

Test Report

Report Number: L15133

Date: Oct 19, 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: HE2RC4KN-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: October 16, 2015 through October 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:

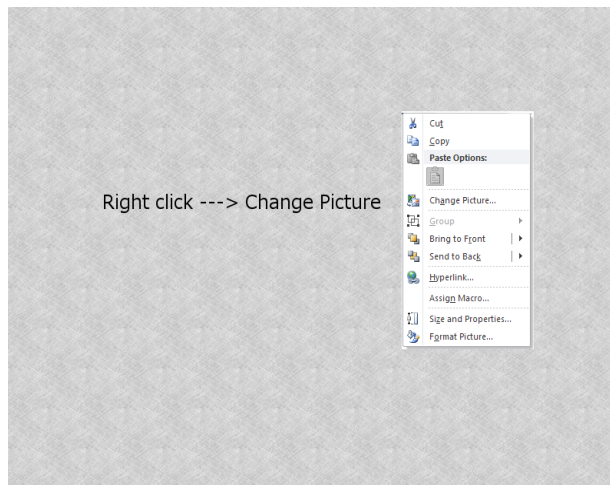
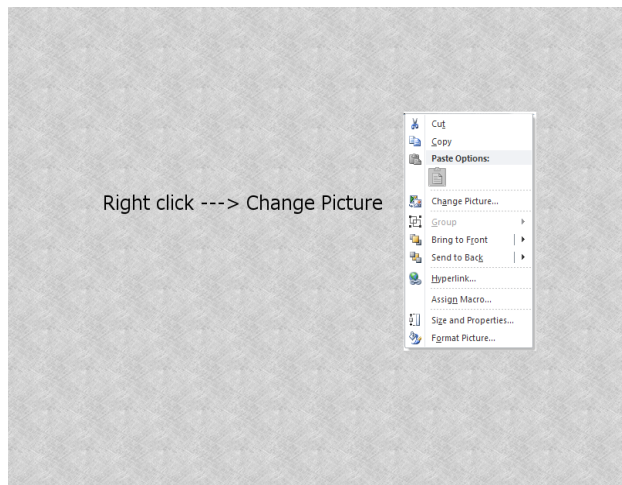
Sample Number: L15133
Manufacturer: Dialight Corporation
Product Name: Vigilant
Description: Vigilant Highbay With Ultra Clear Polycarbonate Lens
Model Number: HE2RC4KN-xxx

Report Summary

Sample number L15133

Dialight unit model number HE2RC4KN-xxx

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	17310 (lumens)	17056 (lumens)
Electrical Power:	144.2 (W)	144.2 (W)
Luminous Efficacy:	120 (lumens/W)	118.2 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 144.2 (W)
 Power Factor (120VAC): 0.996
 Current ATHD % (120VAC): 6.446
 Input Power (277VAC): 142.0 (W)
 Power Factor (277VAC): 0.97
 Current ATHD % (277VAC): 13.58

Color Measurements:

Correlated Color Temperature (CCT): 4872
 Color Rendering Index (CRI): 78.9
 Chromaticity Coordinate (x): 0.349
 Chromaticity Coordinate (y): 0.358
 Chromaticity Coordinate (u'): 0.212
 Chromaticity Coordinate (v'): 0.325
 DUV: 0.0014

Temperature Measurements:

In Situ LED Source Temperature: 52.8 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L15133.
Dialight unit model number HE2RC4KN-xxx

Test Conditions:

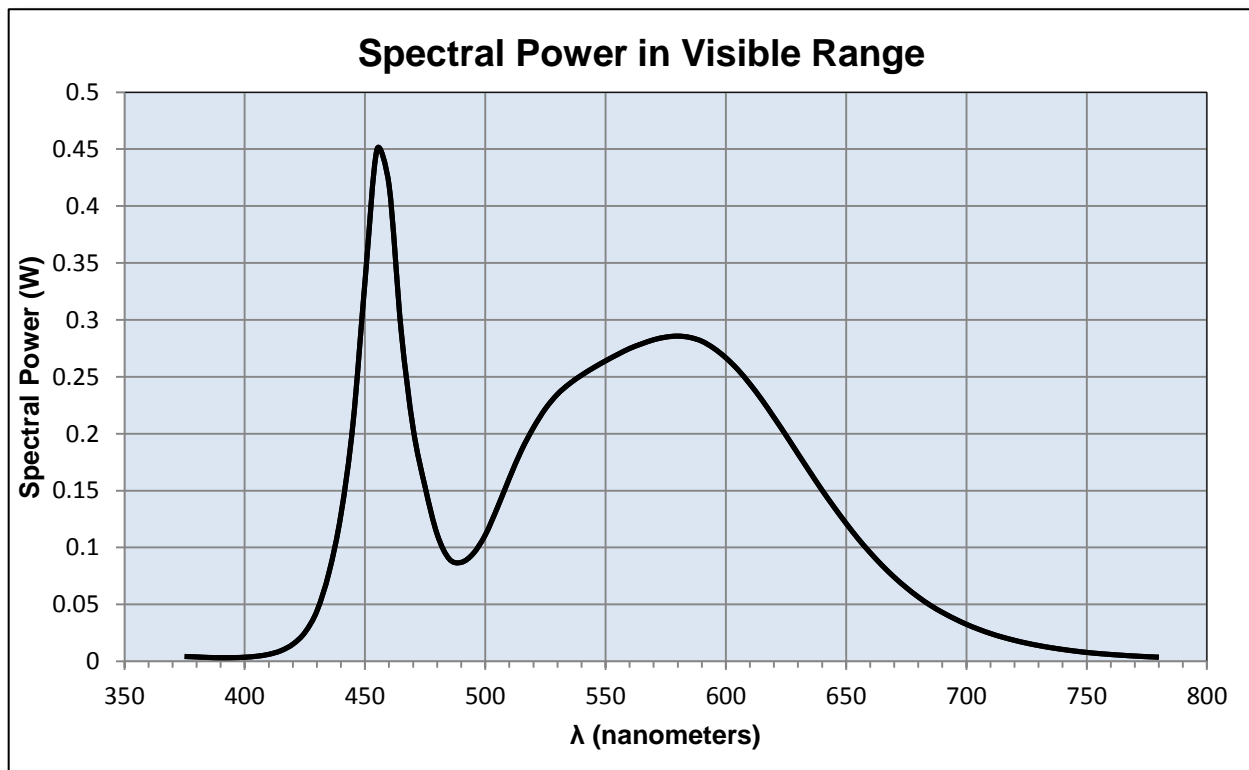
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
Input Current: 1.206 (A)
Input Power: 144.2 (W)
Input Power Factor: 0.996
Current ATHD: 6.446 (%)

Photometric measurements:

Luminous Flux: 17310 (lumens)
Luminous Efficacy: 120.0 (lumens/W)
Correlated Color Temperature (CCT): 4872 (K)
CRI -Ra: 78.9
CRI -R9: -4.8
DUV: 0.0014
CIE Coordinate (x): 0.349
CIE Coordinate (y): 0.358
CIE Coordinate (u'): 0.212
CIE Coordinate (v'): 0.325



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	0.185	655	0.108
380	0.004	520	0.205	660	0.095
385	0.003	525	0.222	665	0.084
390	0.003	530	0.235	670	0.074
395	0.003	535	0.244	675	0.065
400	0.004	540	0.251	680	0.057
405	0.004	545	0.258	685	0.049
410	0.006	550	0.264	690	0.043
415	0.009	555	0.27	695	0.038
420	0.015	560	0.275	700	0.033
425	0.025	565	0.279	705	0.028
430	0.044	570	0.283	710	0.024
435	0.078	575	0.285	715	0.021
440	0.129	580	0.286	720	0.018
445	0.209	585	0.285	725	0.016
450	0.334	590	0.281	730	0.014
455	0.45	595	0.275	735	0.012
460	0.418	600	0.267	740	0.01
465	0.291	605	0.256	745	0.009
470	0.205	610	0.244	750	0.008
475	0.153	615	0.23	755	0.007
480	0.112	620	0.214	760	0.006
485	0.09	625	0.199	765	0.005
490	0.087	630	0.182	770	0.005
495	0.095	635	0.166	775	0.004
500	0.111	640	0.15	780	0.004
505	0.135	645	0.135		
510	0.161	650	0.121		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L15133.
Dialight unit model number HE2RC4KN-xxx

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 1.2 (A)
Input Power: 144.2 (W)
Power Factor: 0.996

Photometric measurements:

Absolute Luminous Flux: 17056 (lumens)
Luminous Efficacy: 118.2 (lumens/W)

Intensity Summary:

INTENSITY (CANDLEPOWER) SUMMARY						
ANGLE	ALONG	23	45	68	ACROSS	OUTPUT LUMENS
0	6718	6718	6718	6718	6718	
5	6724	6724	6724	6724	6724	251
15	6468	6468	6468	6468	6468	1397
25	6206	6206	6206	6206	6206	2493
35	6285	6285	6285	6285	6285	3536
45	6150	6150	6150	6150	6150	4551
55	3010	3010	3010	3010	3010	3771
65	277	277	277	277	277	950
75	44	44	44	44	44	83
85	10	10	10	10	10	23
95	0	0	0	0	0	1
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

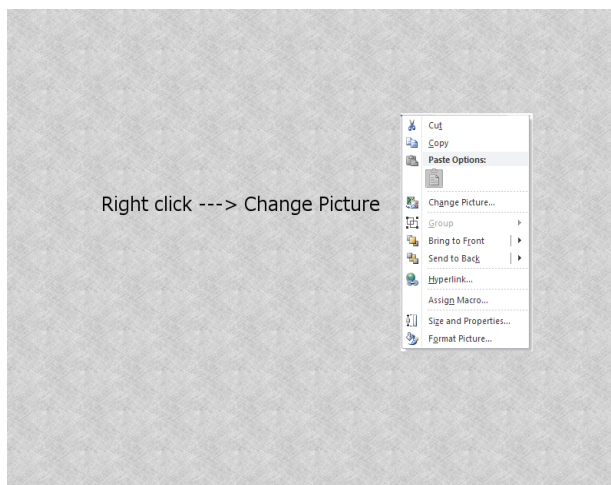
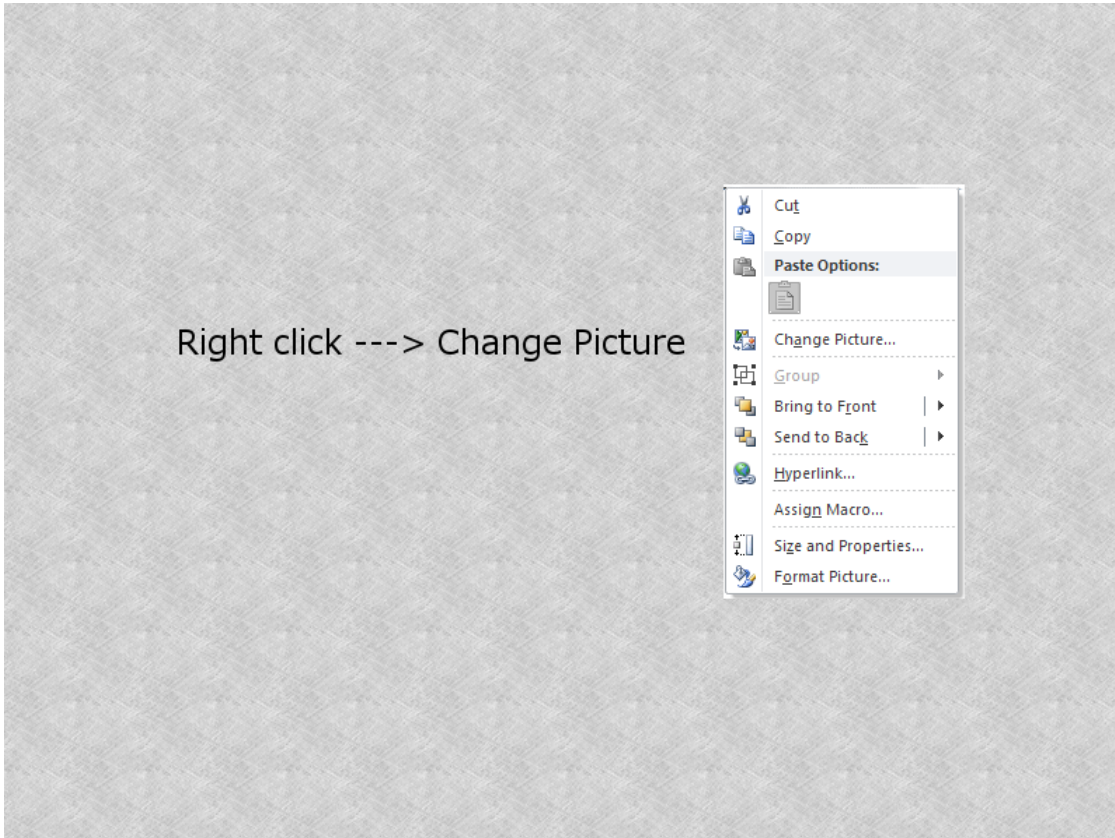
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	5772.32	33.8%
0-40	9861.76	57.8%
0-60	16736.32	98.1%
60-90	596.64	3.5%
0-90	17056.64	100.0%
90-180	0	0.0%
0-180	17056.64	100.0%

Test Results: Goniometer

Results continued from previous page.

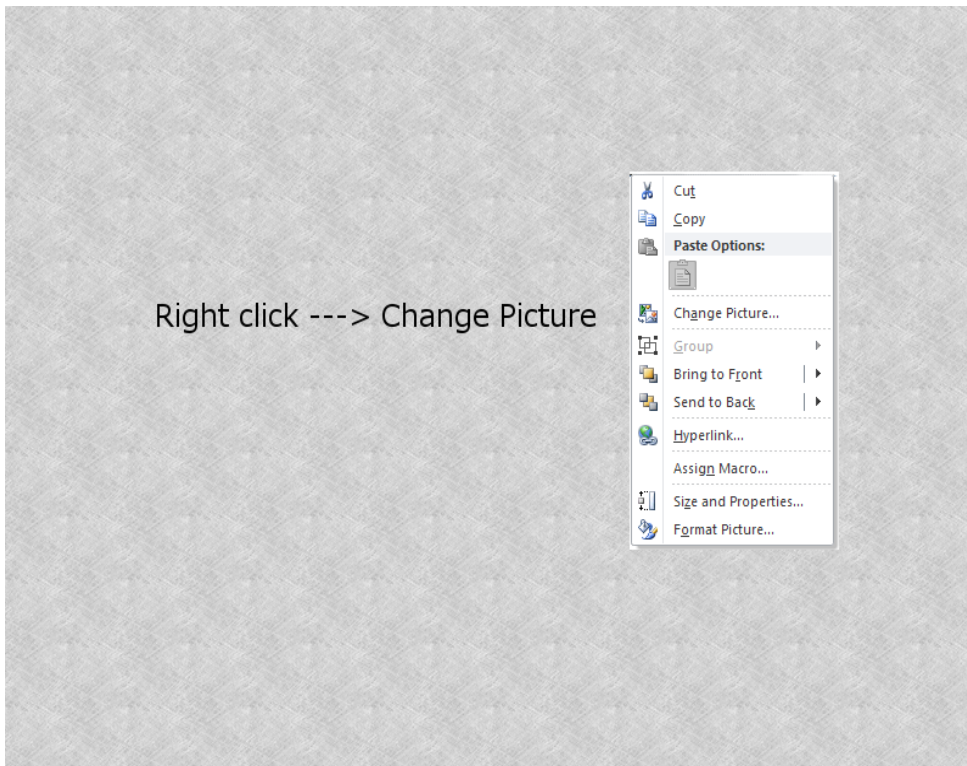
Polar Plot:



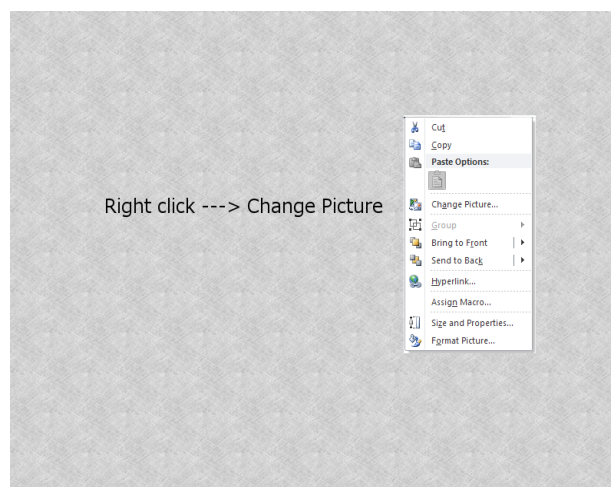
Test Results: Goniometer

Results continued from previous page.

Illuminance Plot:



Illuminance-Cone of Light:



Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L15133.
Dialight unit model number HE2RC4KN-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:

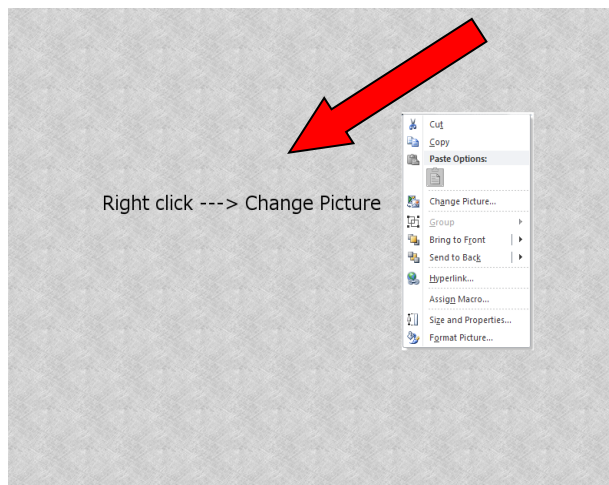
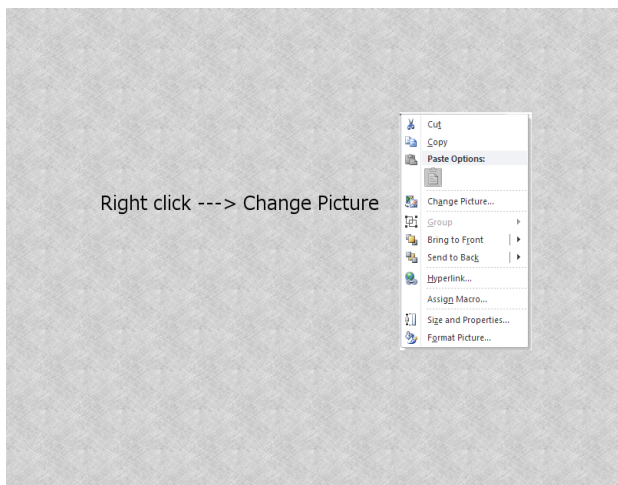
Maximum Power at Indicated Current: 0.35 (W)
Maximum Source Temperature: 113.7 (°C)

Test Conditions:

Temperature Measurement Location: See Photographs Below
Ambient Temperature: $25^{\circ} \pm 1'$ (°C)
Ambient temperature at time of measurement: 25.3 (°C)
Relative humidity at time of measurement: 30%

Results:

Measured LED source temperature: 52.8 (°C)



Equipment Used:

Equipment Name	Model Number
Omega TC	Dpi8
Fluke 8808A Digit Multimeter	8808A
YOKOGAWA Digital Power Meter	11/26/3981
LSI High Speed Mirror Goniometer	6240T
Instrument System Spectrometer	CAS140B-151
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	4/16/3120
Extech Hygro-Thermometer	4/16/3120
Fluke 52II Thermometer	52II Thermometer
Volttech Power Analyzer	PM1000+
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
Adaptive Power Systems AC Power Supply	FC-210
Xitron Power Analyzer	XT2640

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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