

Test Report

Report Number: L14060

Date: Sep 18, 2014

Issued by:

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

Test of one Vigilant Highbay fixture
Unit manufacturer: Dialight Corporation
Unit model number: HE1MC4GN

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 17, 2014 through September 17, 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

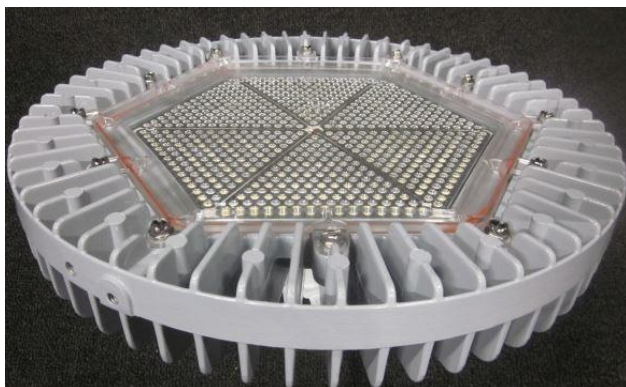
Description of sample:

Sample Number: L14060
Manufacturer: Dialight Corporation
Product Name: Vigilant Highbay
Description: Vigilant Highbay Fixture With Clear Acrylic Lens
Model Number: HE1MC4GN

Report Summary

Sample number L14060
Dialight unit model number HE1MC4GN

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	14170 (lumens)	13974 (lumens)
Electrical Power:	113.4 (W)	113.6 (W)
Luminous Efficacy:	125.0 (lumens/W)	123.0 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 113.4 (W)
Power Factor (120VAC): 0.992
Current ATHD % (120VAC): 9.143
Input Power (277VAC): 111.8 (W)
Power Factor (277VAC): 0.938
Current ATHD % (277VAC): 15.97

Color Measurements:

Correlated Color Temperature (CCT): 4871
Color Rendering Index (CRI): 78
Chromaticity Coordinate (x): 0.349
Chromaticity Coordinate (y): 0.359
Chromaticity Coordinate (u'): 0.211
Chromaticity Coordinate (v'): 0.326
DUV: 0.0021

Temperature Measurements:

In Situ LED Source Temperature: 48.2 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L14060.

Dialight unit model number HE1MC4GN

Test Conditions:

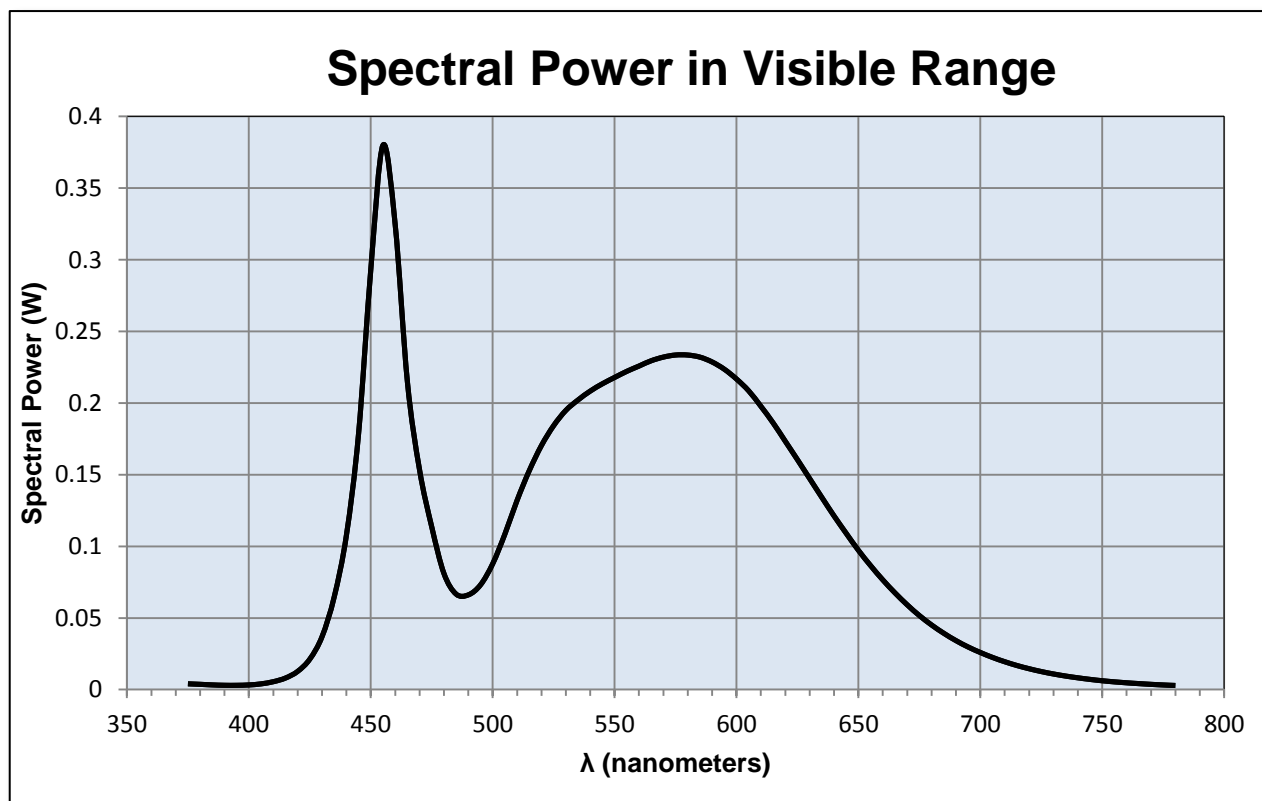
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
 Input Current: 0.952 (A)
 Input Power: 113.4 (W)
 Input Power Factor: 0.992
 Current ATHD: 9.143 (%)

Photometric measurements:

Luminous Flux: 14170 (lumens)
 Luminous Efficacy: 125 (lumens/W)
 Correlated Color Temperature (CCT): 4871 (K)
 CRI -Ra: 78
 CRI -R9: -8.4
 DUV: 0.0021
 CIE Coordinate (x): 0.349
 CIE Coordinate (y): 0.359
 CIE Coordinate (u'): 0.211
 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	0.004	515	0.153	655	0.087
380	0.004	520	0.17	660	0.077
385	0.003	525	0.184	665	0.068
390	0.003	530	0.195	670	0.059
395	0.003	535	0.202	675	0.052
400	0.003	540	0.208	680	0.045
405	0.004	545	0.213	685	0.039
410	0.006	550	0.218	690	0.034
415	0.008	555	0.222	695	0.03
420	0.013	560	0.226	700	0.026
425	0.021	565	0.23	705	0.022
430	0.037	570	0.232	710	0.019
435	0.065	575	0.234	715	0.017
440	0.108	580	0.234	720	0.015
445	0.179	585	0.232	725	0.013
450	0.293	590	0.229	730	0.011
455	0.38	595	0.224	735	0.009
460	0.325	600	0.217	740	0.008
465	0.215	605	0.209	745	0.007
470	0.153	610	0.198	750	0.006
475	0.114	615	0.186	755	0.005
480	0.081	620	0.173	760	0.005
485	0.067	625	0.16	765	0.004
490	0.066	630	0.147	770	0.004
495	0.073	635	0.134	775	0.003
500	0.088	640	0.121	780	0.003
505	0.109	645	0.109		
510	0.132	650	0.097		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L14060.
Dialight unit model number HE1MC4GN

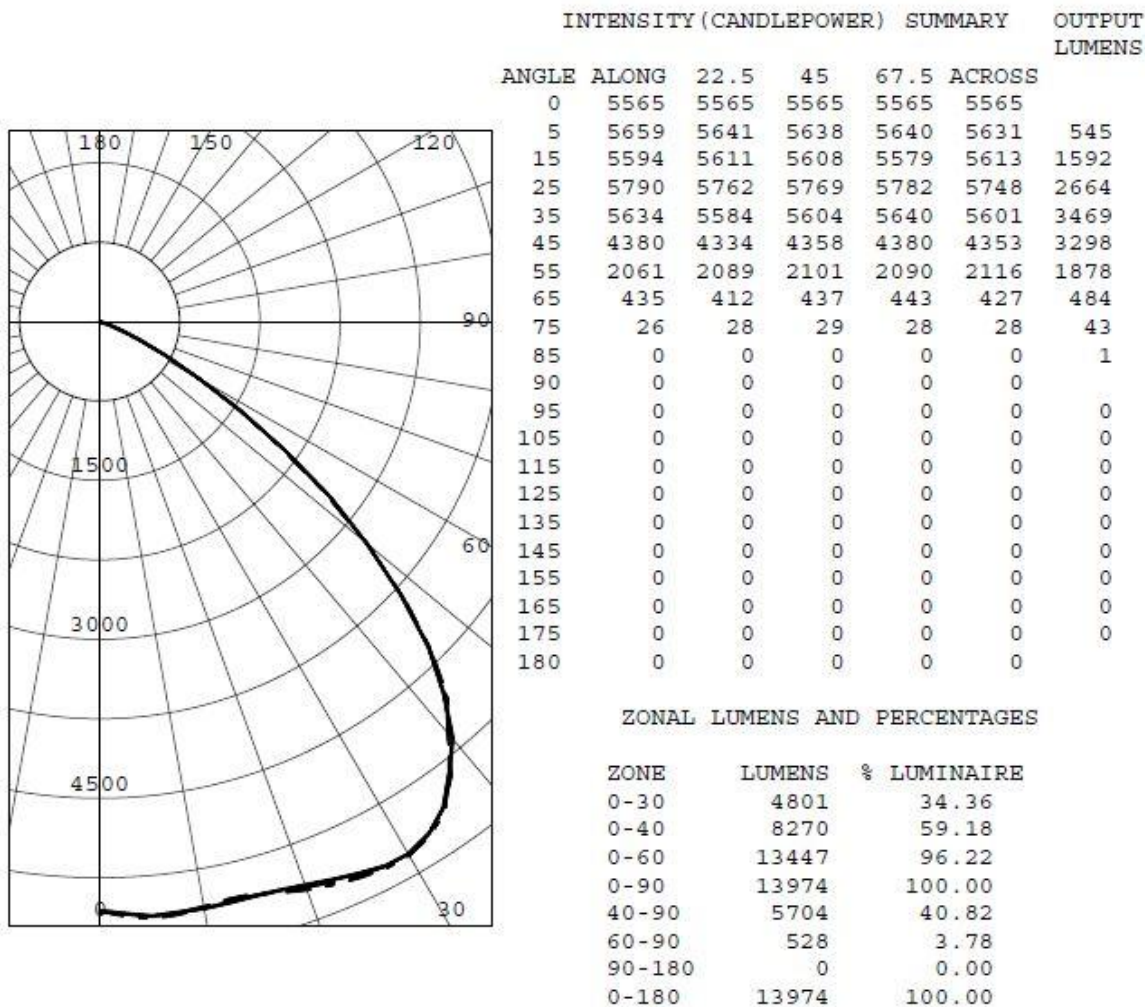
Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 0.953 (A)
Input Power: 113.6 (W)
Power Factor: 0.993

Photometric measurements:

Absolute Luminous Flux: 13974 (lumens)
Luminous Efficacy: 123 (lumens/W)

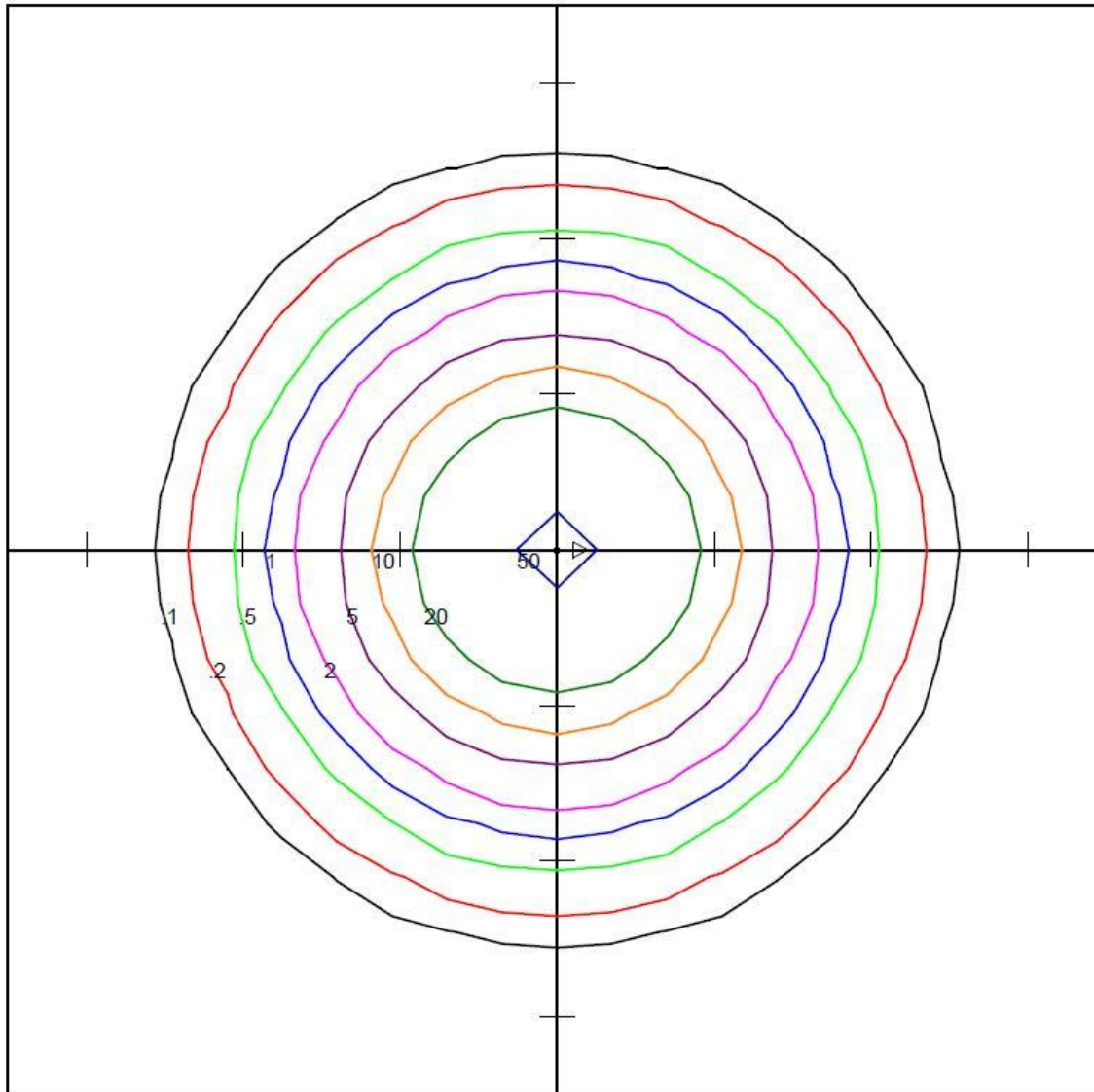
Intensity Summary:



Test Results: Goniometer

Results continued from previous page.

Iso-illuminance Plot:



DIALIGHT CORPORATION
HE1MC4GN
MOD: HE1MC4GN
LED

Horizontal Footcandles
Scale: 1 Inch = 10 Ft.
Light Loss Factor = 1.00
Lumens Per Lamp = N.A. (absolute photometry)
Luminaire Lumens = 13992
Mounting Height = 10.00 Ft
Maximum Calculated Value = 55.65 Fc
Arrangement: Single

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L14060.

Dialight unit model number HE1MC4GN

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:

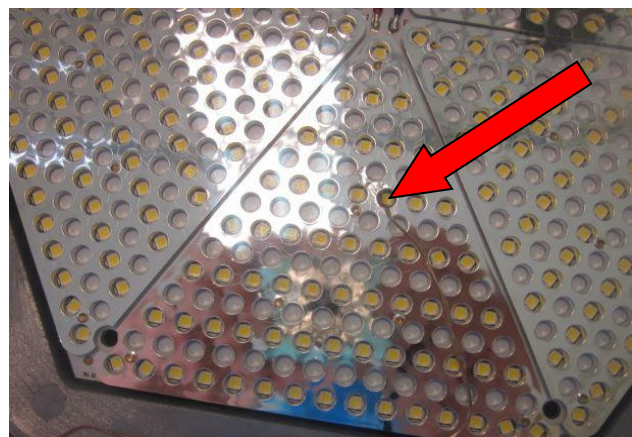
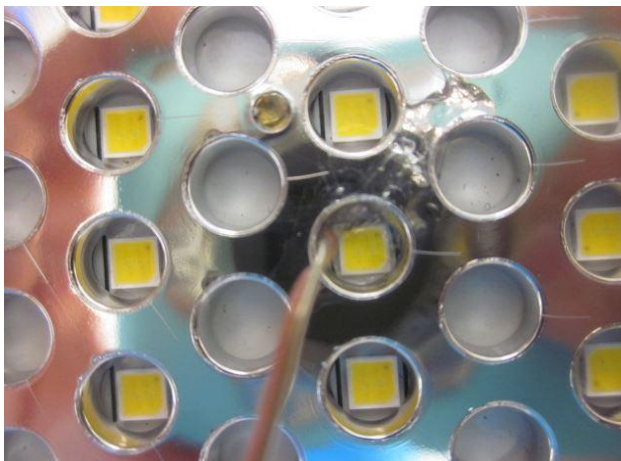
Maximum Power at Indicated Current: 0.35 (W)
Maximum Source Temperature: 113.7 (°C) (Tj - [power dissipation * Rth])

Test Conditions:

Temperature Measurement Location: See Photographs Below
Ambient Temperature: $25^{\circ} \pm 1^{\circ}$ (°C)
Ambient temperature at time of measurement: 24.2 (°C)
Relative humidity at time of measurement: 43%

Results:

Measured LED source temperature: 48.2 (°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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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