

Test Report

Report Number: L16050

Date: Jun 1, 2016

Issued by:

Dialight Optics Laboratory
1501 Route 34 South, Farmingdale, NJ 07727

Test of one Vigilant Highbay
Unit manufacturer: Dialight Corporation
Unit model number: HEA9MC4PN-BCG

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 1, 2016 through June 1, 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

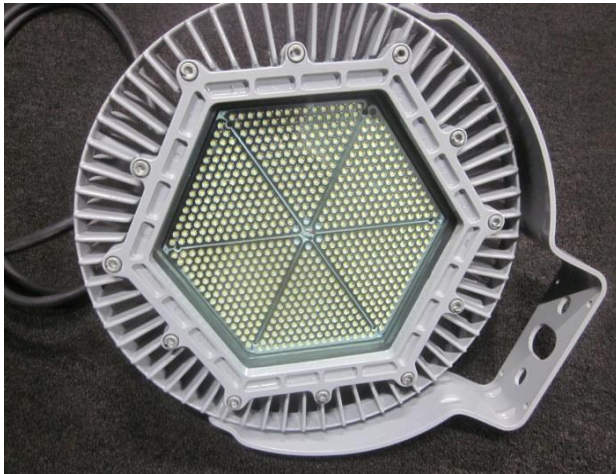
Description of sample:

Sample Number: L16050
Manufacturer: Dialight Corporation
Product Name: Vigilant Highbay
Description: Vigilant Highbay
Model Number: HEA9MC4PN-BCG

Report Summary

Sample number L16050
Dialight unit model number HEA9MC4PN-BCG

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	23300 (lumens)	23295 (lumens)
Electrical Power:	215.6 (W)	215.3 (W)
Luminous Efficacy:	108.1 (lumens/W)	108.2 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 215.6 (W)
 Power Factor (120VAC): 0.998
 Current ATHD % (120VAC): 5.935
 Input Power (277VAC): 208.1 (W)
 Power Factor (277VAC): 0.962
 Current ATHD % (277VAC): 12.55

Color Measurements:

Correlated Color Temperature (CCT): 5262
 Color Rendering Index (CRI): 75.8
 Chromaticity Coordinate (x): 0.339
 Chromaticity Coordinate (y): 0.359
 Chromaticity Coordinate (u'): 0.204
 Chromaticity Coordinate (v'): 0.325
 DUV: 0.0062

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L16050.

Dialight unit model number HEA9MC4PN-BCG

Test Conditions:

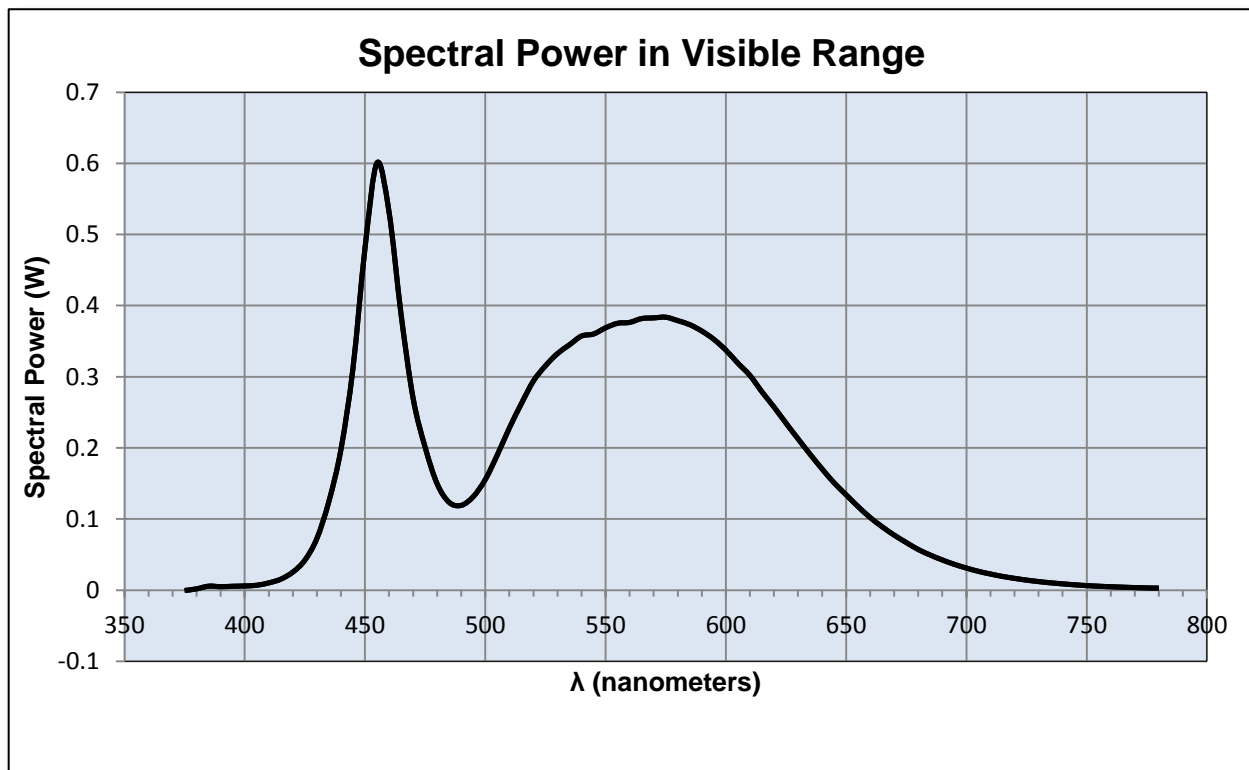
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
Input Current: 1.793 (A)
Input Power: 215.6 (W)
Input Power Factor: 0.998
Current ATHD: 5.935 (%)

Photometric measurements:

Luminous Flux: 23300 (lumens)
Luminous Efficacy: 108.1 (lumens/W)
Correlated Color Temperature (CCT): 5262 (K)
CRI -Ra: 75.8
CRI -R9: -25.6
DUV: 0.0062
CIE Coordinate (x): 0.339
CIE Coordinate (y): 0.359
CIE Coordinate (u'): 0.204
CIE Coordinate (v'): 0.325



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	0.000	515	0.262	655	0.117
380	0.002	520	0.294	660	0.102
385	0.006	525	0.315	665	0.089
390	0.005	530	0.333	670	0.077
395	0.006	535	0.345	675	0.067
400	0.006	540	0.357	680	0.057
405	0.007	545	0.360	685	0.049
410	0.010	550	0.369	690	0.042
415	0.016	555	0.375	695	0.036
420	0.025	560	0.376	700	0.031
425	0.042	565	0.382	705	0.026
430	0.073	570	0.383	710	0.023
435	0.125	575	0.384	715	0.019
440	0.198	580	0.379	720	0.017
445	0.312	585	0.373	725	0.014
450	0.481	590	0.364	730	0.012
455	0.601	595	0.353	735	0.010
460	0.532	600	0.338	740	0.009
465	0.388	605	0.319	745	0.008
470	0.270	610	0.302	750	0.006
475	0.201	615	0.279	755	0.006
480	0.149	620	0.258	760	0.005
485	0.123	625	0.235	765	0.004
490	0.119	630	0.213	770	0.004
495	0.131	635	0.191	775	0.003
500	0.155	640	0.171	780	0.003
505	0.190	645	0.151		
510	0.228	650	0.134		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L16050.
Dialight unit model number HEA9MC4PN-BCG

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 1.79 (A)
Input Power: 215.3 (W)
Power Factor: 0.996

Photometric measurements:

Absolute Luminous Flux: 23295 (lumens)
Luminous Efficacy: 108.2 (lumens/W)

Intensity Summary:

INTENSITY (CANDLEPOWER) SUMMARY						
ANGLE	ALONG	23	45	68	ACROSS	OUTPUT LUMENS
0	9214	9214	9214	9214	9214	
5	9318	9318	9318	9318	9318	347
15	9770	9770	9770	9770	9770	2052
25	10793	10793	10793	10793	10793	4159
35	10177	10177	10177	10177	10177	6013
45	6839	6839	6839	6839	6839	5910
55	2672	2672	2672	2672	2672	3534
65	527	527	527	527	527	1065
75	74	74	74	74	74	153
85	37	37	37	37	37	57
95	0	0	0	0	0	5
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

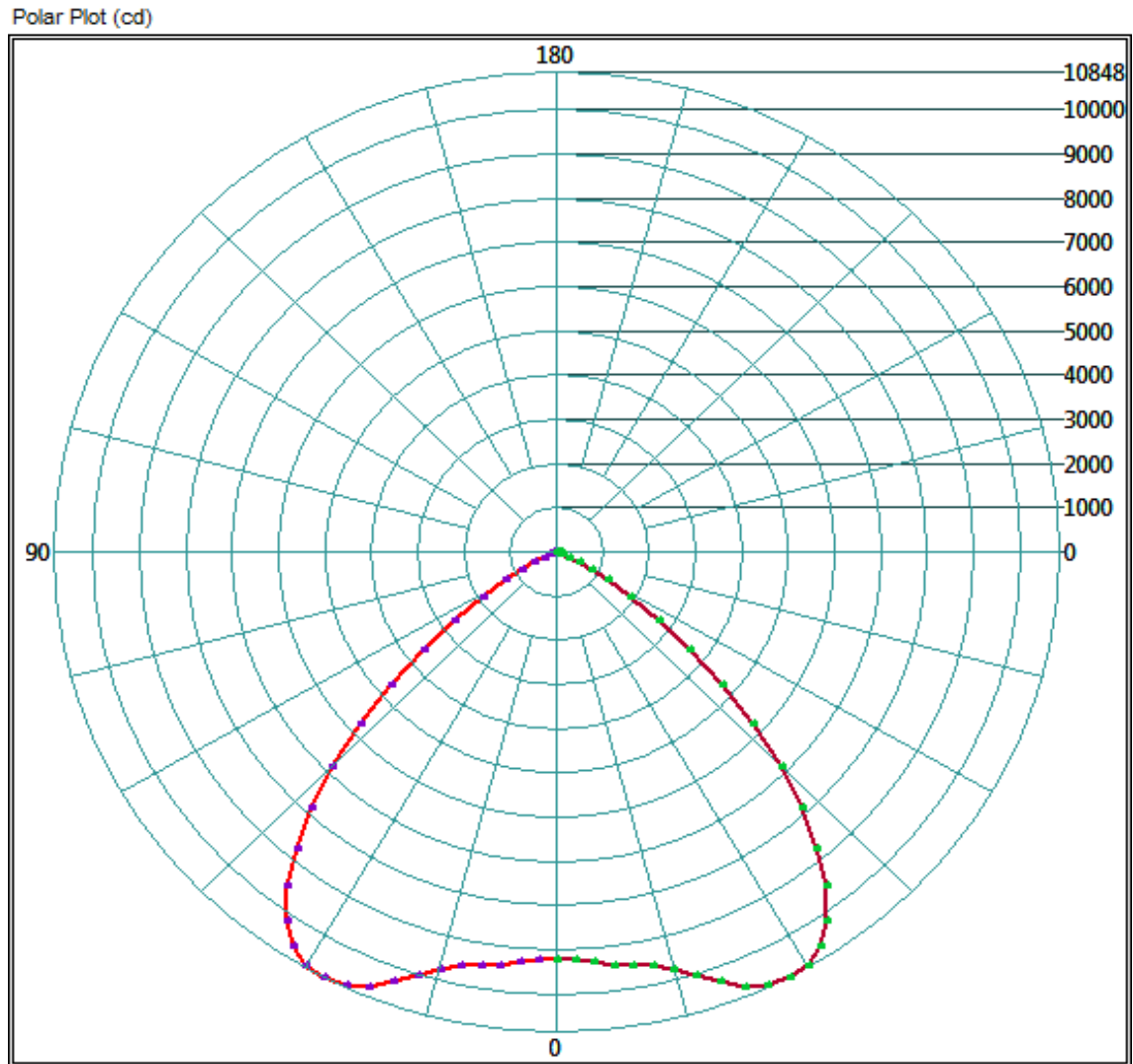
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	9411.68	40.4%
0-40	15700	67.4%
0-60	22748.64	97.7%
60-90	847.68	3.6%
0-90	23294.72	100.0%
90-180	0	0.0%
0-180	23294.72	100.0%

Test Results: Goniometer

Results continued from previous page.

Polar Plot:

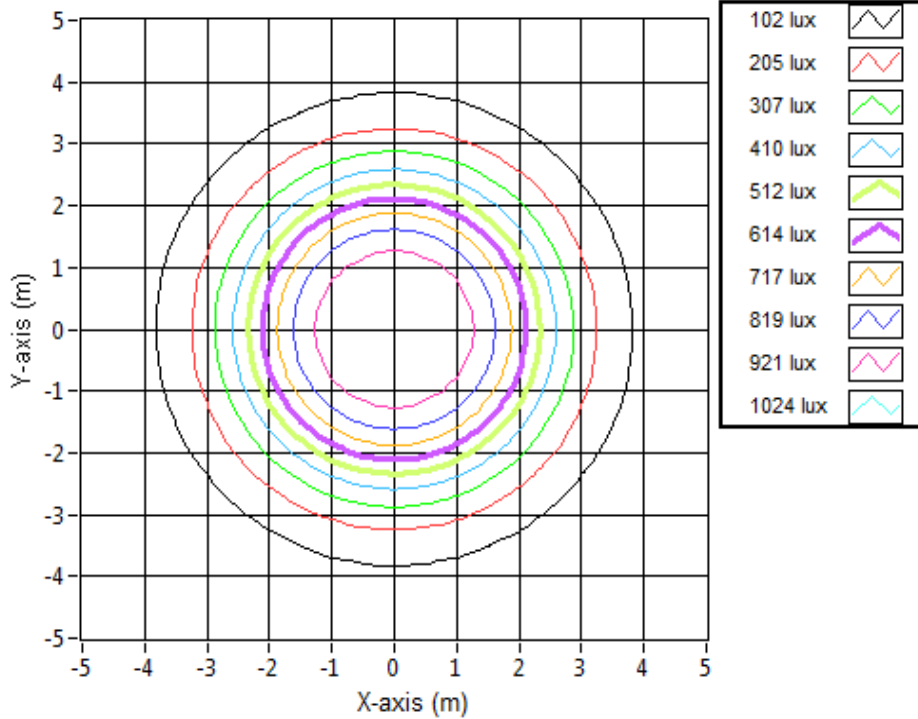


Test Results: Goniometer

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	7.30	7.30	991.8
6.096	14.61	14.61	248.0
9.144	21.91	21.91	110.2
12.192	29.22	29.22	62.0
15.24	36.52	36.52	39.7
18.288	43.82	43.82	27.6
21.336	51.13	51.13	20.2
24.384	58.43	58.43	15.5
27.432	65.73	65.73	12.2
30.48	73.04	73.04	9.9

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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Lighting Division

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Dialight Optics Laboratory
Optical Engineer
Approved Signatory