

Test Report

Report Number: L15080

Date: Jun 18, 2015

Issued by:

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

Test of one Vigilant Highbay With Dome Lens fixture
Unit manufacturer: Dialight Corporation
Unit model number: HELNC4PN-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: June 10, 2015 through June 17, 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

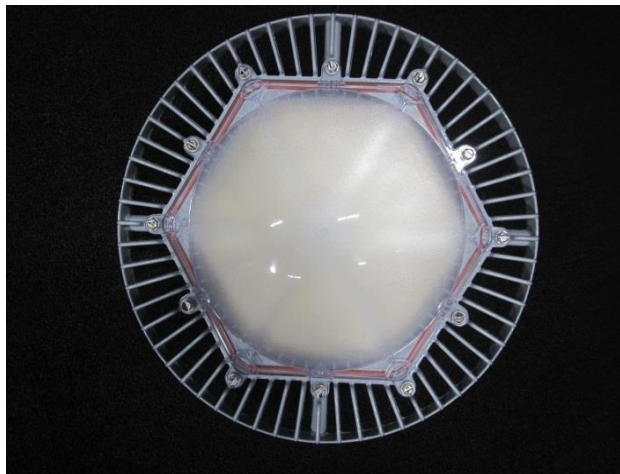
Description of sample:

Sample Number: L15080
Manufacturer: Dialight Corporation
Product Name: Vigilant Highbay
Description: Vigilant Highbay With Dome Lens
Model Number: HELNC4PN-xxx

Report Summary

Sample number L15080
Dialight unit model number HELNC4PN-xxx

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	24550 (lumens)	24608 (lumens)
Electrical Power:	212.6 (W)	213.1 (W)
Luminous Efficacy:	115.5 (lumens/W)	115.5 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 212.6 (W)
 Power Factor (120VAC): 0.997
 Current ATHD % (120VAC): 5.555
 Input Power (277VAC): 206.0 (W)
 Power Factor (277VAC): 0.953
 Current ATHD % (277VAC): 11.48

Color Measurements:

Correlated Color Temperature (CCT): 5055
 Color Rendering Index (CRI): 81
 Chromaticity Coordinate (x): 0.344
 Chromaticity Coordinate (y): 0.349
 Chromaticity Coordinate (u'): 0.211
 Chromaticity Coordinate (v'): 0.322
 DUV: 0.00064

Temperature Measurements:

In Situ LED Source Temperature: 58.9 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L15080.
Dialight unit model number HELNC4PN-xxx

Test Conditions:

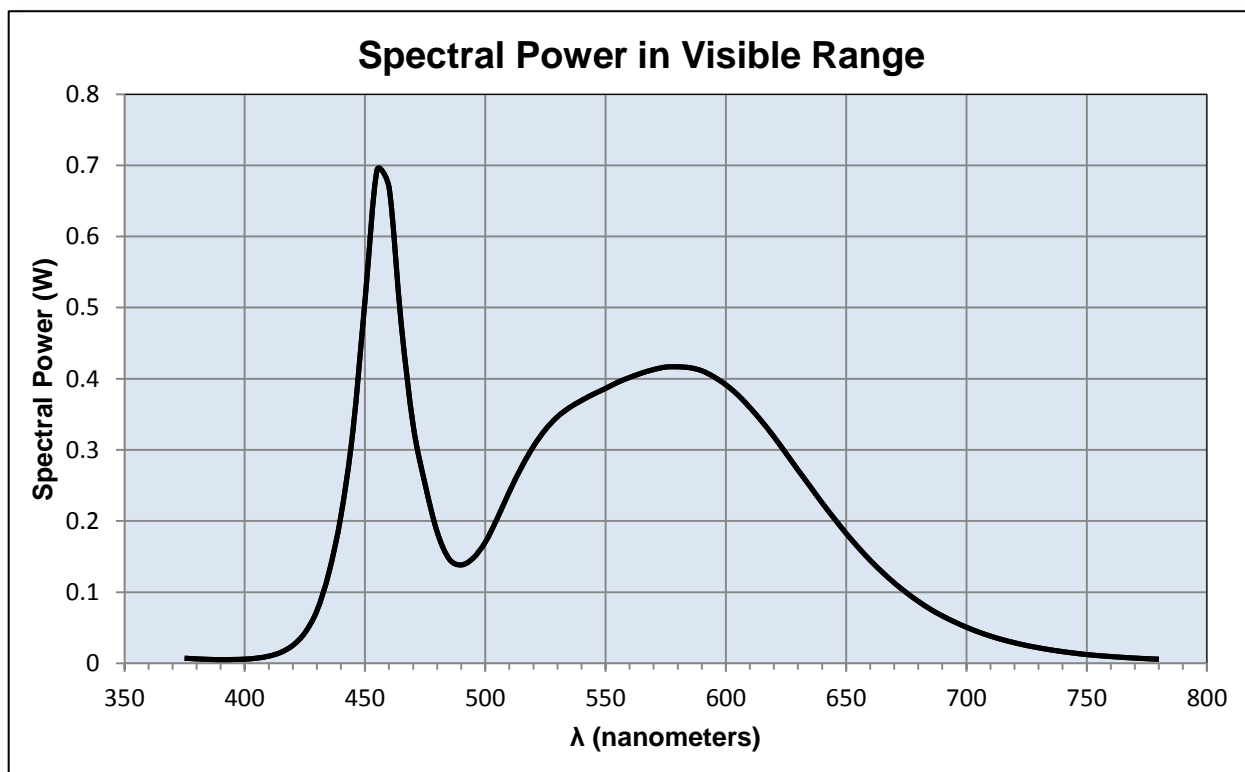
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
Input Current: 1.772 (A)
Input Power: 212.6 (W)
Input Power Factor: 0.997
Current ATHD: 5.555 (%)

Photometric measurements:

Luminous Flux: 24550 (lumens)
Luminous Efficacy: 115.5 (lumens/W)
Correlated Color Temperature (CCT): 5055 (K)
CRI -Ra: 81
CRI -R9: 3.9
DUV: 0.00064
CIE Coordinate (x): 0.344
CIE Coordinate (y): 0.349
CIE Coordinate (u'): 0.211
CIE Coordinate (v'): 0.322



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	0.007	515	0.275	655	0.163
380	0.006	520	0.305	660	0.145
385	0.006	525	0.329	665	0.128
390	0.005	530	0.347	670	0.113
395	0.005	535	0.359	675	0.099
400	0.006	540	0.369	680	0.087
405	0.007	545	0.378	685	0.076
410	0.01	550	0.386	690	0.067
415	0.015	555	0.395	695	0.058
420	0.025	560	0.402	700	0.051
425	0.043	565	0.408	705	0.044
430	0.074	570	0.413	710	0.038
435	0.128	575	0.416	715	0.033
440	0.208	580	0.417	720	0.029
445	0.328	585	0.416	725	0.025
450	0.51	590	0.411	730	0.022
455	0.693	595	0.403	735	0.019
460	0.669	600	0.392	740	0.016
465	0.479	605	0.377	745	0.014
470	0.335	610	0.359	750	0.012
475	0.252	615	0.34	755	0.011
480	0.185	620	0.318	760	0.01
485	0.147	625	0.295	765	0.008
490	0.138	630	0.272	770	0.007
495	0.148	635	0.249	775	0.007
500	0.17	640	0.226	780	0.006
505	0.204	645	0.204		
510	0.241	650	0.183		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L15080.
Dialight unit model number HELNC4PN-xxx

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 1.77 (A)
Input Power: 213.1 (W)
Power Factor: 0.996

Photometric measurements:

Absolute Luminous Flux: 24608 (lumens)
Luminous Efficacy: 115.5 (lumens/W)

Intensity Summary:

INTENSITY (CANDLEPOWER) SUMMARY						
ANGLE	ALONG	23	45	68	ACROSS	OUTPUT LUMENS
0	21310	21310	21310	21310	21310	
5	20438	20438	20438	20438	20438	772
15	15224	15224	15224	15224	15224	3628
25	10345	10345	10345	10345	10345	4699
35	7647	7647	7647	7647	7647	4814
45	5702	5702	5702	5702	5702	4629
55	3208	3208	3208	3208	3208	3559
65	1044	1044	1044	1044	1044	1660
75	346	346	346	346	346	544
85	194	194	194	194	194	253
95	0	0	0	0	0	50
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

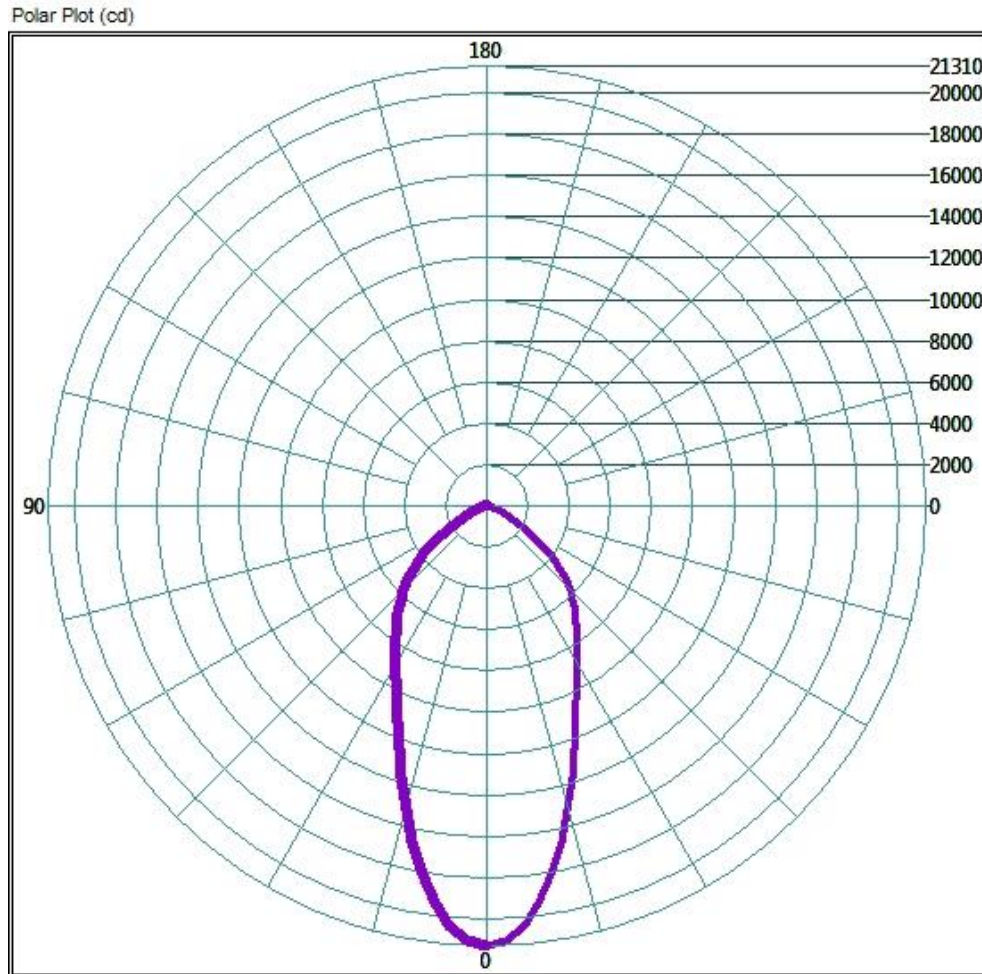
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	11506.88	46.8%
0-40	16287.52	66.2%
0-60	23152.96	94.1%
60-90	1917.6	7.8%
0-90	24608.8	100.0%
90-180	0	0.0%
0-180	24608.8	100.0%

Test Results: Goniometer

Results continued from previous page.

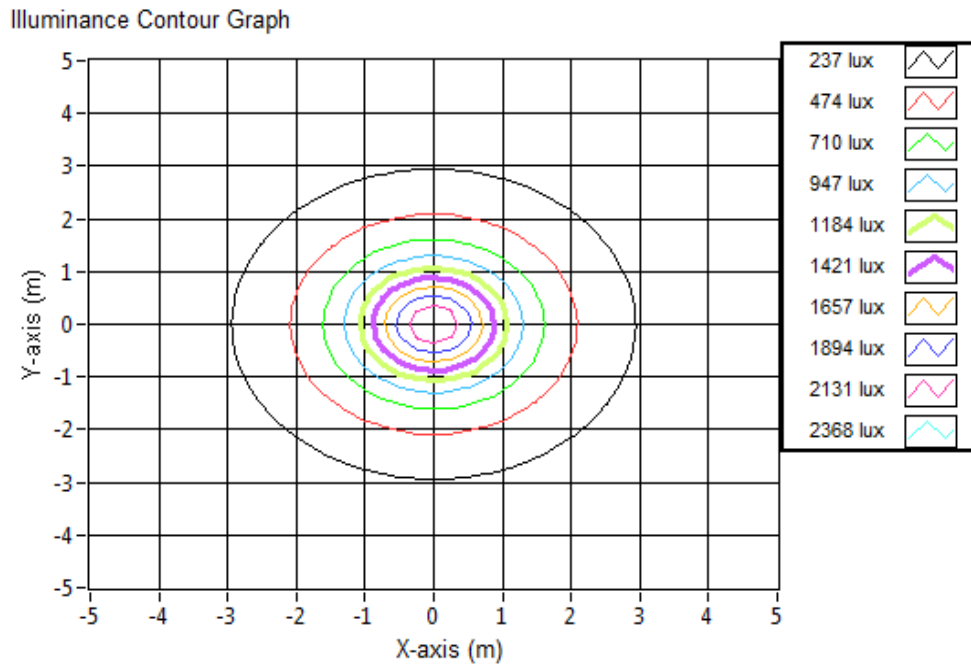
Polar Plot:



Test Results: Goniometer

Results continued from previous page.

Illuminance Plot:



Illuminance-Cone of Light:

Mounting Height (m)	Beam Cone Width (m)	Orthogonal Beam Cone Width (m)	Projected Illuminance (lux)
3.048	2.74	2.74	2293.8
6.096	5.49	5.49	573.4
9.144	8.23	8.23	254.9
12.192	10.97	10.97	143.4
15.24	13.72	13.72	91.8
18.288	16.46	16.46	63.7
21.336	19.20	19.20	46.8
24.384	21.94	21.94	35.8
27.432	24.69	24.69	28.3
30.48	27.43	27.43	22.9

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L15080.
Dialight unit model number HELNC4PN-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:

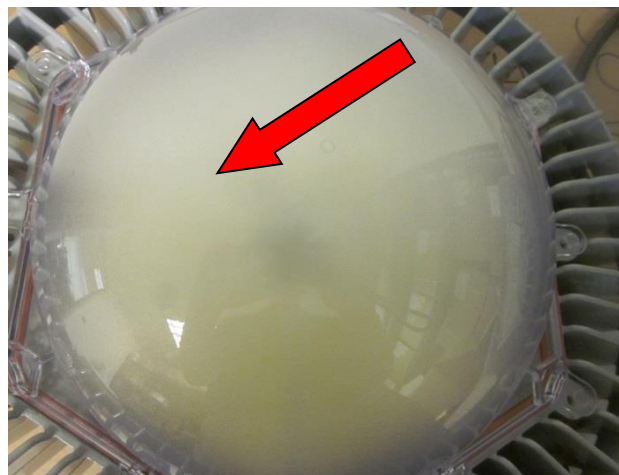
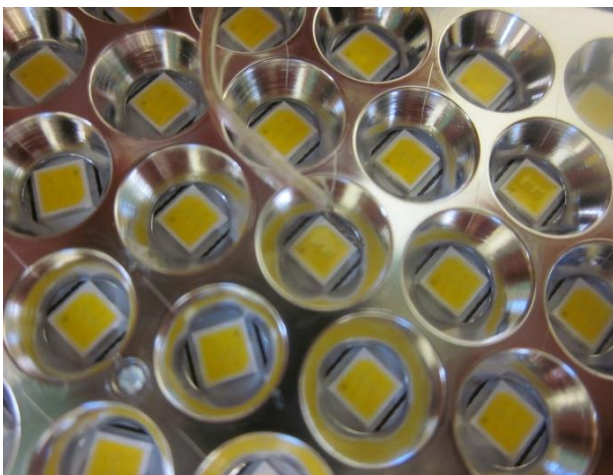
Maximum Power at Indicated Current: 0.35 (W)
Maximum Source Temperature: 113.7 (°C)

Test Conditions:

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

Results:

Measured LED source temperature: 58.9 (°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

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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