

Test Report

Report Number: L14064

Date: Sep 30, 2014

Issued by:

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

Test of one Vigilant Highbay Fixture With Clear Acrylic Lens
Unit manufacturer: Dialight Corporation
Unit model number: HE1MC4DN-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 29, 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:

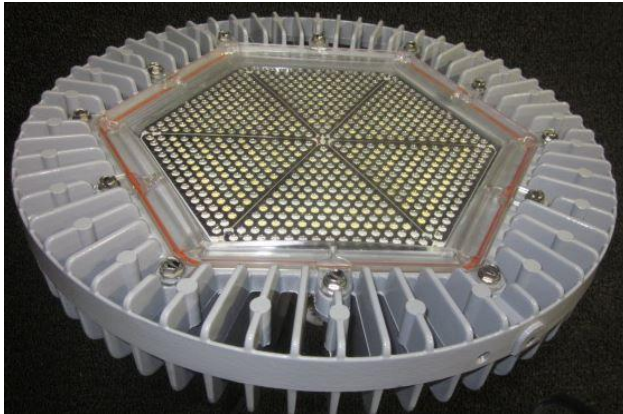
Sample Number: L14064
Manufacturer: Dialight Corporation
Product Name: Vigilant Highbay
Description: Vigilant Highbay Fixture With Clear Acrylic Lens
Model Number: HE1MC4DN-xxx

Report Summary

Sample number L14064

Dialight unit model number HE1MC4DN-xxx

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	10890 (lumens)	10679 (lumens)
Electrical Power:	88.9 (W)	88.9 (W)
Luminous Efficacy:	122.6 (lumens/W)	120.1 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 88.9 (W)
 Power Factor (120VAC): 0.99
 Current ATHD % (120VAC): 10.38
 Input Power (277VAC): 88.1 (W)
 Power Factor (277VAC): 0.915
 Current ATHD % (277VAC): 19.21

Color Measurements:

Correlated Color Temperature (CCT): 4856
 Color Rendering Index (CRI): 78.3
 Chromaticity Coordinate (x): 0.35
 Chromaticity Coordinate (y): 0.359
 Chromaticity Coordinate (u'): 0.212
 Chromaticity Coordinate (v'): 0.326
 DUV: 0.0017

Temperature Measurements:

In Situ LED Source Temperature: 45.4 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L14064.

Dialight unit model number HE1MC4DN-xxx

Test Conditions:

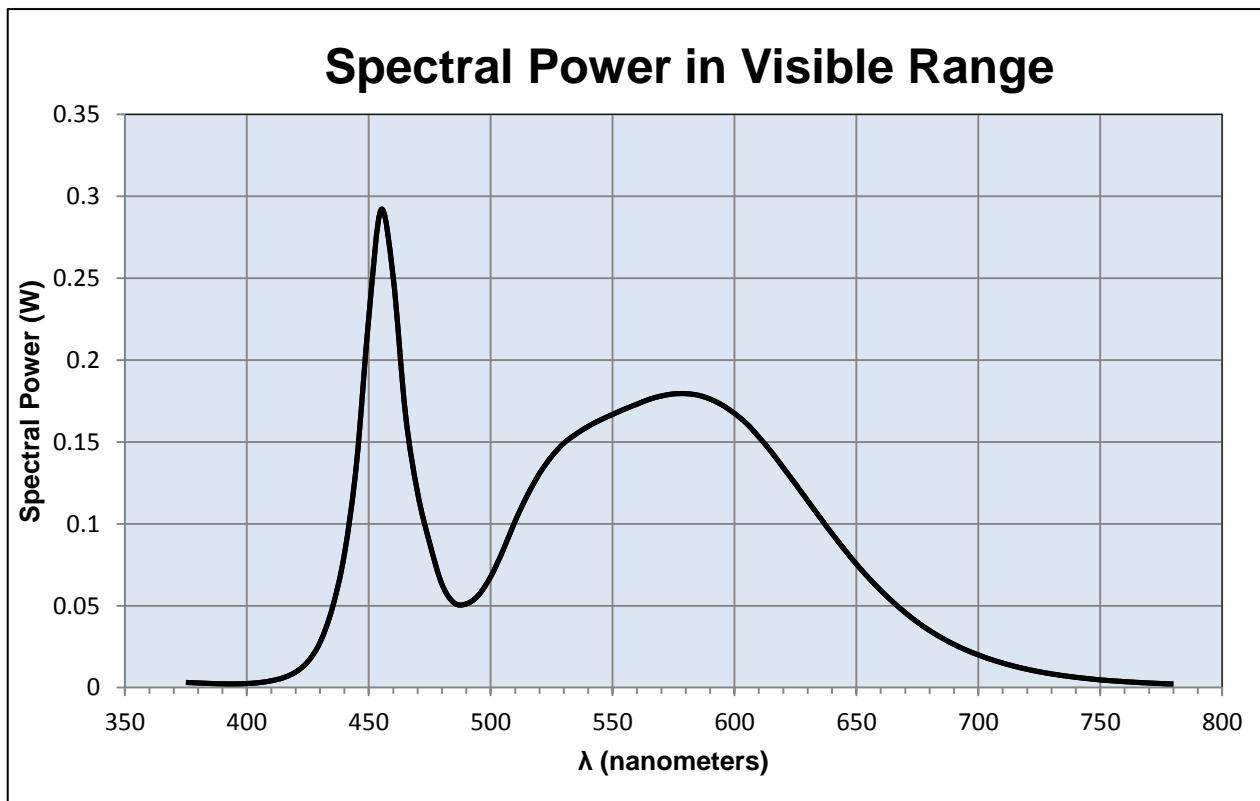
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
 Input Current: 0.746 (A)
 Input Power: 88.9 (W)
 Input Power Factor: 0.99
 Current ATHD: 10.38 (%)

Photometric measurements:

Luminous Flux: 10890 (lumens)
 Luminous Efficacy: 122.6 (lumens/W)
 Correlated Color Temperature (CCT): 4856 (K)
 CRI -Ra: 78.3
 CRI -R9: -6.5
 DUV: 0.0017
 CIE Coordinate (x): 0.35
 CIE Coordinate (y): 0.359
 CIE Coordinate (u'): 0.212
 CIE Coordinate (v'): 0.326



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	0.117	655	0.067
380	0.003	520	0.131	660	0.059
385	0.003	525	0.141	665	0.052
390	0.002	530	0.149	670	0.046
395	0.002	535	0.155	675	0.04
400	0.003	540	0.16	680	0.035
405	0.003	545	0.163	685	0.03
410	0.004	550	0.167	690	0.026
415	0.006	555	0.17	695	0.023
420	0.01	560	0.173	700	0.02
425	0.016	565	0.176	705	0.017
430	0.028	570	0.178	710	0.015
435	0.048	575	0.179	715	0.013
440	0.082	580	0.18	720	0.011
445	0.137	585	0.179	725	0.01
450	0.226	590	0.176	730	0.008
455	0.292	595	0.173	735	0.007
460	0.251	600	0.167	740	0.006
465	0.168	605	0.161	745	0.005
470	0.119	610	0.153	750	0.005
475	0.088	615	0.144	755	0.004
480	0.063	620	0.134	760	0.004
485	0.052	625	0.124	765	0.003
490	0.051	630	0.114	770	0.003
495	0.056	635	0.104	775	0.002
500	0.068	640	0.094	780	0.002
505	0.084	645	0.085		
510	0.102	650	0.075		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L14064.
Dialight unit model number HE1MC4DN-xxx

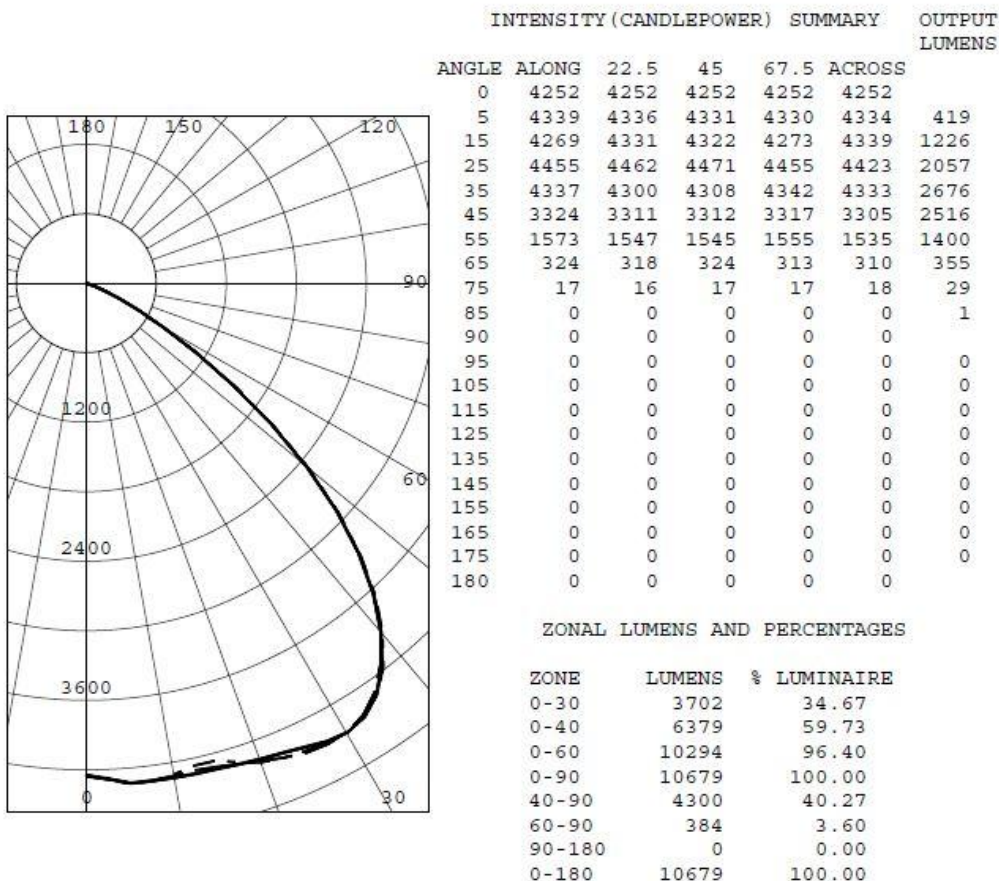
Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 0.747 (A)
Input Power: 88.9 (W)
Power Factor: 0.99

Photometric measurements:

Absolute Luminous Flux: 10679 (lumens)
Luminous Efficacy: 120.1 (lumens/W)

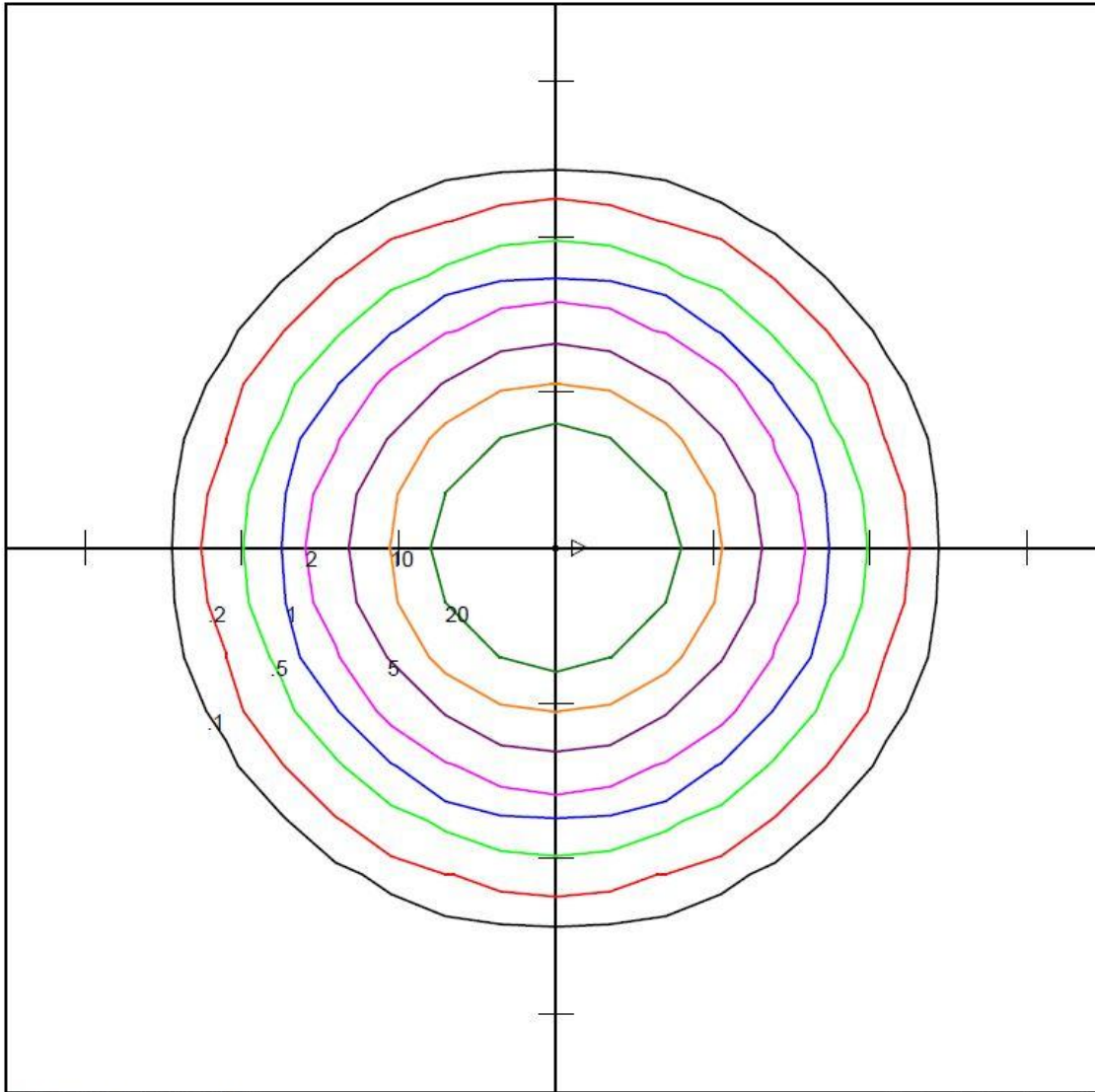
Intensity Summary:



Test Results: Goniometer

Results continued from previous page.

Iso-illuminance Plot:



DIALIGHT COPORATION
HE1MC4DN-xxx
MOD: HE1MC4DN-xxx
LED

Horizontal Footcandles
Scale: 1 Inch = 10 Ft.
Light Loss Factor = 1.00
Lumens Per Lamp = N.A. (absolute photometry)
Luminaire Lumens = 10692
Mounting Height = 10.00 Ft
Maximum Calculated Value = 42.52 Fc
Arrangement: Single

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L14064.

Dialight unit model number HE1MC4DN-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:

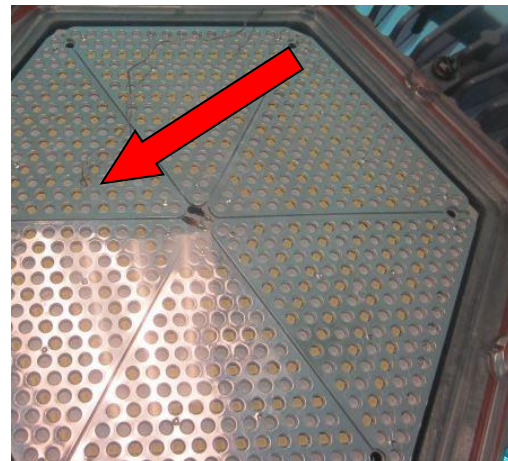
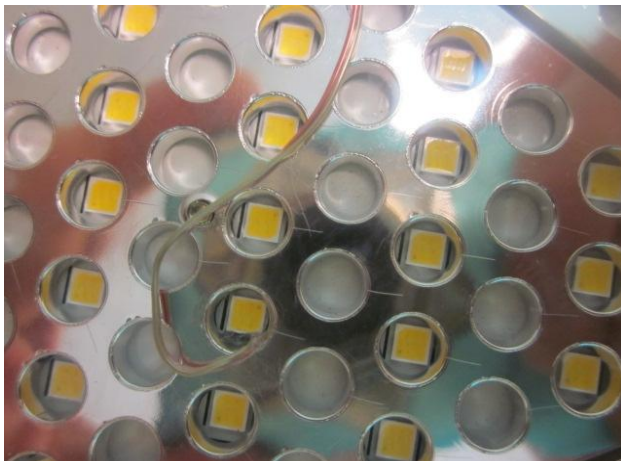
Maximum Power at Indicated Current: 0.35 (W)
Maximum Source Temperature: 113.7 (°C)

Test Conditions:

Temperature Measurement Location: See Photographs Below
Ambient Temperature: $25^{\circ} \pm 1^{\circ}$ (°C)
Ambient temperature at time of measurement: 24 (°C)
Relative humidity at time of measurement: 43%

Results:

Measured LED source temperature: 45.4 (°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.

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:

Cecil Thomas
Dialight Optics Laboratory
Optical Engineering Manager
Approved Signatory