

Test Report

Report Number: L14175

Date: Jan 14, 2015

Issued by:

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

Test of one Vigilant Highbay With Clear Acrylic Lens
Unit manufacturer: Dialight Corporation
Unit model number: HE1RC4GN-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: January 13, 2015 through January 14, 2015

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

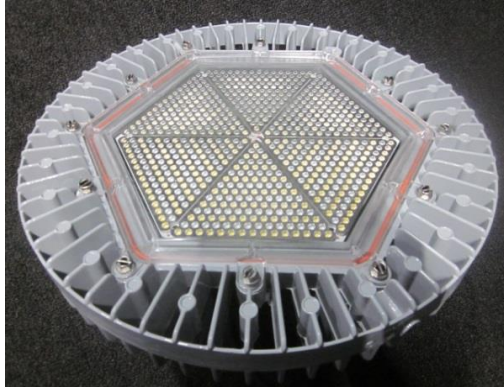
Description of sample:

Sample Number: L14175
Manufacturer: Dialight Corporation
Product Name: Vigilant
Description: Vigilant Highbay With Clear Acrylic Lens
Model Number: HE1RC4GN-xxx

Report Summary

Sample number L14175
Dialight unit model number HE1RC4GN-xxx

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	13680 (lumens)	13548 (lumens)
Electrical Power:	112.0 (W)	112.1 (W)
Luminous Efficacy:	122.1 (lumens/W)	120.9 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 112.0 (W)
 Power Factor (120VAC): 0.992
 Current ATHD % (120VAC): 9.133
 Input Power (277VAC): 110.3 (W)
 Power Factor (277VAC): 0.938
 Current ATHD % (277VAC): 16.307

Color Measurements:

Correlated Color Temperature (CCT): 4858
 Color Rendering Index (CRI): 77.9
 Chromaticity Coordinate (x): 0.3498
 Chromaticity Coordinate (y): 0.36
 Chromaticity Coordinate (u'): 0.2114
 Chromaticity Coordinate (v'): 0.3263
 DUV: 0.0023

Temperature Measurements:

In Situ LED Source Temperature: 47.0 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L14175.
Dialight unit model number HE1RC4GN-xxx

Test Conditions:

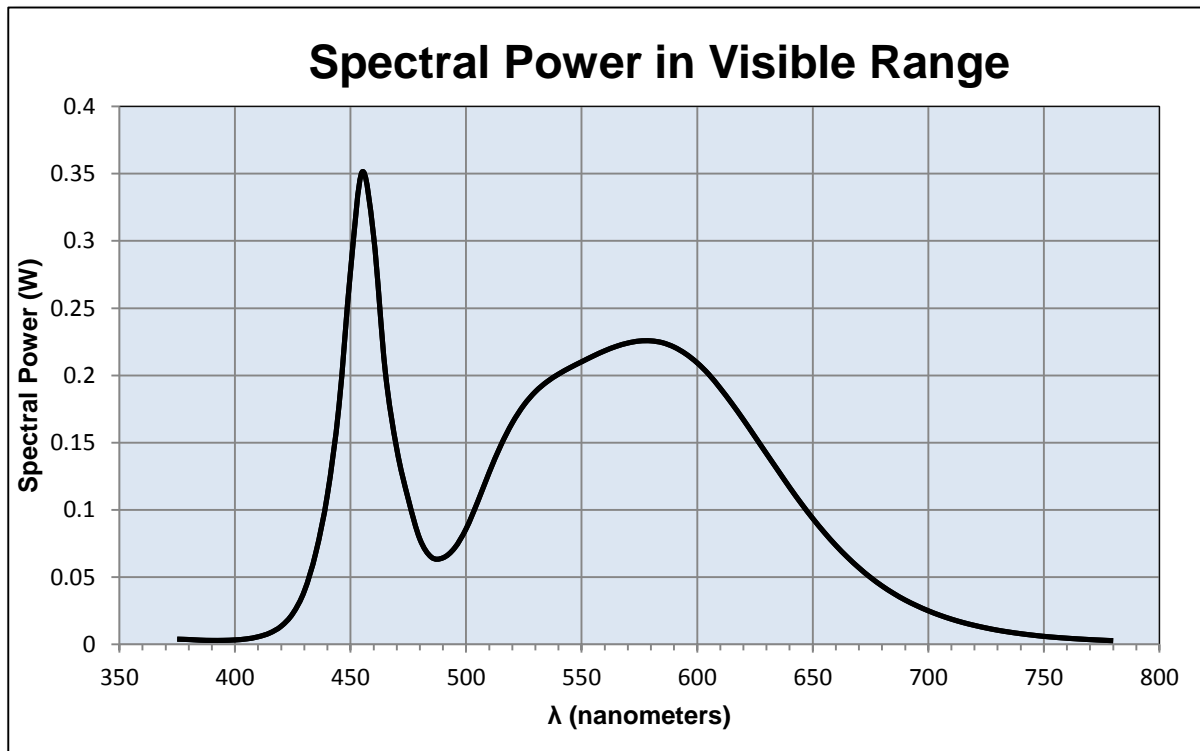
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
Input Current: 0.937 (A)
Input Power: 112.0 (W)
Input Power Factor: 0.992
Current ATHD: 9.133 (%)

Photometric measurements:

Luminous Flux: 13680 (lumens)
Luminous Efficacy: 122.1 (lumens/W)
Correlated Color Temperature (CCT): 4858 (K)
CRI -Ra: 77.9
CRI -R9: -9.1
DUV: 0.0023
CIE Coordinate (x): 0.3498
CIE Coordinate (y): 0.36
CIE Coordinate (u'): 0.2114
CIE Coordinate (v'): 0.3263



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	0.004	515	0.148	655	0.083
380	0.004	520	0.165	660	0.074
385	0.003	525	0.178	665	0.065
390	0.003	530	0.188	670	0.057
395	0.003	535	0.195	675	0.050
400	0.003	540	0.201	680	0.043
405	0.004	545	0.206	685	0.038
410	0.006	550	0.210	690	0.033
415	0.008	555	0.214	695	0.029
420	0.014	560	0.218	700	0.025
425	0.023	565	0.222	705	0.022
430	0.04	570	0.224	710	0.019
435	0.068	575	0.226	715	0.016
440	0.111	580	0.226	720	0.014
445	0.177	585	0.224	725	0.012
450	0.278	590	0.221	730	0.011
455	0.351	595	0.216	735	0.009
460	0.303	600	0.209	740	0.008
465	0.204	605	0.201	745	0.007
470	0.145	610	0.190	750	0.006
475	0.108	615	0.179	755	0.005
480	0.078	620	0.167	760	0.005
485	0.065	625	0.154	765	0.004
490	0.064	630	0.142	770	0.004
495	0.072	635	0.129	775	0.003
500	0.086	640	0.117	780	0.003
505	0.106	645	0.105		
510	0.128	650	0.094		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L14175.
Dialight unit model number HE1RC4GN-xxx

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 0.9403 (A)
Input Power: 112.1 (W)
Power Factor: 0.9925

Photometric measurements:

Absolute Luminous Flux: 13548.3 (lumens)
Luminous Efficacy: 120.9 (lumens/W)

Intensity Summary:

INTENSITY (CANDLEPOWER) SUMMARY						
ANGLE	ALONG	22.5	45	67.5	ACROSS	OUTPUT LUMENS
0	5330	5330	5330	5330	5330	
5	5393	5384	5384	5380	5380	201
15	5175	5194	5182	5196	5208	1122
25	5169	5156	5166	5184	5168	2040
35	5702	5670	5708	5689	5692	3114
45	5286	5199	5194	5205	5233	4053
55	1661	1619	1582	1607	1633	2570
65	112	108	110	111	112	398
75	22	23	22	23	23	43
85	0	0	0	0	0	7
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

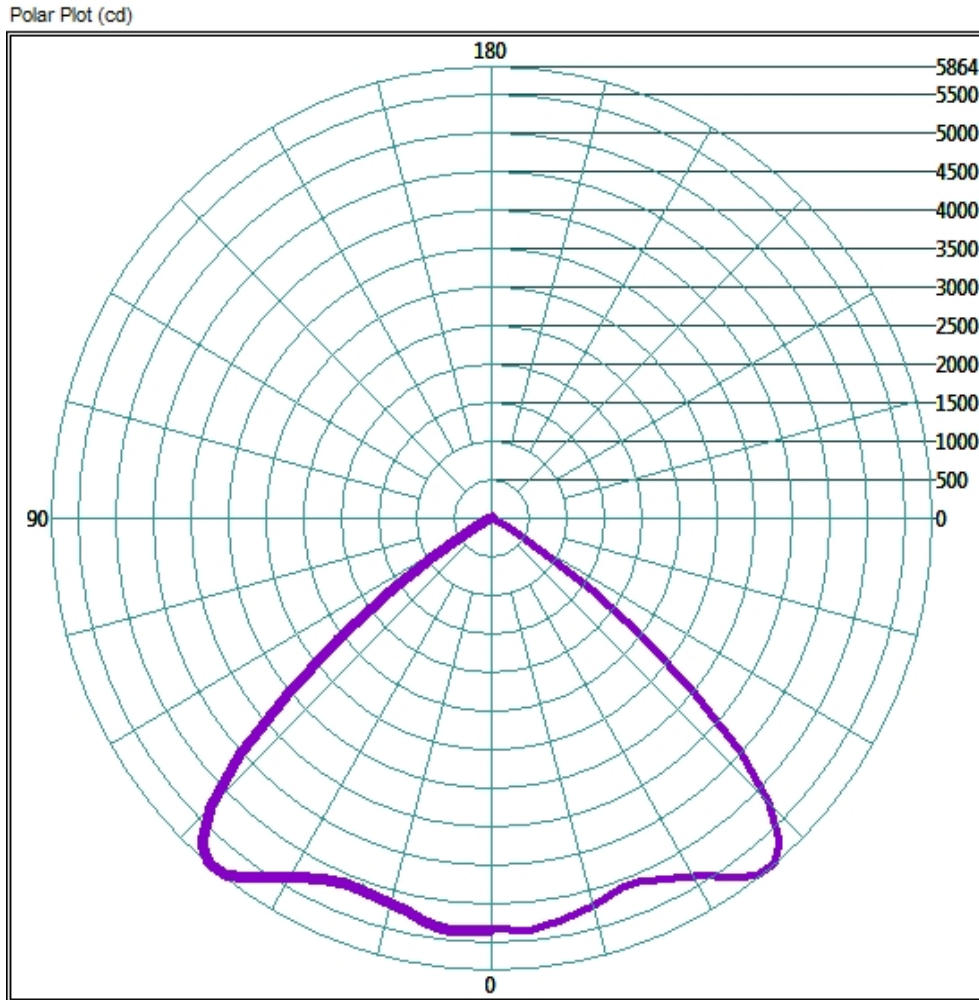
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	4767.32	35.2%
0-40	8472.76	62.5%
0-60	13418.6	99.0%
60-90	238.04	1.8%
0-90	13548.4	100.0%
90-180	0	0.0%
0-180	13548.4	100.0%

Test Results: Goniometer

Results continued from previous page.

Polar Plot:

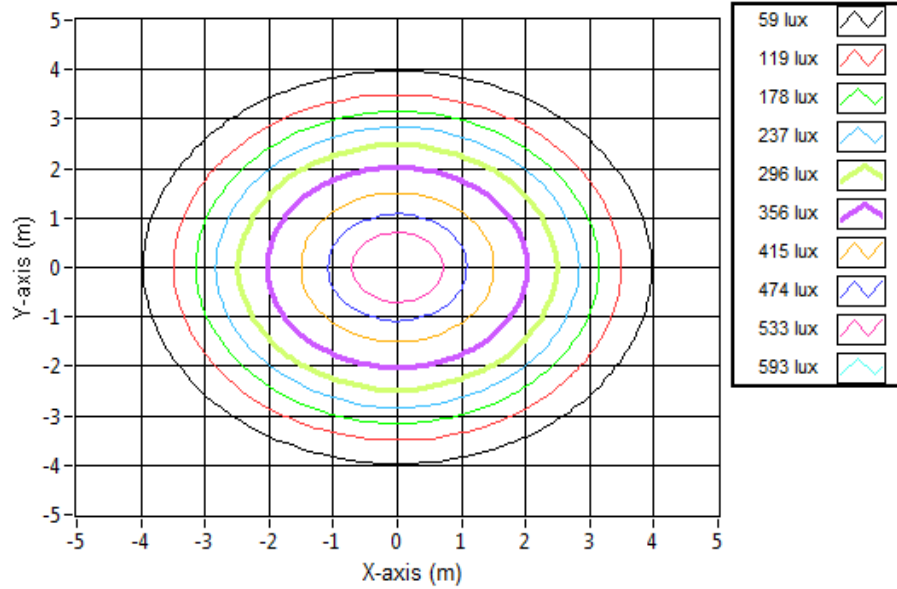


Test Results: Goniometer

Results continued from previous page.

Illuminance Plots:

Illuminance Contour Graph



Illuminance-Cone of Light:

Mounting Height (m)	Beam Cone Width (m)	Orthogonal Beam Cone Width (m)	Projected Illuminance (lux)
3.048	7.89	7.87	573.7
6.096	15.77	15.74	143.4
9.144	23.66	23.62	63.7
12.192	31.54	31.49	35.9
15.24	39.43	39.36	22.9
18.288	47.32	47.23	15.9
21.336	55.20	55.10	11.7
24.384	63.09	62.97	9.0
27.432	70.98	70.85	7.1
30.48	78.86	78.72	5.7

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L14175.
Dialight unit model number HE1RC4GN-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:

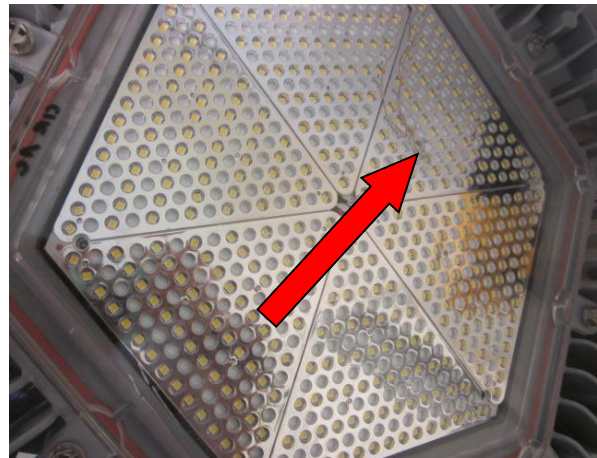
Maximum Power at Indicated Current: 0.35 (W)
Maximum Source Temperature: 113.7 (°C)

Test Conditions:

Temperature Measurement Location: See Photographs Below
Ambient Temperature: $25 \pm 1^\circ$ (°C)
Ambient temperature at time of measurement: 24.4 (°C)
Relative humidity at time of measurement: 10%

Results:

Measured LED source temperature: 47 (°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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Optical Engineer
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