

Test Report

Report Number: L15032

Date: Mar 24, 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: HE2EC4KN-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: March 17, 2015 through March 23, 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

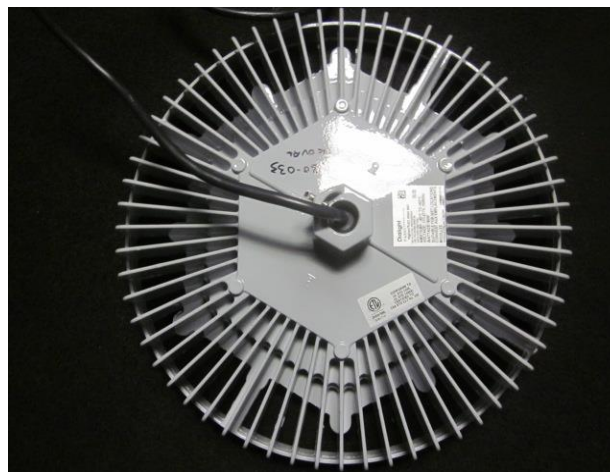
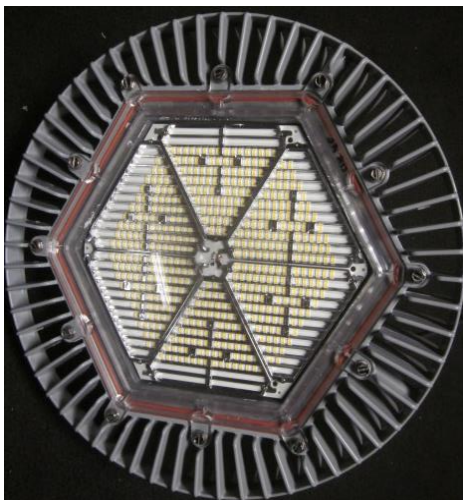
Description of sample:

Sample Number: L15032
Manufacturer: Dialight Corporation
Product Name: Vigilant Highbay
Description: Vigilant Highbay With Ultra Clear Polycarbonate Lens
Model Number: HE2EC4KN-xxx

Report Summary

Sample number L15032
Dialight unit model number HE2EC4KN-xxx

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	17470 (lumens)	17543 (lumens)
Electrical Power:	143.1 (W)	143.4 (W)
Luminous Efficacy:	122.1 (lumens/W)	122.3 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 143.1 (W)
Power Factor (120VAC): 0.995
Current ATHD % (120VAC): 7.955
Input Power (277VAC): 140.3 (W)
Power Factor (277VAC): 0.964
Current ATHD % (277VAC): 11.78

Color Measurements:

Correlated Color Temperature (CCT): 4910
Color Rendering Index (CRI): 78.4
Chromaticity Coordinate (x): 0.348
Chromaticity Coordinate (y): 0.354
Chromaticity Coordinate (u'): 0.212
Chromaticity Coordinate (v'): 0.324
DUV: 0.00033

Temperature Measurements:

In Situ LED Source Temperature: 55.9 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L15032.

Dialight unit model number HE2EC4KN-xxx

Test Conditions:

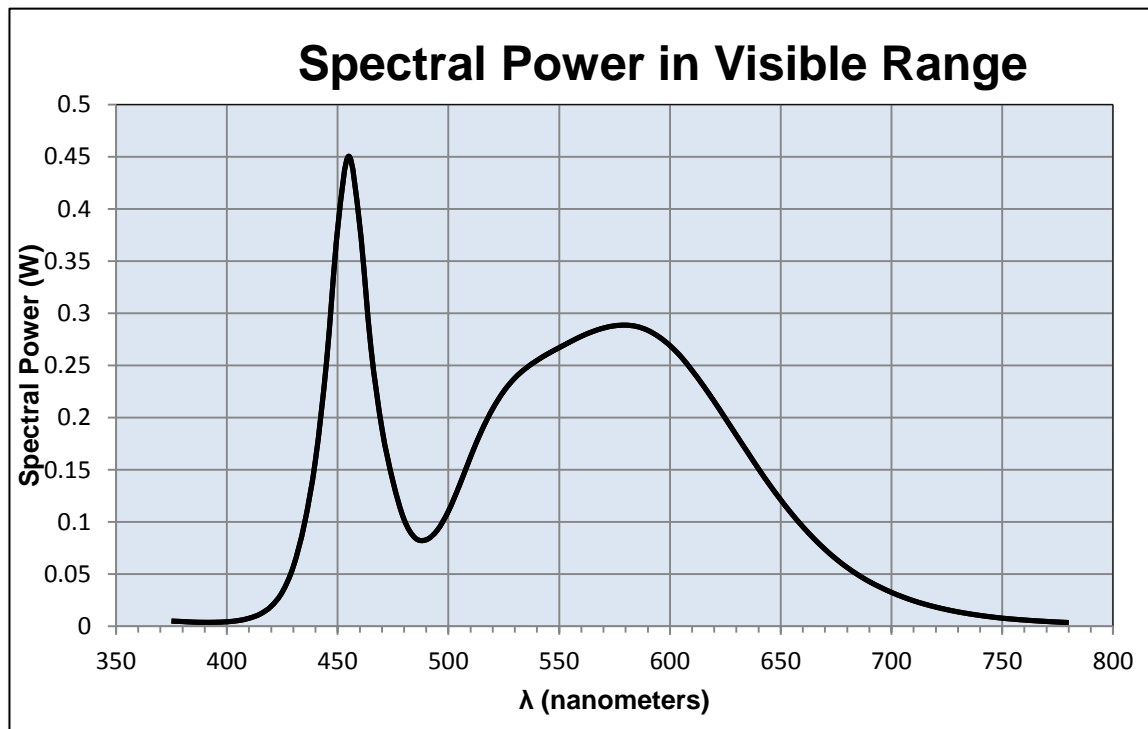
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
Input Current: 1.197 (A)
Input Power: 143.1 (W)
Input Power Factor: 0.995
Current ATHD: 7.955 (%)

Photometric measurements:

Luminous Flux: 17470 (lumens)
Luminous Efficacy: 122.1 (lumens/W)
Correlated Color Temperature (CCT): 4910 (K)
CRI -Ra: 78.4
CRI -R9: -6.6
DUV: 0.00033
CIE Coordinate (x): 0.348
CIE Coordinate (y): 0.354
CIE Coordinate (u'): 0.212
CIE Coordinate (v'): 0.324



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	0.005	515	0.187	655	0.108
380	0.005	520	0.209	660	0.095
385	0.004	525	0.225	665	0.084
390	0.004	530	0.238	670	0.074
395	0.004	535	0.247	675	0.064
400	0.004	540	0.255	680	0.056
405	0.005	545	0.261	685	0.049
410	0.008	550	0.267	690	0.043
415	0.012	555	0.273	695	0.037
420	0.019	560	0.278	700	0.033
425	0.033	565	0.282	705	0.028
430	0.057	570	0.286	710	0.024
435	0.098	575	0.288	715	0.021
440	0.159	580	0.289	720	0.018
445	0.254	585	0.287	725	0.016
450	0.381	590	0.284	730	0.014
455	0.451	595	0.277	735	0.012
460	0.384	600	0.269	740	0.01
465	0.268	605	0.258	745	0.009
470	0.19	610	0.245	750	0.008
475	0.139	615	0.231	755	0.007
480	0.102	620	0.215	760	0.006
485	0.085	625	0.199	765	0.005
490	0.083	630	0.183	770	0.005
495	0.092	635	0.167	775	0.004
500	0.11	640	0.151	780	0.004
505	0.135	645	0.136		
510	0.162	650	0.121		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L15032.
Dialight unit model number HE2EC4KN-xxx

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 1.19 (A)
Input Power: 143.4 (W)
Power Factor: 0.995

Photometric measurements:

Absolute Luminous Flux: 17543 (lumens)
Luminous Efficacy: 122.3 (lumens/W)

Intensity Summary:

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	25	45	72.5	ACROSS	OUTPUT LUMENS
0	11892	11892	11892	11892	11892	
5	11729	11760	11769	11798	11867	440
15	9130	9458	10240	11314	11529	2282
25	6471	6749	7690	9750	10718	3452
35	5097	5414	5711	7667	9468	3960
45	1990	2737	4255	5366	7687	3598
55	272	455	1474	3491	5482	2299
65	44	96	167	1536	3296	1117
75	25	39	32	90	973	358
85	0	0	0	0	19	37
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

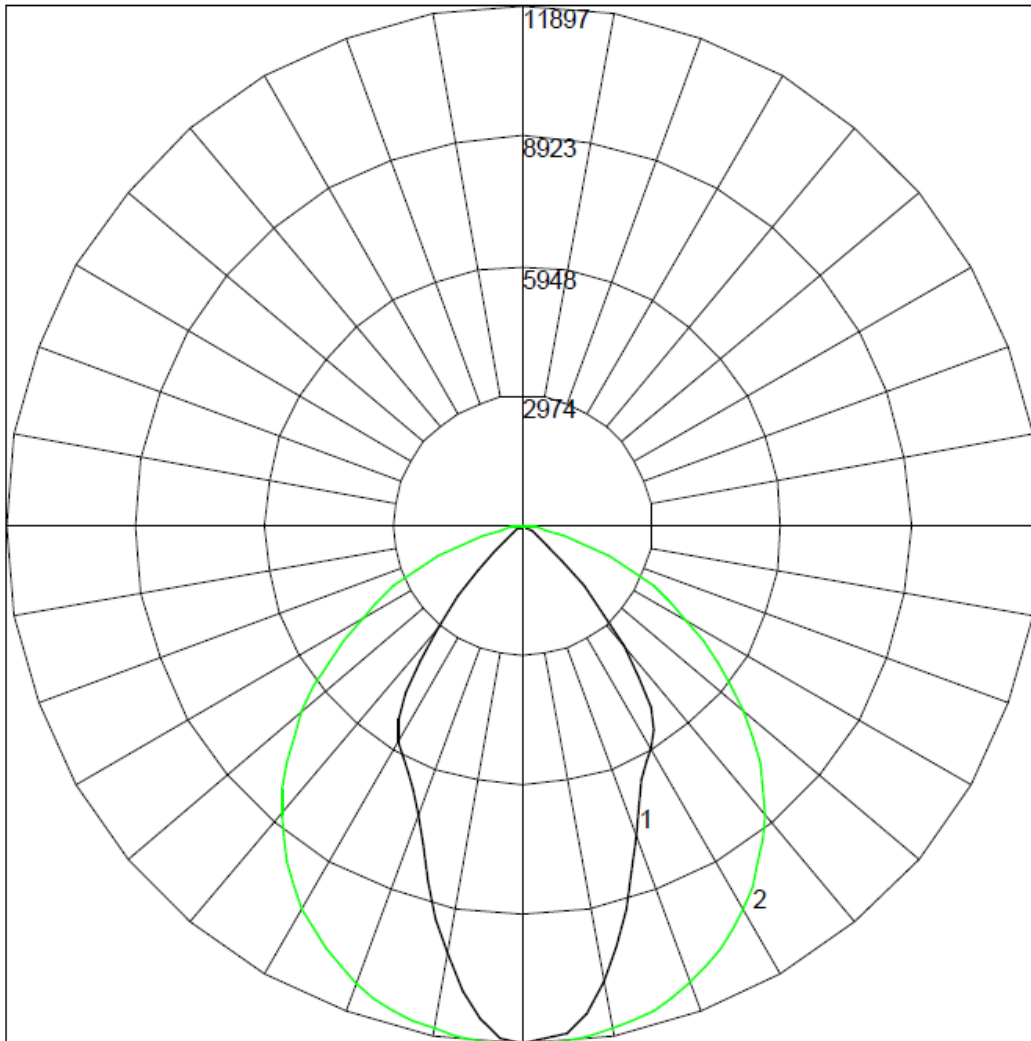
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	8123.02	46.3%
0-40	12056.3	68.7%
0-60	16709.22	95.3%
60-90	1139.35	6.5%
0-90	17542.4	100.0%
90-180	0	0.0%
0-180	17542.4	100.0%

Test Results: Goniometer

Results continued from previous page.

Polar Plot:

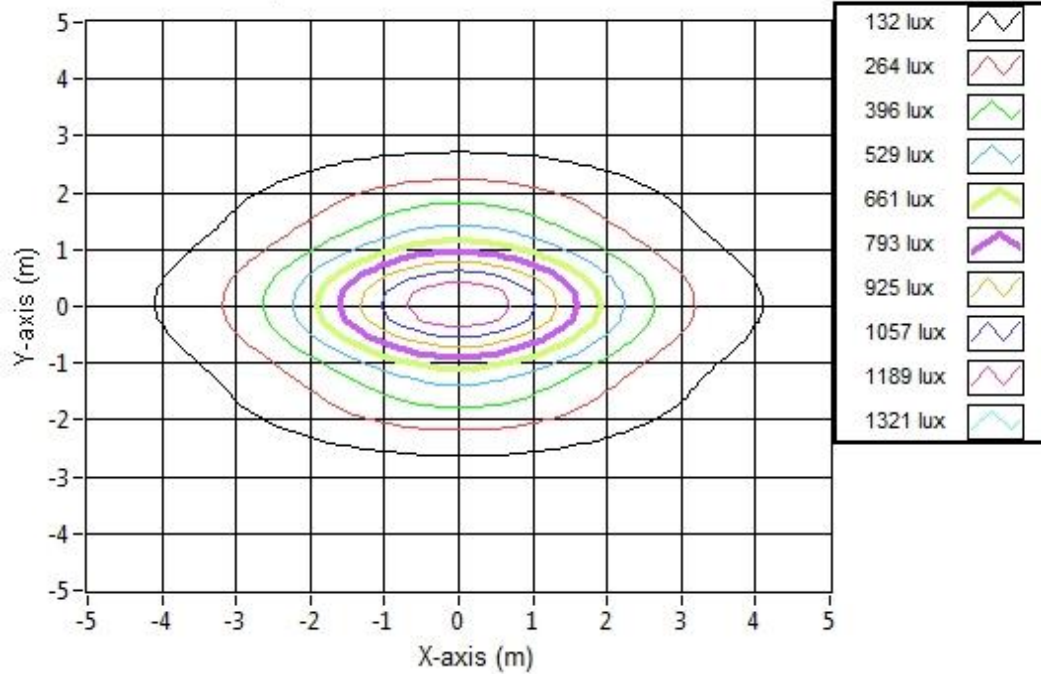


Test Results: Goniometer

Results continued from previous page.

Illuminance Plot:

Illuminance Contour Graph



Illuminance-Cone of Light:

Mounting Height (m)	Beam Cone Width (m)	Orthogonal Beam Cone Width (m)	Projected Illuminance (lux)
3.048	3.33	8.06	1280.1
6.096	6.65	16.13	320.0
9.144	9.98	24.19	142.2
12.192	13.31	32.26	80.0
15.24	16.64	40.32	51.2
18.288	19.96	48.39	35.6
21.336	23.29	56.45	26.1
24.384	26.62	64.52	20.0
27.432	29.94	72.58	15.8
30.48	33.27	80.65	12.8

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L15032.
Dialight unit model number HE2EC4KN-xxx

LED identified as Nichia part number NT2W757DT 5000K.

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:

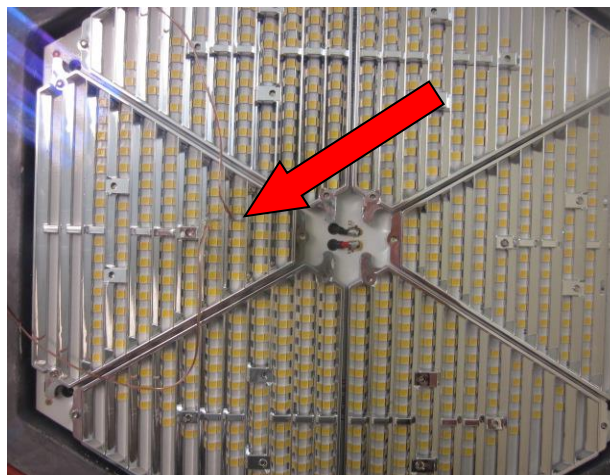
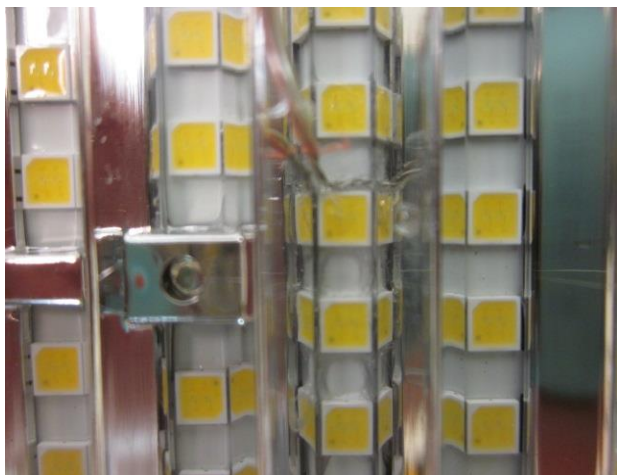
Maximum Power at Indicated Current: 0.35 (W)
Maximum Source Temperature: 113.7 (°C)

Test Conditions:

Temperature Measurement Location: See Photographs Below
Ambient Temperature: $25^{\circ} \pm 1^{\circ}$ (°C)
Ambient temperature at time of measurement: 25.5 (°C)
Relative humidity at time of measurement: 10%

Results:

Measured LED source temperature: 55.9 (°C)



Equipment Used:

Equipment Name	Model Number
Omega TC	Dpi8
Fluke 8808A Digit Multimeter	8808A
YOKOGAWA Digital Power Meter	760401
LSI Standard Lamps	#30279
LSI High Speed Mirror Goniometer	6240T
Instrument System Spectrometer	CAS140B-151
Instrument System Sphere Lamps (Osram Sylvania)	STD-20WF-3
Instrument System Sphere Lamps (Osram Sylvania)	STD-20WF-3
Instrument System Sphere Lamps (Osram Sylvania)	STD-20WF-3
Instrument System 1.5 Meter Sphere	ISP1500
Volttech Power Analyzer	PM1000+
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
Volttech Power Analyzer	PM1000+
Tenma AC Power Source	72-7675
BK Precision	1715A
TDK-Lambda	GEN1500W
Fluke 8808A Digit Multimeter	8808A
TPI Digital Thermometer 343	TPI 343
TPI Digital Thermometer 343	TPI 343
Step-Up Transformer	
Omega TC	Dpi8-C24
Agilent True RMS OLED Multimeter	U1273A

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.

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 Optical Engineer
 Approved Signatory