

Test Report

Report Number: L14066

Date: Sep 30, 2014

Issued by:

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

Test of one Vigilant Highbay Fixture With Polycarbonate Dome Lens
Unit manufacturer: Dialight Corporation
Unit model number: HELMC4DN-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: September 24, 2014 through September 30, 2014

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

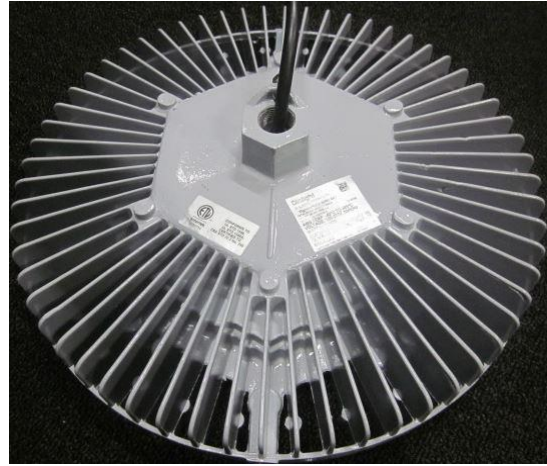
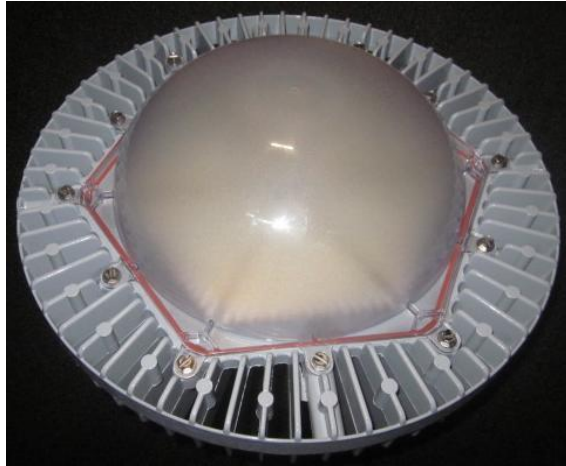
Description of sample:

Sample Number: L14066
Manufacturer: Dialight Corporation
Product Name: Vigilant Highbay
Description: Vigilant Highbay Fixture With Polycarbonate Dome Lens
Model Number: HELMC4DN-xxx

Report Summary

Sample number L14066
Dialight unit model number HELMC4DN-xxx

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	10100 (lumens)	9927 (lumens)
Electrical Power:	88.8 (W)	88.8 (W)
Luminous Efficacy:	113.7 (lumens/W)	111.8 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 88.8 (W)
Power Factor (120VAC): 0.99
Current ATHD % (120VAC): 10.4
Input Power (277VAC): 88.1 (W)
Power Factor (277VAC): 0.913
Current ATHD % (277VAC): 19.49

Color Measurements:

Correlated Color Temperature (CCT): 4924
Color Rendering Index (CRI): 79
Chromaticity Coordinate (x): 0.348
Chromaticity Coordinate (y): 0.356
Chromaticity Coordinate (u'): 0.212
Chromaticity Coordinate (v'): 0.325
DUV: 0.001

Temperature Measurements:

In Situ LED Source Temperature: 46.2 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L14066.

Dialight unit model number HELMC4DN-xxx

Test Conditions:

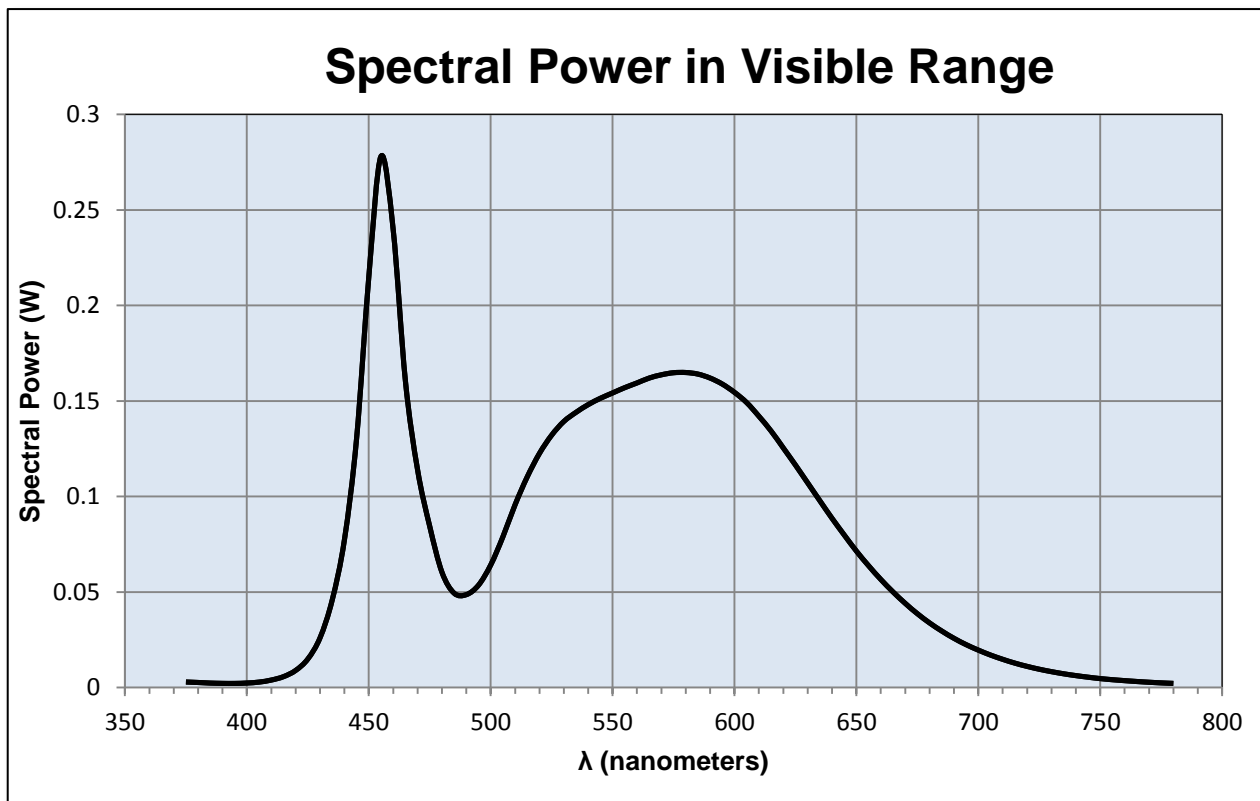
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
 Input Current: 0.747 (A)
 Input Power: 88.8 (W)
 Input Power Factor: 0.99
 Current ATHD: 10.4 (%)

Photometric measurements:

Luminous Flux: 10100 (lumens)
 Luminous Efficacy: 113.7 (lumens/W)
 Correlated Color Temperature (CCT): 4924 (K)
 CRI -Ra: 79
 CRI -R9: -3.2
 DUV: 0.001
 CIE Coordinate (x): 0.348
 CIE Coordinate (y): 0.356
 CIE Coordinate (u'): 0.212
 CIE Coordinate (v'): 0.325



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	0.11	655	0.064
380	0.003	520	0.123	660	0.057
385	0.002	525	0.132	665	0.05
390	0.002	530	0.139	670	0.044
395	0.002	535	0.144	675	0.039
400	0.002	540	0.148	680	0.034
405	0.003	545	0.151	685	0.03
410	0.004	550	0.154	690	0.026
415	0.006	555	0.157	695	0.023
420	0.009	560	0.159	700	0.02
425	0.015	565	0.162	705	0.017
430	0.026	570	0.164	710	0.015
435	0.046	575	0.165	715	0.013
440	0.077	580	0.165	720	0.011
445	0.13	585	0.164	725	0.01
450	0.215	590	0.162	730	0.008
455	0.278	595	0.159	735	0.007
460	0.24	600	0.155	740	0.006
465	0.161	605	0.149	745	0.005
470	0.114	610	0.142	750	0.005
475	0.084	615	0.134	755	0.004
480	0.06	620	0.125	760	0.004
485	0.049	625	0.116	765	0.003
490	0.049	630	0.107	770	0.003
495	0.054	635	0.098	775	0.002
500	0.064	640	0.089	780	0.002
505	0.079	645	0.08		
510	0.096	650	0.071		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L14066.
Dialight unit model number HELMC4DN-xxx

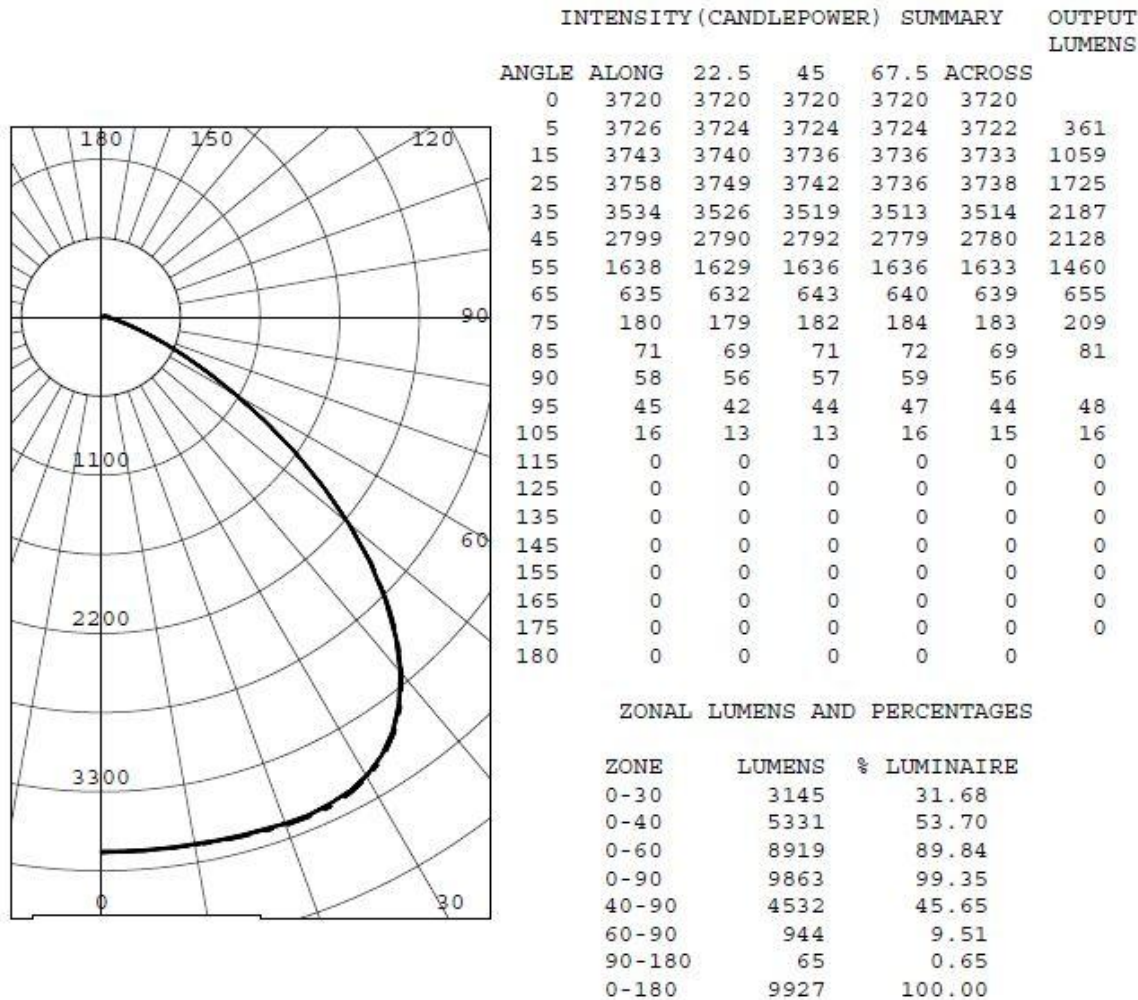
Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 0.747 (A)
Input Power: 88.8 (W)
Power Factor: 0.99

Photometric measurements:

Absolute Luminous Flux: 9927 (lumens)
Luminous Efficacy: 111.8 (lumens/W)

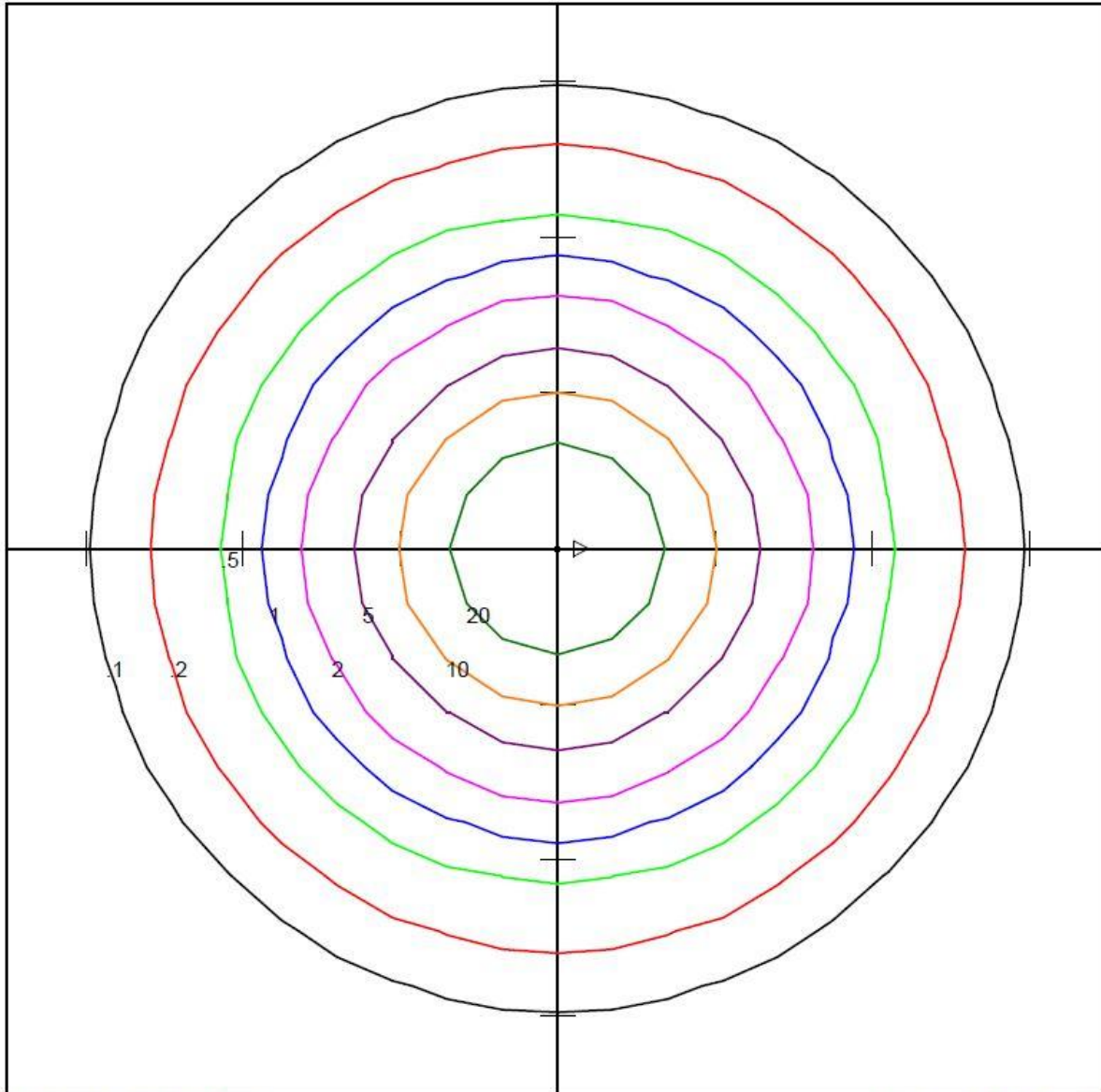
Intensity Summary:



Test Results: Goniometer

Results continued from previous page.

Iso-illuminance Plot:



DIALIGHT COPORATION
HELMC4DN-xxx
MOD: HELMC4DN-xxx
LED

Horizontal Footcandles
Scale: 1 Inch = 10 Ft.
Light Loss Factor = 1.00
Lumens Per Lamp = N.A. (absolute photometry)
Luminaire Lumens = 9939
Mounting Height = 10.00 Ft
Maximum Calculated Value = 37.20 Fc
Arrangement: Single

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L14066.

Dialight unit model number HELMC4DN-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:

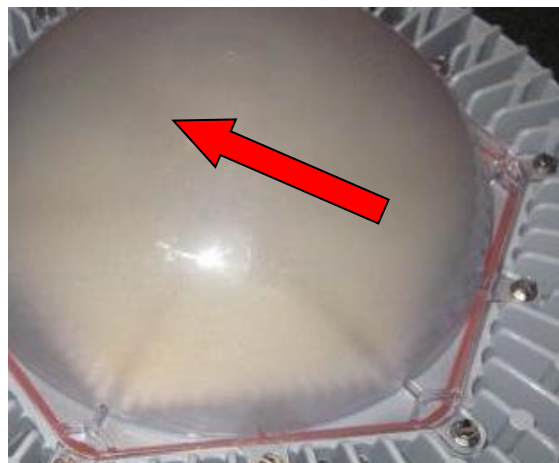
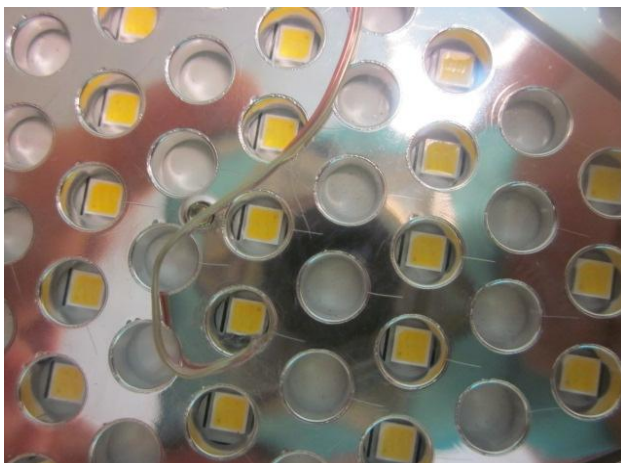
Maximum Power at Indicated Current: 0.35 (W)
Maximum Source Temperature: 113.7 (°C)

Test Conditions:

Temperature Measurement Location: See Photographs Below
Ambient Temperature: $25^{\circ} \pm 1^{\circ}$ (°C)
Ambient temperature at time of measurement: 24.1 (°C)
Relative humidity at time of measurement: 50%

Results:

Measured LED source temperature: 46.2 (°C)



Equipment Used:

Equipment Name	Model Number	Calibration Due Date
Omega TC	Dpi8	3/7/2015
Fluke 8808A Digit Multimeter	8808A	4/7/2015
YOKOGAWA Digital Power Meter	760401	4/7/2015
LSI Standard Lamps	#30279	4/17/2015
LSI High Speed Mirror Goniometer	6240T	-
Instrument System Spectrometer	CAS140B-151	-
Instrument System Sphere Lamps (Osram Sylvania)	STD-20WF-3	4/17/2015
Instrument System Sphere Lamps (Osram Sylvania)	STD-20WF-3	4/17/2015
Instrument System Sphere Lamps (Osram Sylvania)	STD-20WF-3	4/17/2015
Instrument System 1.5 Meter Sphere	ISP1500	-
Volttech Power Analyzer	PM1000+	4/17/2015
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	3/6/2015
Volttech Power Analyzer	PM1000+	4/17/2015
Tenma AC Power Source	72-7675	-
BK Precision	1715A	-
TDK-Lambda	GEN1500W	-
Fluke 8808A Digit Multimeter	8808A	4/14/2015
TPI Digital Thermometer 343	343	4/17/2015
TPI Digital Thermometer 343	343	4/17/2015

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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Lighting Division

Test Report Reviewed and Approved By:

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Dialight Optics Laboratory
Optical Engineering Manager
Approved Signatory