

Test Report

Report Number: L14174

Date: Jan 16, 2015

Issued by:

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

Test of one Vigilant Highbay With Ultra Clear Polycarbonate Lens
Unit manufacturer: Dialight Corporation
Unit model number: HE2RC4GN-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 16, 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

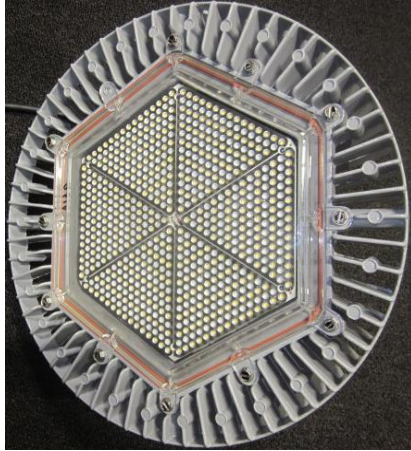
Description of sample:

Sample Number: L14174
Manufacturer: Dialight Corporation
Product Name: Vigilant
Description: Vigilant Highbay With Ultra Clear Polycarbonate Lens
Model Number: HE2RC4GN-xxx

Report Summary

Sample number L14174
Dialight unit model number HE2RC4GN-xxx

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	13700 (lumens)	13521 (lumens)
Electrical Power:	112.0 (W)	112.0 (W)
Luminous Efficacy:	122.3 (lumens/W)	120.7 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 112.0 (W)
Power Factor (120VAC): 0.992
Current ATHD % (120VAC): 9.157
Input Power (277VAC): 110.2 (W)
Power Factor (277VAC): 0.938
Current ATHD % (277VAC): 16.303

Color Measurements:

Correlated Color Temperature (CCT): 4837
Color Rendering Index (CRI): 77.4
Chromaticity Coordinate (x): 0.3505
Chromaticity Coordinate (y): 0.3609
Chromaticity Coordinate (u'): 0.2115
Chromaticity Coordinate (v'): 0.3266
DUV: 0.0025

Temperature Measurements:

In Situ LED Source Temperature: 47.2 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L14174.
Dialight unit model number HE2RC4GN-xxx

Test Conditions:

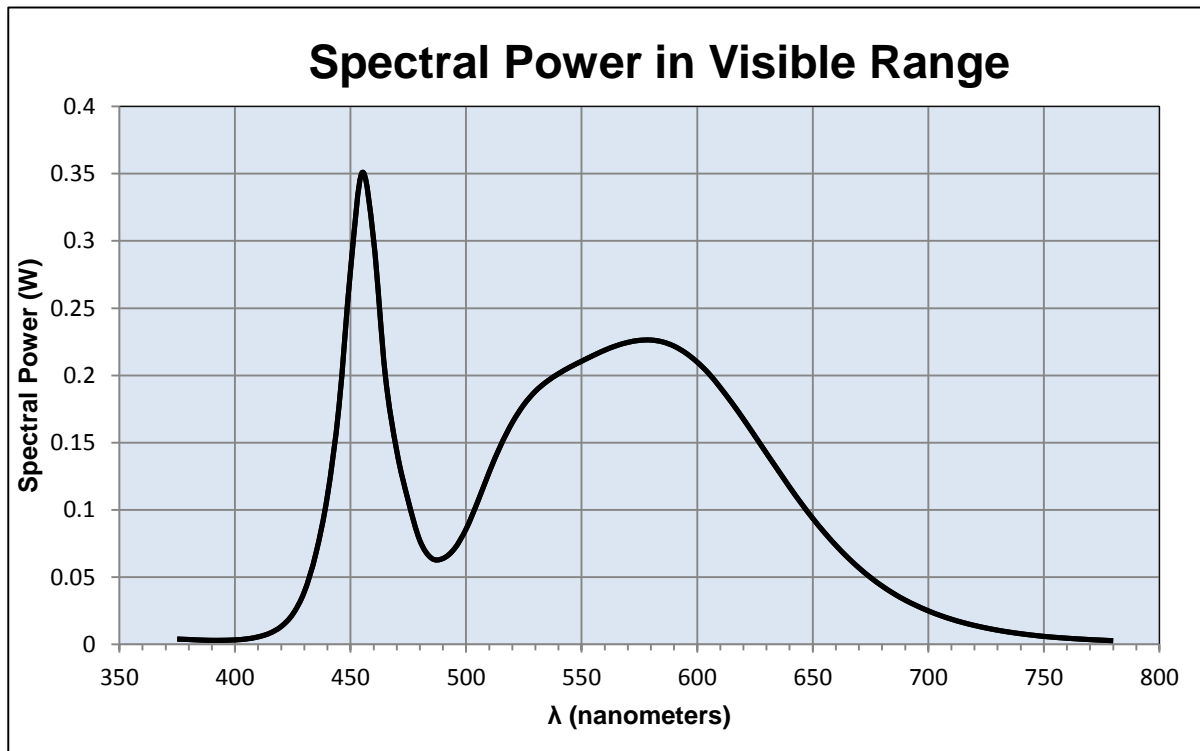
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
Input Current: 0.941 (A)
Input Power: 112.0 (W)
Input Power Factor: 0.992
Current ATHD: 9.157 (%)

Photometric measurements:

Luminous Flux: 13700 (lumens)
Luminous Efficacy: 122.3 (lumens/W)
Correlated Color Temperature (CCT): 4837 (K)
CRI -Ra: 77.4
CRI -R9: -12.3
DUV: 0.0025
CIE Coordinate (x): 0.3505
CIE Coordinate (y): 0.3609
CIE Coordinate (u'): 0.2115
CIE Coordinate (v'): 0.3266



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	0.148	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	0.196	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	0.211	690	0.033
415	0.008	555	0.215	695	0.029
420	0.013	560	0.219	700	0.025
425	0.022	565	0.222	705	0.022
430	0.039	570	0.225	710	0.019
435	0.067	575	0.226	715	0.016
440	0.111	580	0.226	720	0.014
445	0.177	585	0.225	725	0.012
450	0.278	590	0.222	730	0.011
455	0.351	595	0.217	735	0.009
460	0.3	600	0.210	740	0.008
465	0.201	605	0.201	745	0.007
470	0.144	610	0.191	750	0.006
475	0.107	615	0.180	755	0.005
480	0.077	620	0.168	760	0.005
485	0.064	625	0.155	765	0.004
490	0.064	630	0.142	770	0.004
495	0.071	635	0.130	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 L14174.

Dialight unit model number HE2RC4GN-xxx

Electrical Measurements:

Input Voltage: 120 (VAC)
 Input current: 0.9399 (A)
 Input Power: 112.0 (W)
 Power Factor: 0.9925

Photometric measurements:

Absolute Luminous Flux: 13521.4 (lumens)
 Luminous Efficacy: 120.7 (lumens/W)

Intensity Summary:

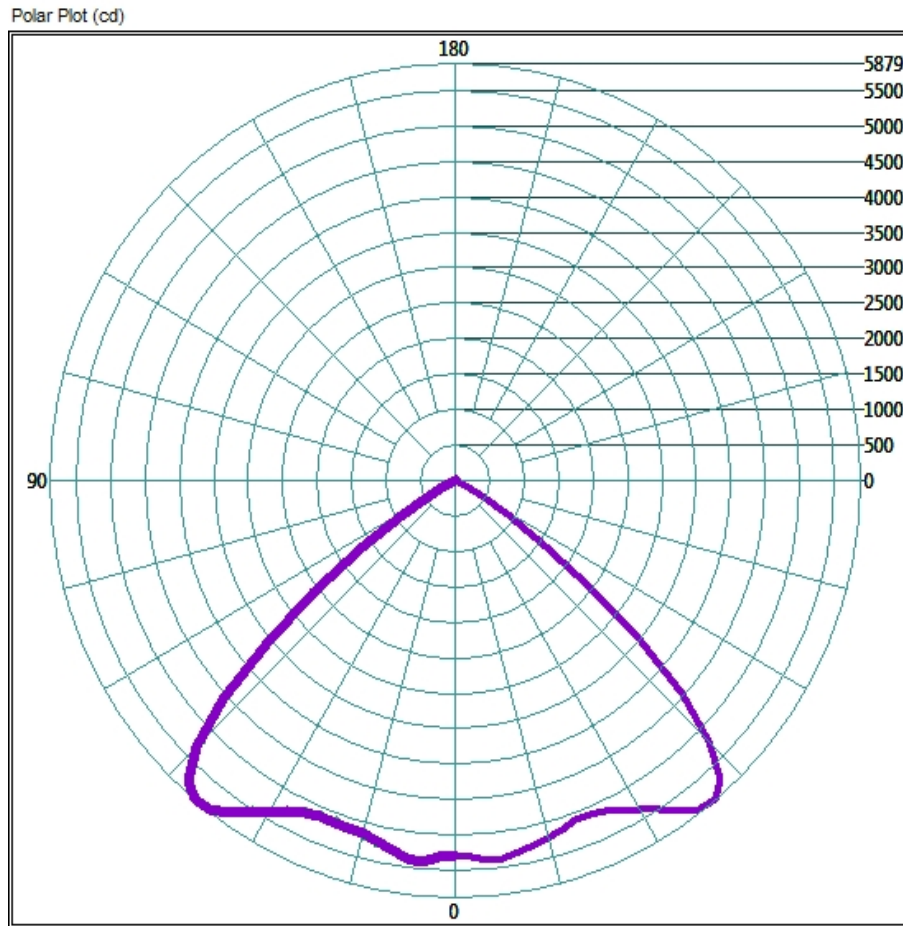
<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	22.5	45	67.5	ACROSS	OUTPUT LUMENS
0	5275	5275	5275	5275	5275	
5	5387	5387	5382	5377	5378	200
15	5145	5211	5154	5182	5213	1122
25	5165	5129	5158	5190	5146	2038
35	5723	5686	5731	5691	5680	3117
45	5306	5188	5229	5193	5221	4059
55	1636	1605	1573	1603	1617	2558
65	104	97	102	99	97	390
75	15	16	15	15	15	33
85	0	0	0	0	0	3
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

<u>ZONAL LUMEN AND PERCENTAGES</u>		
ZONE	LUMENS	% LUMINAIRE
0-30	4764	35.2%
0-40	8476	62.7%
0-60	13409.56	99.2%
60-90	219.04	1.6%
0-90	13521.5	100.0%
90-180	0	0.0%
0-180	13521.5	100.0%

Test Results: Goniometer

Results continued from previous page.

Polar Plot:

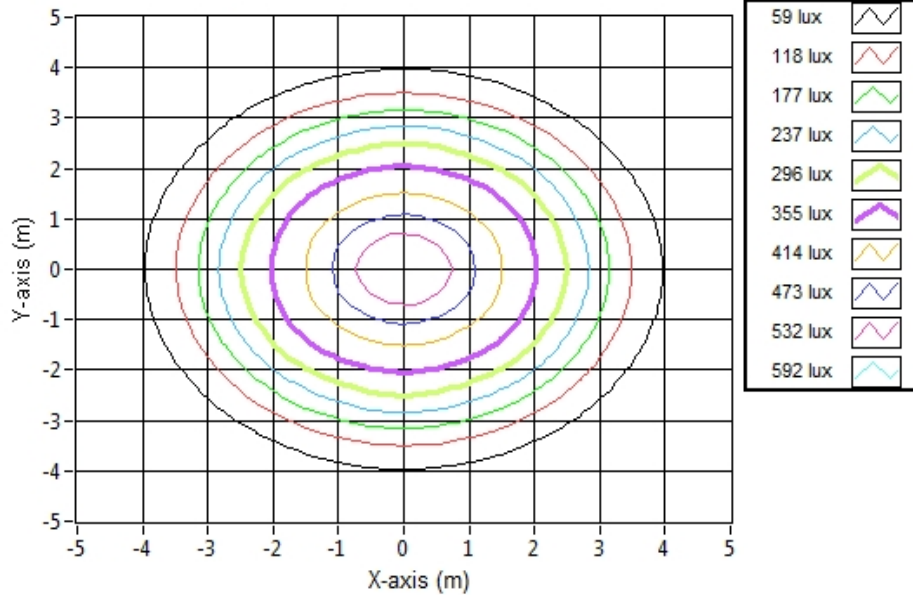


Test Results: Goniometer

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	7.90	7.87	567.8
6.096	15.81	15.75	142.0
9.144	23.71	23.62	63.1
12.192	31.62	31.49	35.5
15.24	39.52	39.36	22.7
18.288	47.43	47.24	15.8
21.336	55.33	55.11	11.6
24.384	63.23	62.98	8.9
27.432	71.14	70.86	7.0
30.48	79.04	78.73	5.7

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L14174.
Dialight unit model number HE2RC4GN-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:

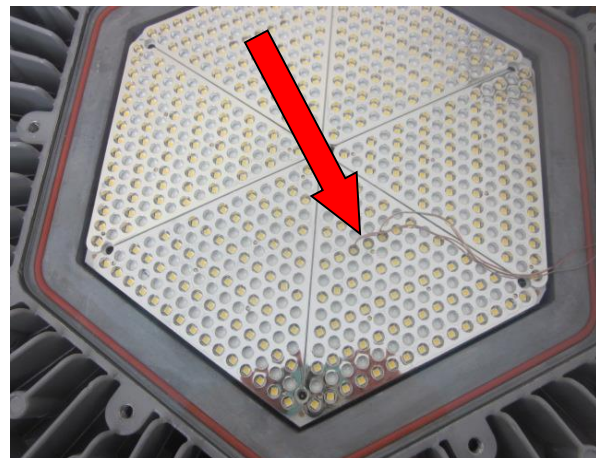
Maximum Power at Indicated Current: 0.35 (W)
Maximum Source Temperature: 113.7 (°C)

Test Conditions:

Temperature Measurement Location: See Photographs Below
Ambient Temperature: $25^{\circ} \pm 1^{\circ}$ (°C)
Ambient temperature at time of measurement: 24.5 (°C)
Relative humidity at time of measurement: 10%

Results:

Measured LED source temperature: 47.2 (°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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Optical Engineer
Approved Signatory