Highbay With Glass Lens
Model Number: HEGMM4Kx-xxx

Report Summary

Sample number L16030
Dialight unit model number HEGMM4Kx-xxx

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	17390 (lumens)	17170 (lumens)
Electrical Power:	143.6 (W)	143.4 (W)
Luminous Efficacy:	121.2 (lumens/W)	119.7 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 143.6 (W)
Power Factor (120VAC): 0.995
Current ATHD % (120VAC): 8.228
Input Power (277VAC): 140.8 (W)
Power Factor (277VAC): 0.97
Current ATHD % (277VAC): 13.96

Color Measurements:

Correlated Color Temperature (CCT): 4012
Color Rendering Index (CRI): 81.8
Chromaticity Coordinate (x): 0.382
Chromaticity Coordinate (y): 0.385
Chromaticity Coordinate (u'): 0.223
Chromaticity Coordinate (v'): 0.337
DUV: 0.0032

Temperature Measurements:

In Situ LED Source Temperature: 53.2 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L16030.

Dialight unit model number HEGMM4Kx-xxx

Test Conditions:

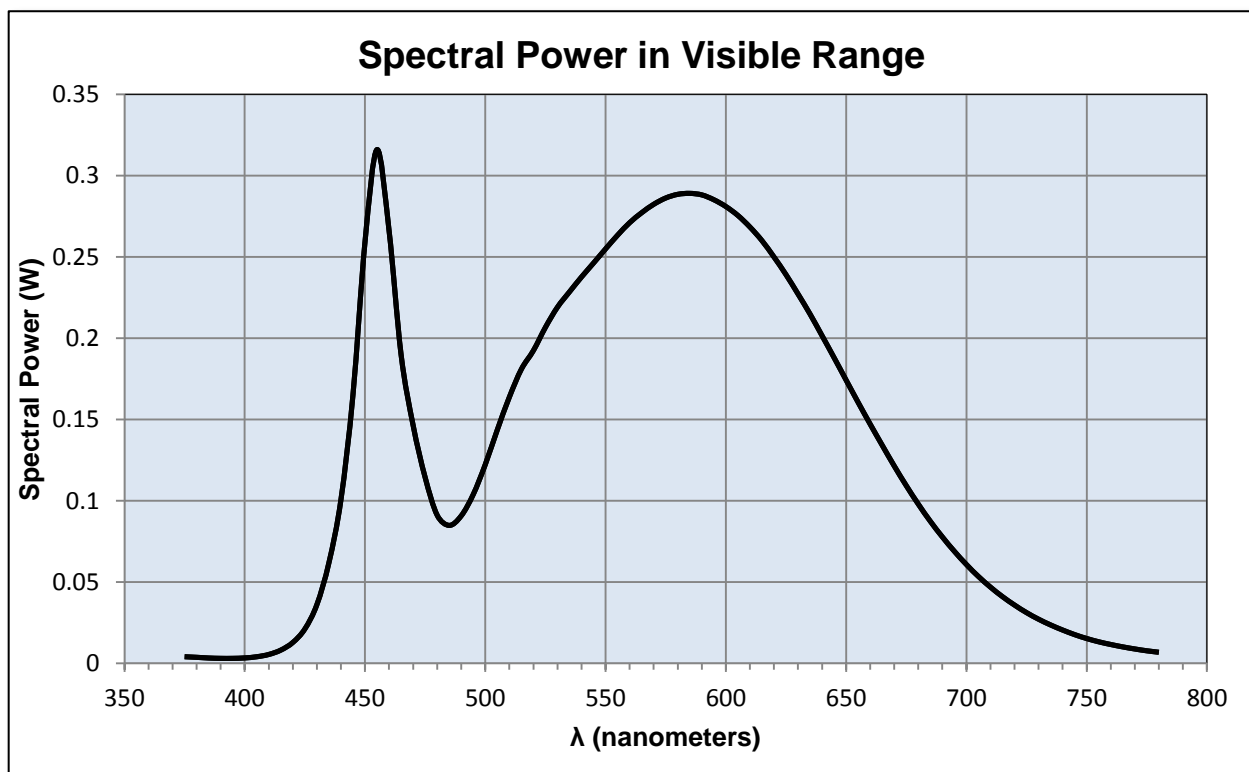
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
Input Current: 1.201 (A)
Input Power: 143.6 (W)
Input Power Factor: 0.995
Current ATHD: 8.228 (%)

Photometric measurements:

Luminous Flux: 17390 (lumens)
Luminous Efficacy: 121.2 (lumens/W)
Correlated Color Temperature (CCT): 4012 (K)
CRI -Ra: 81.8
CRI -R9: 14.4
DUV: 0.0032
CIE Coordinate (x): 0.382
CIE Coordinate (y): 0.385
CIE Coordinate (u'): 0.223
CIE Coordinate (v'): 0.337



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	0.181	655	0.160
380	0.004	520	0.192	660	0.147
385	0.003	525	0.207	665	0.134
390	0.003	530	0.219	670	0.121
395	0.003	535	0.228	675	0.109
400	0.003	540	0.238	680	0.098
405	0.004	545	0.246	685	0.087
410	0.005	550	0.255	690	0.078
415	0.008	555	0.263	695	0.069
420	0.013	560	0.271	700	0.061
425	0.021	565	0.277	705	0.053
430	0.036	570	0.282	710	0.047
435	0.062	575	0.286	715	0.041
440	0.101	580	0.288	720	0.036
445	0.165	585	0.289	725	0.031
450	0.259	590	0.288	730	0.027
455	0.316	595	0.285	735	0.024
460	0.266	600	0.281	740	0.020
465	0.190	605	0.275	745	0.018
470	0.146	610	0.268	750	0.015
475	0.114	615	0.260	755	0.013
480	0.091	620	0.250	760	0.012
485	0.085	625	0.239	765	0.010
490	0.091	630	0.227	770	0.009
495	0.104	635	0.215	775	0.008
500	0.122	640	0.201	780	0.007
505	0.144	645	0.188		
510	0.164	650	0.174		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L16030.
Dialight unit model number HEGMM4Kx-xxx

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 1.195 (A)
Input Power: 143.4 (W)
Power Factor: 0.994

Photometric measurements:

Absolute Luminous Flux: 17170 (lumens)
Luminous Efficacy: 119.7 (lumens/W)

Intensity Summary:

INTENSITY (CANDLEPOWER) SUMMARY						
ANGLE	ALONG	23	45	68	ACROSS	OUTPUT LUMENS
0	6434	6434	6434	6434	6434	
5	6455	6455	6455	6455	6455	241
15	6731	6731	6731	6731	6731	1413
25	7490	7490	7490	7490	7490	2868
35	7302	7302	7302	7302	7302	4266
45	5355	5355	5355	5355	5355	4451
55	2209	2209	2209	2209	2209	2884
65	477	477	477	477	477	908
75	28	28	28	28	28	128
85	3	3	3	3	3	11
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

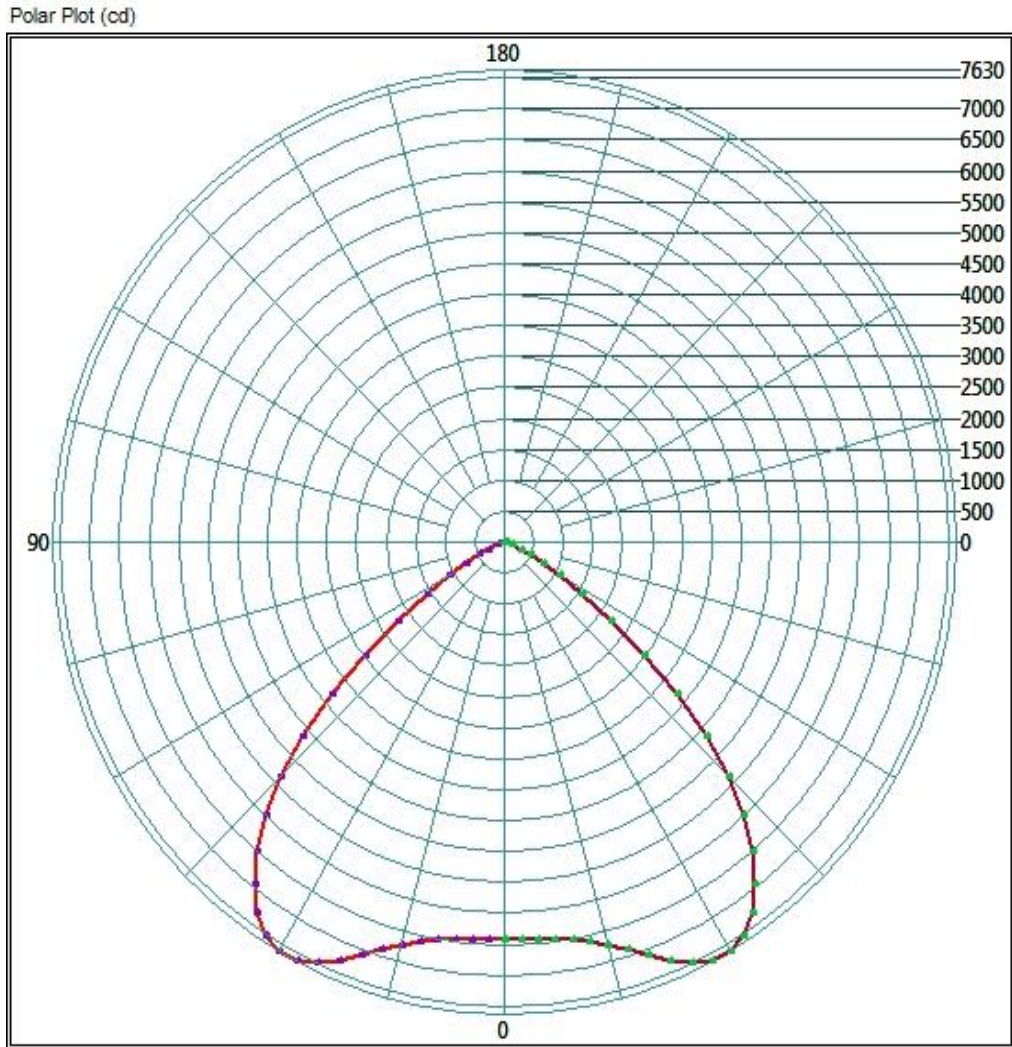
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	6530.4	38.0%
0-40	11092.96	64.6%
0-60	16736.48	97.5%
60-90	687.84	4.0%
0-90	17169.6	100.0%
90-180	0	0.0%
0-180	17169.6	100.0%

Test Results: Goniometer

Results continued from previous page.

Polar Plot:

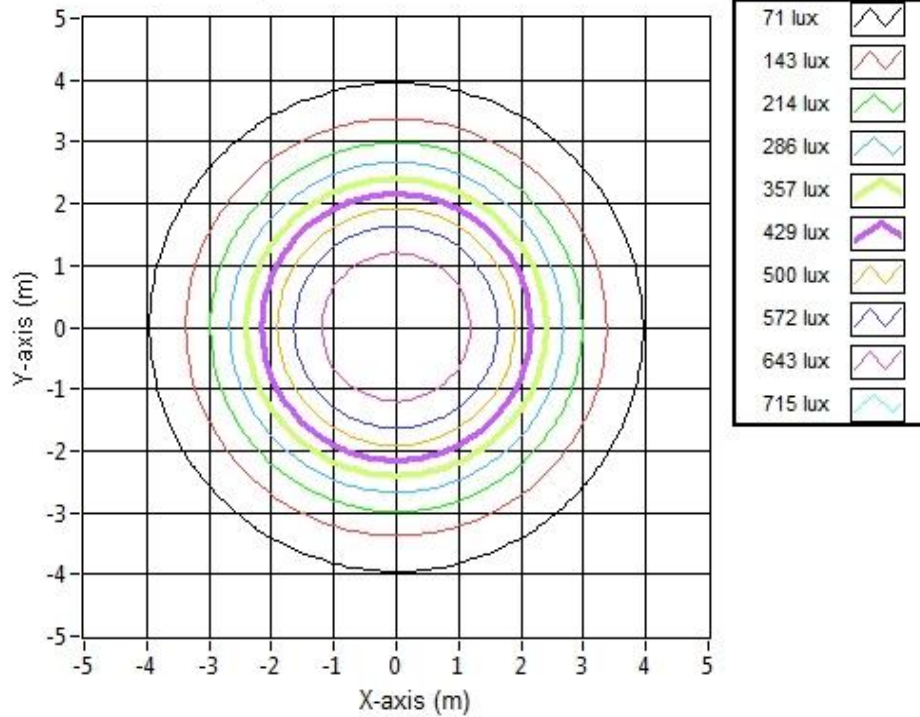


Test Results: Goniometer

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	7.75	7.75	692.6
6.096	15.50	15.50	173.1
9.144	23.25	23.25	77.0
12.192	31.00	31.00	43.3
15.24	38.76	38.76	27.7
18.288	46.51	46.51	19.2
21.336	54.26	54.26	14.1
24.384	62.01	62.01	10.8
27.432	69.76	69.76	8.6
30.48	77.51	77.51	6.9

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L16030.
Dialight unit model number HEGMM4Kx-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:

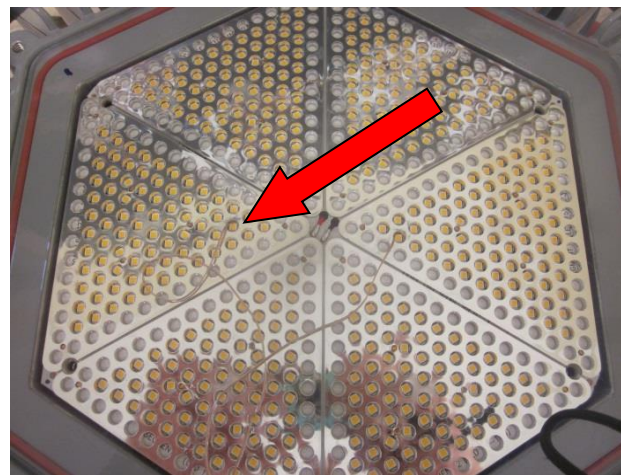
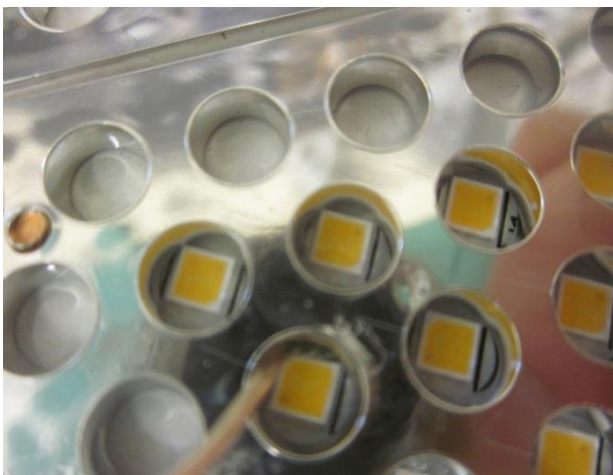
Maximum Power at Indicated Current: 0.35 (W)
Maximum Source Temperature: 113.7 (°C)

Test Conditions:

Temperature Measurement Location: See Photographs Below
Ambient Temperature: $25^{\circ} \pm 5^{\circ}$ (°C)
Ambient temperature at time of measurement: 23.5 (°C)
Relative humidity at time of measurement: 19%

Results:

Measured LED source temperature: 53.2 (°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
Xitron Power Analyzer	XT2640

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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