

# Test Report

Report Number: L20071

Date: Nov 2, 2020

Issued by:

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

Test of one Vigilant High Output High Bay  
Unit manufacturer: Dialight Corporation  
Unit model number: H7x-7NC[B,D]-Kxxx-xxN

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 12, 2020 through October 19, 2020

**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

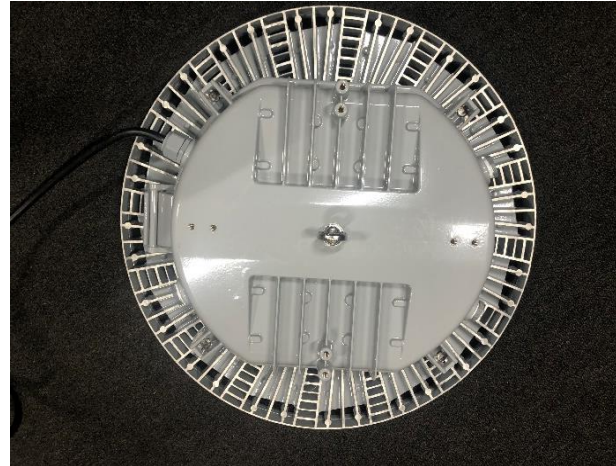
**Description of sample:**

Sample Number: L20071  
Manufacturer: Dialight Corporation  
Product Name: Glass, Narrow, 347-480V, 45K  
Description: Vigilant High Output High Bay  
Model Number: H7x-7NC[B,D]-Kxxx-xxN

## Report Summary

Sample number L20071  
Dialight unit model number H7x-7NC[B,D]-Kxxx-xxN

### Photograph(s) of sample:



\*Photographs not to scale. For reference only.

### Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	45525 (lumens)	46406 (lumens)
Electrical Power:	310.4 (W)	310.4 (W)
Luminous Efficacy:	146.7 (lumens/W)	149.5 (lumens/W)

### Electrical Measurements:

Input Power (480VAC): 310.4 (W)  
Power Factor (480VAC): 0.974  
Current ATHD % (480VAC): 11.7  
Input Power (347VAC): 310.3 (W)  
Power Factor (347VAC): 0.994  
Current ATHD % (347VAC): 11.5

### Color Measurements:

Correlated Color Temperature (CCT): 5134  
Color Rendering Index (CRI): 84.93  
Chromaticity Coordinate (x): 0.342  
Chromaticity Coordinate (y): 0.358  
Chromaticity Coordinate (u'): 0.207  
Chromaticity Coordinate (v'): 0.325  
DUV: 0.0043

### Temperature Measurements:

In Situ LED Source Temperature: 59.7 (°C)

## Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L20071.

Dialight unit model number H7x-7NC[B,D]-Kxxx-xxN

### Test Conditions:

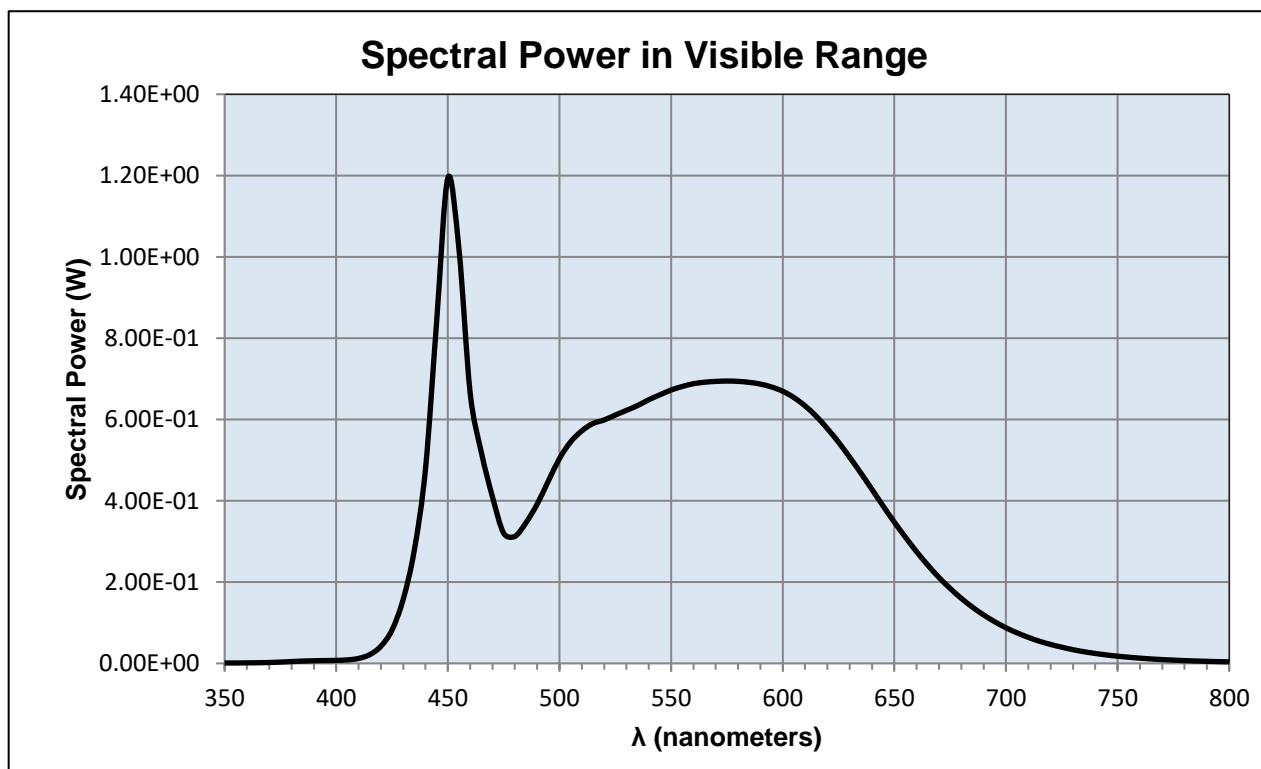
Ambient Temperature:  $25 \pm 1$  (°C)

### Electrical Measurements:

Input Voltage: 277 (VAC)  
Input Current: 0.665 (A)  
Input Power: 310.4 (W)  
Input Power Factor: 0.974  
Current ATHD: 11.7 (%)

### Photometric measurements:

Luminous Flux: 45525 (lumens)  
Luminous Efficacy: 146.7 (lumens/W)  
Correlated Color Temperature (CCT): 5134 (K)  
CRI -Ra: 84.93  
CRI -R9: 15.83  
DUV: 0.0043  
CIE Coordinate (x): 0.342  
CIE Coordinate (y): 0.358  
CIE Coordinate (u'): 0.207  
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)	$\lambda(\text{nm})$	(W/nm)
350	0.00118	490	0.39182	630	0.50696	770	0.00945
355	0.00112	495	0.44841	635	0.46827	775	0.00811
360	0.00140	500	0.50409	640	0.42772	780	0.00699
365	0.00166	505	0.54491	645	0.38701	785	0.00599
370	0.00229	510	0.57210	650	0.34745	790	0.00518
375	0.00327	515	0.59018	655	0.31029	795	0.00441
380	0.00461	520	0.59884	660	0.27453	800	0.00381
385	0.00579	525	0.61090	665	0.24175		
390	0.00655	530	0.62249	670	0.21136		
395	0.00709	535	0.63436	675	0.18445		
400	0.00753	540	0.64861	680	0.16008		
405	0.00869	545	0.66080	685	0.13834		
410	0.01226	550	0.67249	690	0.11921		
415	0.02156	555	0.68119	695	0.10252		
420	0.04216	560	0.68802	700	0.08768		
425	0.08236	565	0.69174	705	0.07516		
430	0.15778	570	0.69370	710	0.06407		
435	0.27934	575	0.69458	715	0.05454		
440	0.47945	580	0.69381	720	0.04662		
445	0.84240	585	0.69136	725	0.03988		
450	1.19422	590	0.68714	730	0.03382		
455	1.01740	595	0.67999	735	0.02878		
460	0.66492	600	0.66953	740	0.02455		
465	0.51933	605	0.65401	745	0.02090		
470	0.40953	610	0.63348	750	0.01775		
475	0.32025	615	0.60804	755	0.01522		
480	0.31242	620	0.57757	760	0.01298		
485	0.34621	625	0.54420	765	0.01106		

## Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L20071.  
Dialight unit model number H7x-7NC[B,D]-Kxxx-xxN

### Electrical Measurements:

Input Voltage: 478.6 (VAC)  
Input current: 0.666 (A)  
Input Power: 310.4 (W)  
Power Factor: 0.974

### Photometric measurements:

Absolute Luminous Flux: 46406 (lumens)  
Luminous Efficacy: 149.5 (lumens/W)

### Intensity Summary:

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	23	45	67.5	ACROSS	OUTPUT LUMENS
0	56040	56040	56040	56040	56040	
5	52318	52666	53111	53720	54315	2012
15	36642	37127	37736	38548	39308	9082
25	24583	24908	25299	25859	26462	11601
35	15797	16063	16403	16871	17258	11009
45	8701	8896	9278	9704	10059	8533
55	1355	1466	1661	1889	2123	3454
65	470	486	518	521	515	567
75	58	59	60	61	62	109
85	16	18	21	23	25	38
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

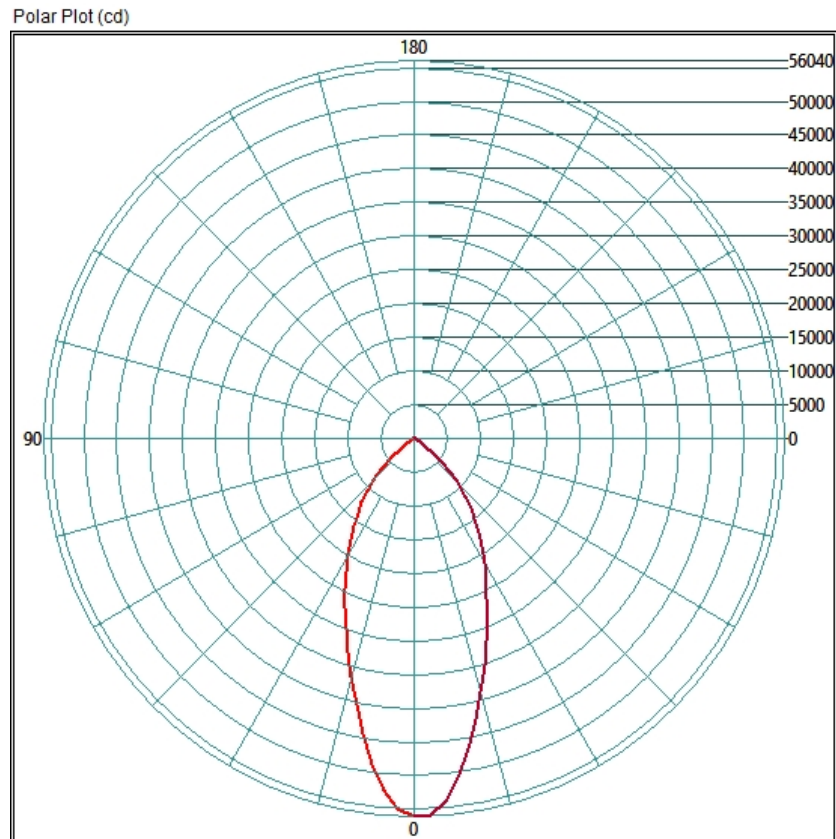
### ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	28418.11	61.2%
0-40	38392.92	82.7%
0-60	46008.95	99.1%
60-90	528.23	1.1%
0-90	46406.29	100.0%
90-180	0	0.0%
0-180	46406.29	100.0%

## Test Results: Goniometer

Results continued from previous page.

### Polar Plot:

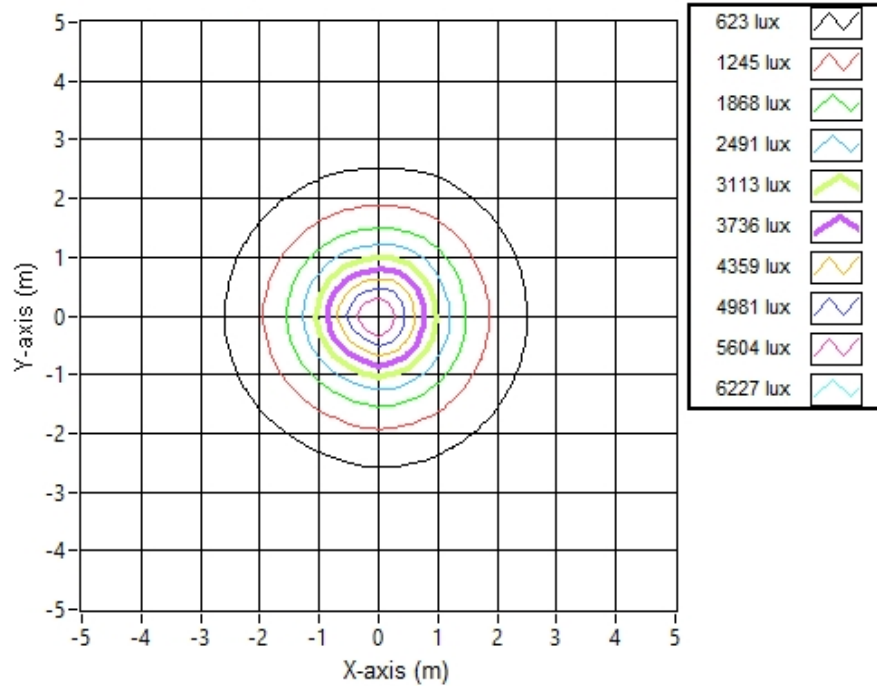


## Test Results: Goniometer

Results continued from previous page.

### Illuminance Plot:

Illuminance Contour Graph



### Illuminance-Cone of Light:

Mounting Height (m)	Beam Cone Width (m)	Orthogonal Beam Cone	Projected Illuminance (lux)
3.048	2.53	2.52	6032.1
6.096	5.06	5.05	1508.0
9.144	7.59	7.57	670.2
12.192	10.12	10.10	377.0
15.24	12.65	12.62	241.3
18.288	15.18	15.15	167.6
21.336	17.71	17.67	123.1
24.384	20.24	20.20	94.3
27.432	22.77	22.72	74.5
30.48	25.30	25.25	60.3



## Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L20071.

Dialight unit model number H7x-7NC[B,D]-Kxxx-xxN

LED identified as Seoul Semi part number SAW8C22BNZ.

LED drive current (as indicated by customer): 52 (mA)

### LED Specifications:

LED specifications are taken from LED manufacturer datasheet:

Maximum Forward Current (If):	250	(mA)
Maximum Rated Power Dissipation:	1.5	(W)
Maximum Junction Temp. (Tj):	125	(°C)
Thermal Resistance (Rth):	17	(°C/W)

### Derived Specifications:

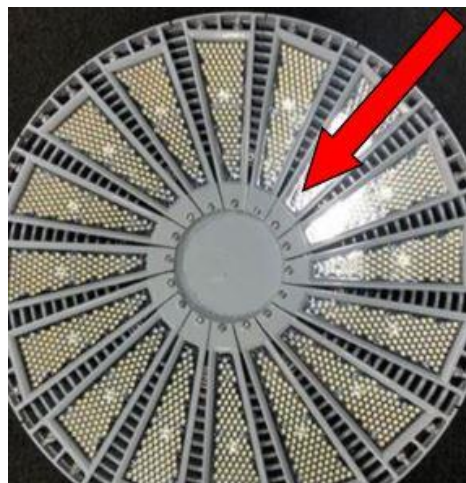
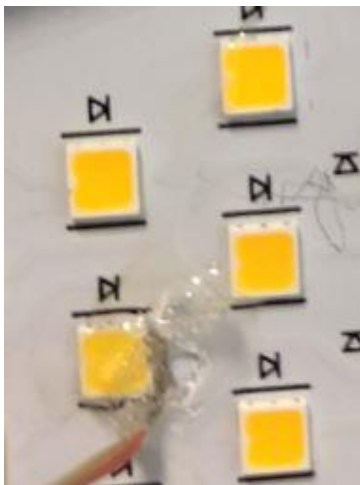
Maximum Power at Indicated Current:	0.27	(W)
Maximum Source Temperature:	120.4	(°C)

### Test Conditions:

Temperature Measurement Location:	See Photographs Below
Ambient Temperature:	25° ± 5' (°C)
Ambient temperature at time of measurement:	23.8 (°C)
Relative humidity at time of measurement:	39%

### Results:

**Measured LED source temperature:** 59.7 (°C)





**Equipment Used:**

Equipment Name	Model Number
Omega TC	DPi8
YOKOGAWA Digital Power Meter	11/26/3981
LSI High Speed Mirror Goniometer	6240T
Elgar AC Power Supply	CW1251P
Sorensen DC Power Supply	XHR150-7
Dialight Confirmation Sample	HB1N4N
Dialight Confirmation Sample	HB1N4J
Fuke 8808A Digit Multimeter	8808A
Step-Up Transformer	
ITL Osram Calibraton lamps for Goniometer	J9a8
ITL Osram Calibraton lamps for Goniometer	J9a8
ITL Osram Calibraton lamps for Goniometer	J9a8
Fuke 971 Humdity Meter	8/28/1902
GwINSTEK DC Power Supply	GEP172679
Dialight Confirmation Sample	1/0/1900
Labsphere calibration lamp for 2M sphere	SCL-1400
Labshere 2M sphere	Illumia Plus 2600-1
Labshere Controller	PM-150-140
Labshere Spectrameter- CDS 2600 Spectrometer	CDS-2600
Xitron Power Analyzer	9/1/1907
LED Bulb for Electrical Confirmation Test-Gold Sample	Monte Carlo
LED Bulb for Electrical Confirmation Test-Gold Sample	Monte Carlo
LED Bulb for Electrical Confirmation Test-Gold Sample	Monte Carlo

**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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Approved Signatory