

# Test Report

Report Number: L15082

Date: Jun 18, 2015

Issued by:

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

Test of one Vigilant Highbay With Clear Acrylic Lens fixture  
Unit manufacturer: Dialight Corporation  
Unit model number: HE1NC4PN-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 15, 2015 through June 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:**

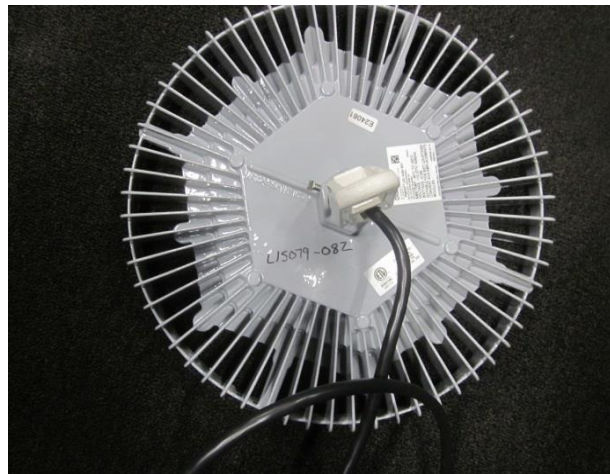
Sample Number: L15082  
Manufacturer: Dialight Corporation  
Product Name: Vigilant Highbay  
Description: Vigilant Highbay With Clear Acrylic Lens  
Model Number: HE1NC4PN-xxx

## Report Summary

Sample number L15082

Dialight unit model number HE1NC4PN-xxx

### Photograph(s) of sample:



\*Photographs not to scale. For reference only.

### Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	26880 (lumens)	26663 (lumens)
Electrical Power:	212.7 (W)	212.9 (W)
Luminous Efficacy:	126.4 (lumens/W)	125.2 (lumens/W)

### Electrical Measurements:

Input Power (120VAC): 212.7 (W)  
 Power Factor (120VAC): 0.997  
 Current ATHD % (120VAC): 5.467  
 Input Power (277VAC): 206.1 (W)  
 Power Factor (277VAC): 0.953  
 Current ATHD % (277VAC): 11.47

### Color Measurements:

Correlated Color Temperature (CCT): 4973  
 Color Rendering Index (CRI): 79.8  
 Chromaticity Coordinate (x): 0.346  
 Chromaticity Coordinate (y): 0.353  
 Chromaticity Coordinate (u'): 0.212  
 Chromaticity Coordinate (v'): 0.324  
 DUV: 0.000099

### Temperature Measurements:

In Situ LED Source Temperature: 57.3 (°C)

## Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L15082.  
Dialight unit model number HE1NC4PN-xxx

### Test Conditions:

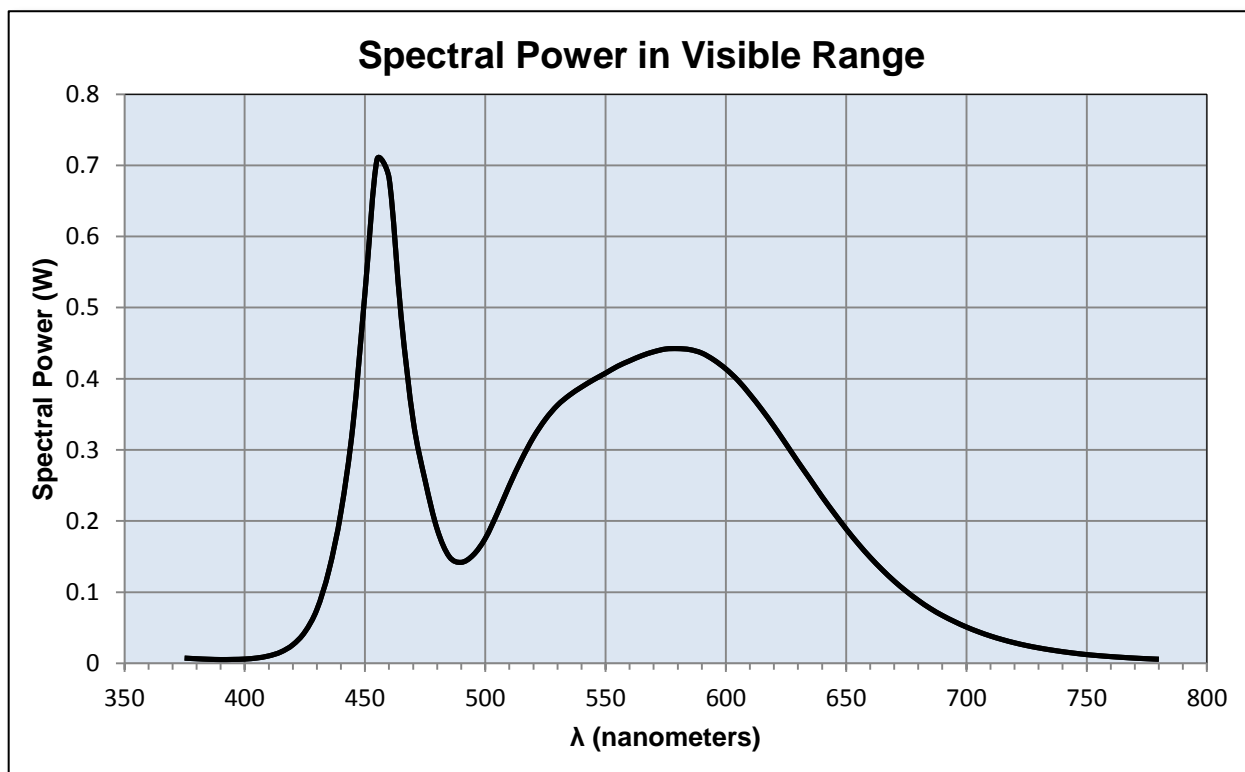
Ambient Temperature:  $25 \pm 1$  (°C)

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input Current: 1.772 (A)  
Input Power: 212.7 (W)  
Input Power Factor: 0.997  
Current ATHD: 5.467 (%)

### Photometric measurements:

Luminous Flux: 26880 (lumens)  
Luminous Efficacy: 126.4 (lumens/W)  
Correlated Color Temperature (CCT): 4973 (K)  
CRI -Ra: 79.8  
CRI -R9: -2.5  
DUV: 0.000099  
CIE Coordinate (x): 0.346  
CIE Coordinate (y): 0.353  
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	0.007	515	0.286	655	0.168
380	0.006	520	0.318	660	0.149
385	0.006	525	0.343	665	0.132
390	0.005	530	0.363	670	0.116
395	0.006	535	0.377	675	0.101
400	0.006	540	0.388	680	0.089
405	0.008	545	0.399	685	0.077
410	0.01	550	0.408	690	0.067
415	0.016	555	0.418	695	0.059
420	0.026	560	0.425	700	0.051
425	0.044	565	0.432	705	0.044
430	0.076	570	0.438	710	0.038
435	0.131	575	0.442	715	0.033
440	0.213	580	0.442	720	0.029
445	0.335	585	0.441	725	0.025
450	0.521	590	0.436	730	0.022
455	0.708	595	0.427	735	0.019
460	0.682	600	0.414	740	0.016
465	0.488	605	0.398	745	0.014
470	0.342	610	0.378	750	0.012
475	0.257	615	0.357	755	0.011
480	0.189	620	0.333	760	0.009
485	0.15	625	0.308	765	0.008
490	0.142	630	0.283	770	0.007
495	0.152	635	0.259	775	0.006
500	0.176	640	0.234	780	0.006
505	0.211	645	0.211		
510	0.25	650	0.189		

## Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L15082.  
Dialight unit model number HE1NC4PN-xxx

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input current: 1.77 (A)  
Input Power: 212.9 (W)  
Power Factor: 0.996

### Photometric measurements:

Absolute Luminous Flux: 26663 (lumens)  
Luminous Efficacy: 125.2 (lumens/W)

### Intensity Summary:

<b>INTENSITY (CANDLEPOWER) SUMMARY</b>						
ANGLE	ALONG	23	45	68	ACROSS	OUTPUT LUMENS
0	32849	32849	32849	32849	32849	
5	30728	30728	30728	30728	30728	1170
15	18521	18521	18521	18521	18521	4773
25	11157	11157	11157	11157	11157	5236
35	8568	8568	8568	8568	8568	5288
45	6582	6582	6582	6582	6582	5307
55	3034	3034	3034	3034	3034	3856
65	220	220	220	220	220	885
75	75	75	75	75	75	108
85	14	14	14	14	14	38
95	0	0	0	0	0	2
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

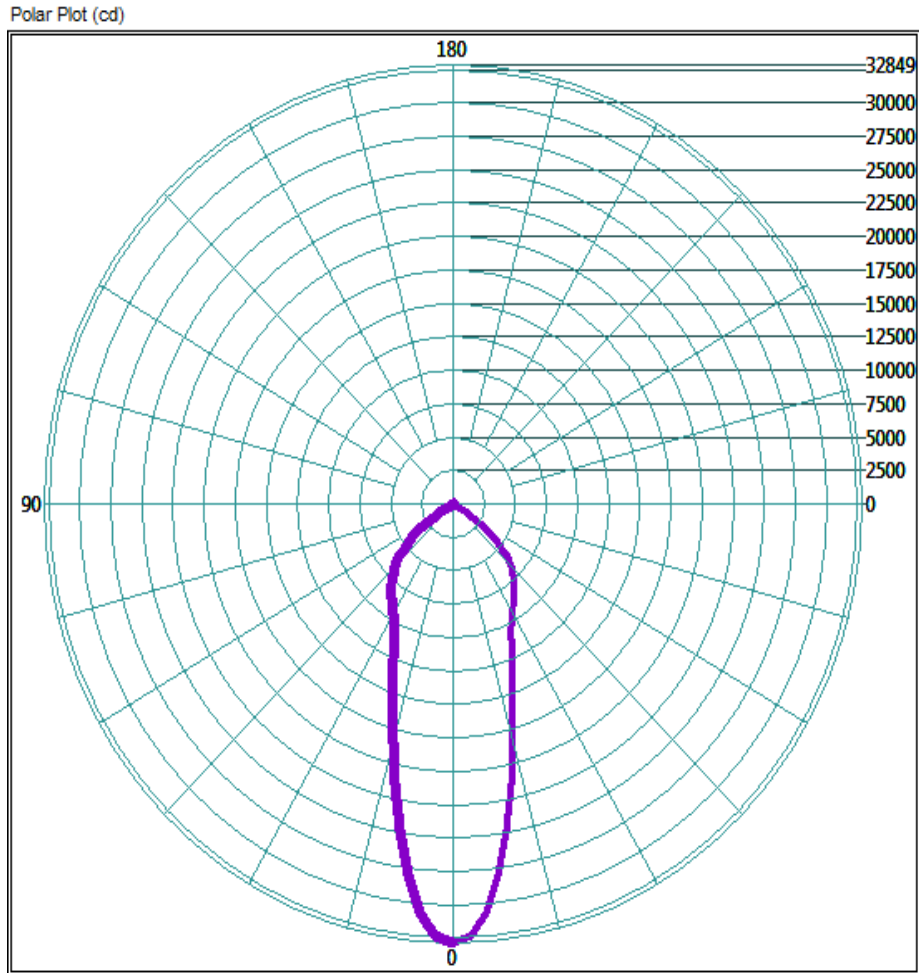
### ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	13789.12	51.7%
0-40	19172.8	71.9%
0-60	26333.44	98.8%
60-90	584.16	2.2%
0-90	26663.04	100.0%
90-180	0	0.0%
0-180	26663.04	100.0%

## Test Results: Goniometer

Results continued from previous page.

### Polar Plot:

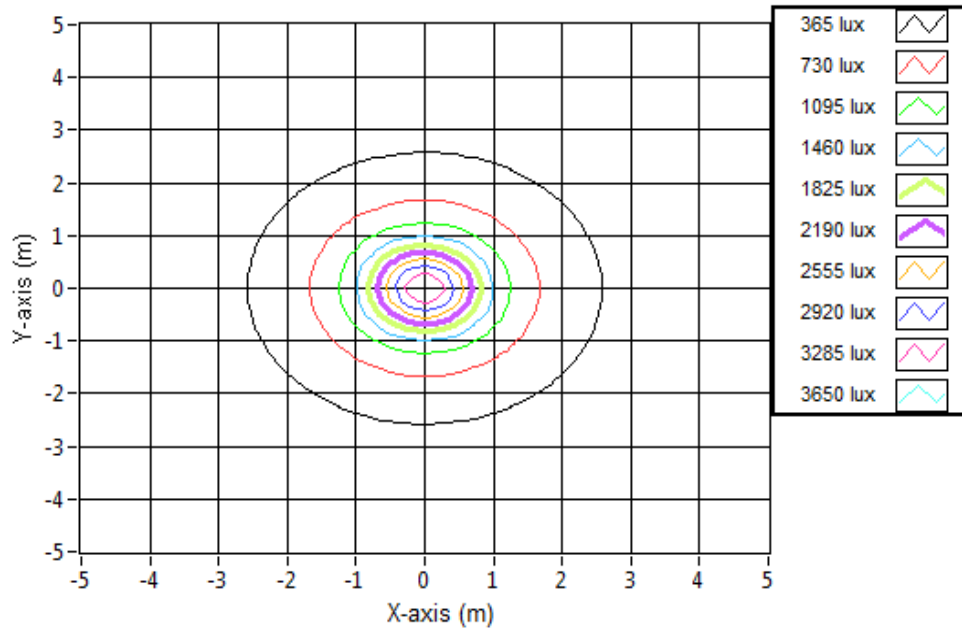


## Test Results: Goniometer

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	1.88	1.88	3535.8
6.096	3.76	3.76	883.9
9.144	5.65	5.65	392.9
12.192	7.53	7.53	221.0
15.24	9.41	9.41	141.4
18.288	11.29	11.29	98.2
21.336	13.17	13.17	72.2
24.384	15.06	15.06	55.2
27.432	16.94	16.94	43.7
30.48	18.82	18.82	35.4

## Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L15082.  
Dialight unit model number HE1NC4PN-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:

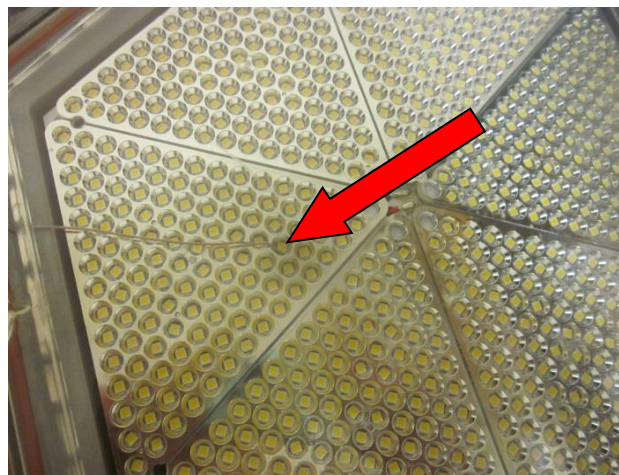
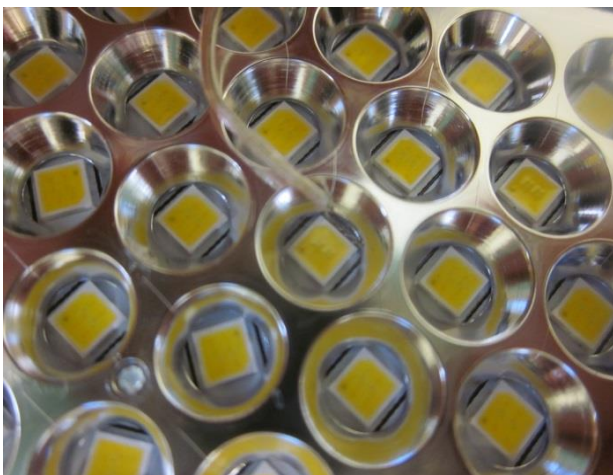
Maximum Power at Indicated Current: 0.35 (W)  
Maximum Source Temperature: 113.7 (°C)

### Test Conditions:

Temperature Measurement Location: See Photographs Below  
Ambient Temperature:  $25^{\circ} \pm 1^{\circ}$  (°C)  
Ambient temperature at time of measurement: 25.4 (°C)  
Relative humidity at time of measurement: 30%

### Results:

Measured LED source temperature: 57.3 (°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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