

Test Report

Report Number: L20072

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]-Nxxx-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 16, 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

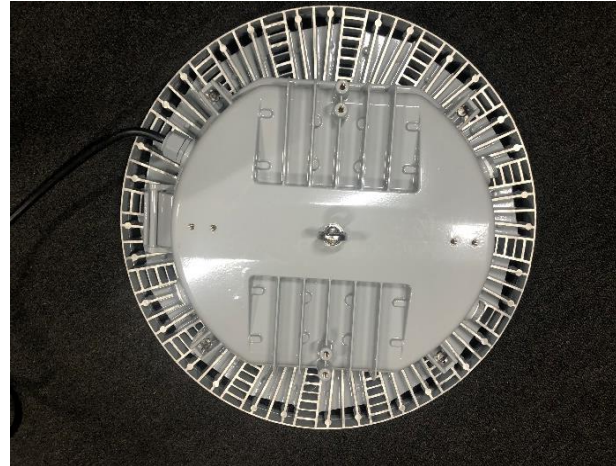
Description of sample:

Sample Number: L20072
Manufacturer: Dialight Corporation
Product Name: Glass, Narrow, 347-480V, 60K
Description: Vigilant High Output High Bay
Model Number: H7x-7NC[B,D]-Nxxx-xxN

Report Summary

Sample number L20072
Dialight unit model number H7x-7NC[B,D]-Nxxx-xxN

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	61449 (lumens)	62571 (lumens)
Electrical Power:	429.7 (W)	429.3 (W)
Luminous Efficacy:	143 (lumens/W)	145.7 (lumens/W)

Electrical Measurements:

Input Power (480VAC): 429.7 (W)
Power Factor (480VAC): 0.981
Current ATHD % (480VAC): 10.15
Input Power (347VAC): 431.5 (W)
Power Factor (347VAC): 0.998
Current ATHD % (347VAC): 6.063

Color Measurements:

Correlated Color Temperature (CCT): 5172
Color Rendering Index (CRI): 84.97
Chromaticity Coordinate (x): 0.341
Chromaticity Coordinate (y): 0.356
Chromaticity Coordinate (u'): 0.207
Chromaticity Coordinate (v'): 0.324
DUV: 0.0040

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 L20072.

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

Test Conditions:

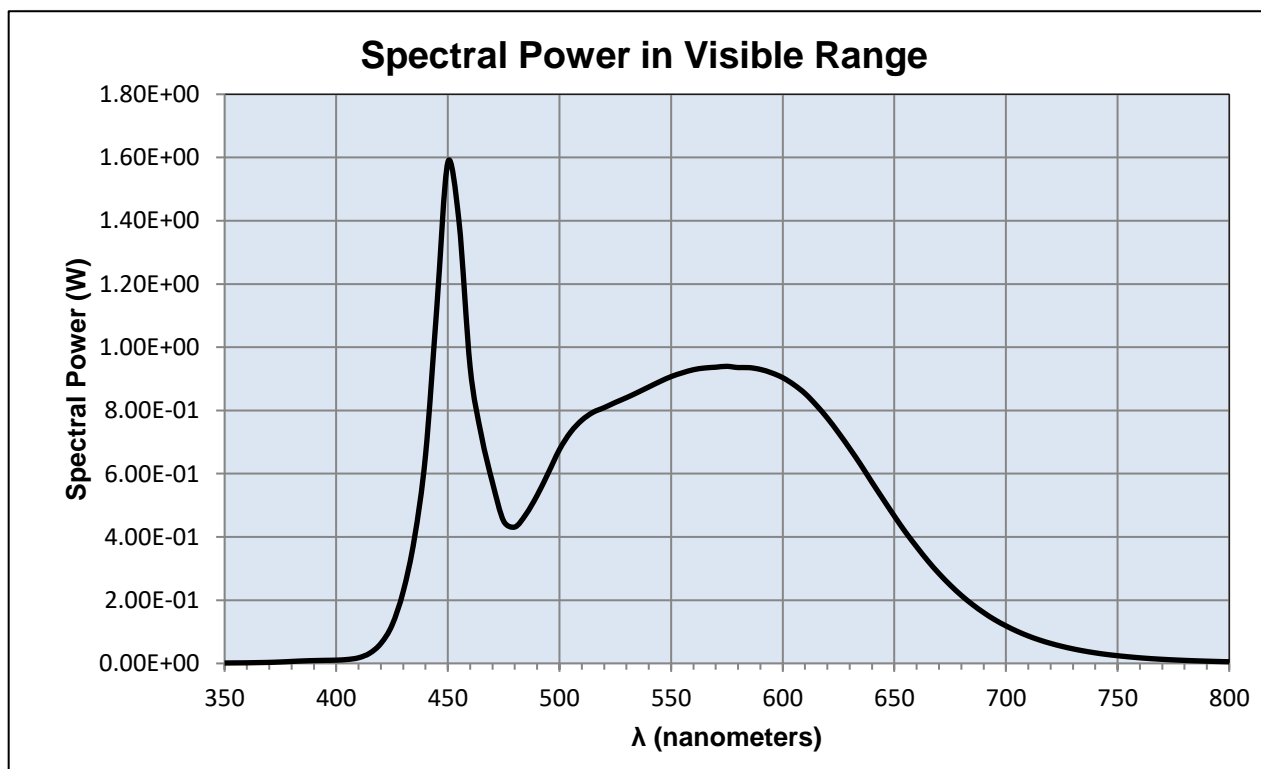
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 277 (VAC)
Input Current: 0.912 (A)
Input Power: 429.7 (W)
Input Power Factor: 0.981
Current ATHD: 10.15 (%)

Photometric measurements:

Luminous Flux: 61449 (lumens)
Luminous Efficacy: 143.0 (lumens/W)
Correlated Color Temperature (CCT): 5172 (K)
CRI -Ra: 84.97
CRI -R9: 15.8
DUV: 0.0040
CIE Coordinate (x): 0.341
CIE Coordinate (y): 0.356
CIE Coordinate (u'): 0.207
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)	$\lambda(\text{nm})$	(W/nm)
350	0.00131	490	0.53158	630	0.67984	770	0.01298
355	0.00167	495	0.60268	635	0.62774	775	0.01117
360	0.00194	500	0.67648	640	0.57258	780	0.00961
365	0.00263	505	0.73143	645	0.51901	785	0.00826
370	0.00331	510	0.76915	650	0.46595	790	0.00710
375	0.00454	515	0.79412	655	0.41521	795	0.00610
380	0.00623	520	0.80894	660	0.36881	800	0.00525
385	0.00788	525	0.82532	665	0.32438		
390	0.00897	530	0.84048	670	0.28424		
395	0.00971	535	0.85708	675	0.24791		
400	0.01041	540	0.87431	680	0.21515		
405	0.01249	545	0.89142	685	0.18627		
410	0.01791	550	0.90717	690	0.16065		
415	0.03232	555	0.91892	695	0.13810		
420	0.06315	560	0.92894	700	0.11873		
425	0.12106	565	0.93433	705	0.10166		
430	0.22746	570	0.93688	710	0.08684		
435	0.39426	575	0.93957	715	0.07413		
440	0.65843	580	0.93571	720	0.06338		
445	1.11950	585	0.93552	725	0.05407		
450	1.58492	590	0.92981	730	0.04608		
455	1.39727	595	0.91907	735	0.03924		
460	0.93587	600	0.90375	740	0.03339		
465	0.72184	605	0.88151	745	0.02847		
470	0.57194	610	0.85362	750	0.02438		
475	0.45004	615	0.81710	755	0.02083		
480	0.43140	620	0.77591	760	0.01777		
485	0.47183	625	0.72940	765	0.01515		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L20072.
Dialight unit model number H7x-7NC[B,D]-Nxxx-xxN

Electrical Measurements:

Input Voltage: 481.6 (VAC)
Input current: 0.909 (A)
Input Power: 429.3 (W)
Power Factor: 0.981

Photometric measurements:

Absolute Luminous Flux: 62571 (lumens)
Luminous Efficacy: 145.7 (lumens/W)

Intensity Summary:

INTENSITY (CANDLEPOWER) SUMMARY						
ANGLE	ALONG	23	45	67.5	ACROSS	OUTPUT LUMENS
0	76691	76691	76691	76691	76691	
5	72499	72499	72499	72499	72499	2751
15	51227	51227	51227	51227	51227	12357
25	34220	34220	34220	34220	34220	15710
35	22016	22016	22016	22016	22016	14825
45	12293	12293	12293	12293	12293	11446
55	2049	2049	2049	2049	2049	4523
65	687	687	687	687	687	767
75	79	79	79	79	79	139
85	24	24	24	24	24	51
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

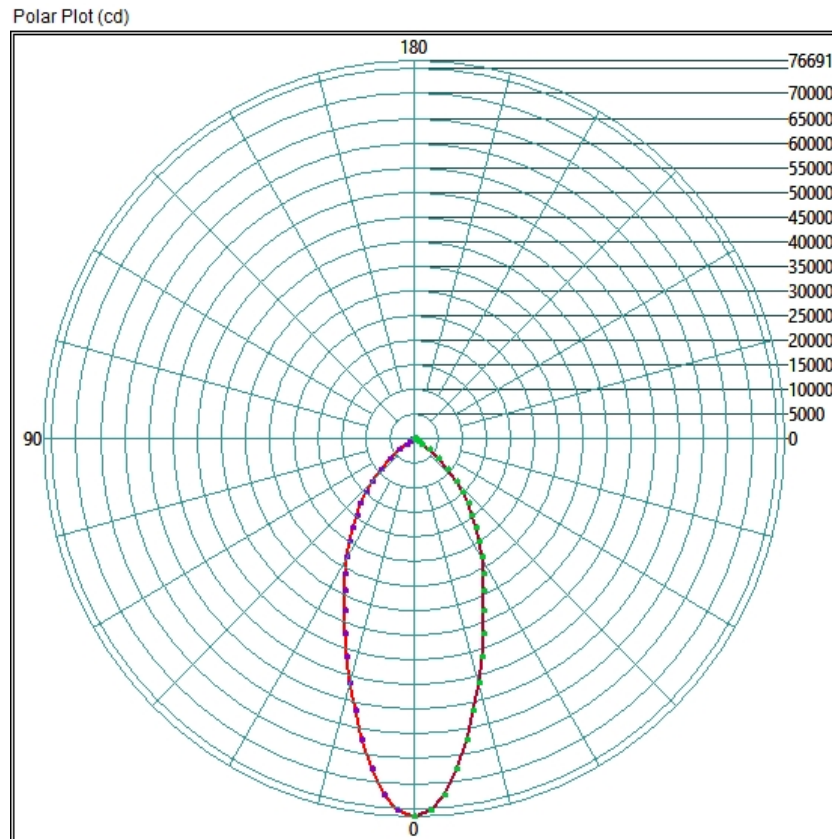
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	38534.24	61.6%
0-40	51946.4	83.0%
0-60	62031.52	99.1%
60-90	716.96	1.1%
0-90	62570.88	100.0%
90-180	0	0.0%
0-180	62570.88	100.0%

Test Results: Goniometer

Results continued from previous page.

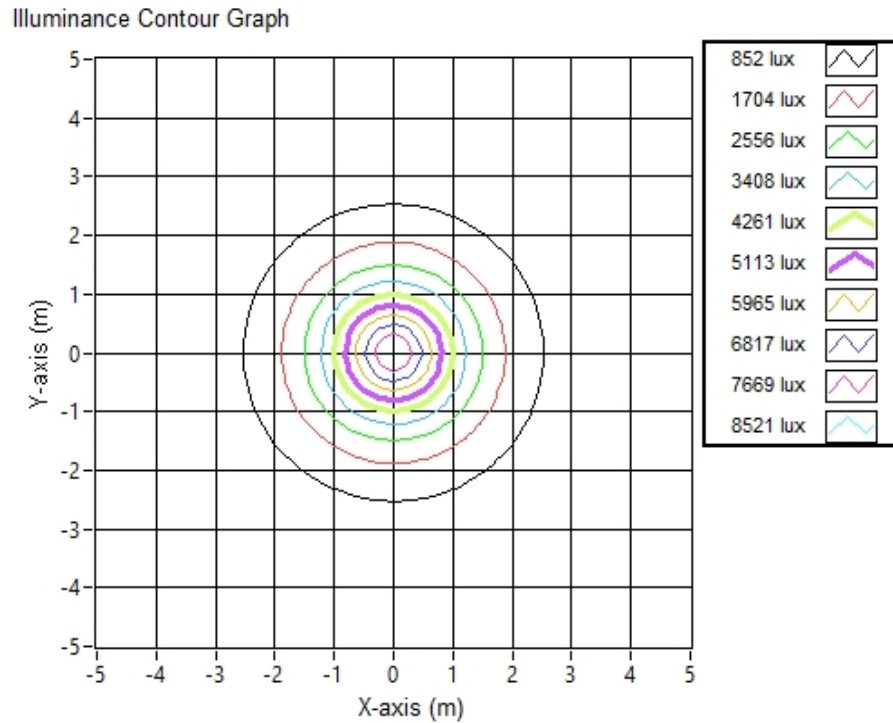
Polar Plot:



Test Results: Goniometer

Results continued from previous page.

Illuminance Plot:



Illuminance-Cone of Light:

Mounting Height (m)	Beam Cone Width (m)	Orthogonal Beam Cone	Projected Illuminance (lux)
3.048	2.49	2.49	8254.9
6.096	4.98	4.98	2063.7
9.144	7.47	7.47	917.2
12.192	9.96	9.96	515.9
15.24	12.45	12.45	330.2
18.288	14.94	14.94	229.3
21.336	17.43	17.43	168.5
24.384	19.92	19.92	129.0
27.432	22.41	22.41	101.9
30.48	24.90	24.90	82.5

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L20072.

Dialight unit model number H7x-7NC[B,D]-Nxxx-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:

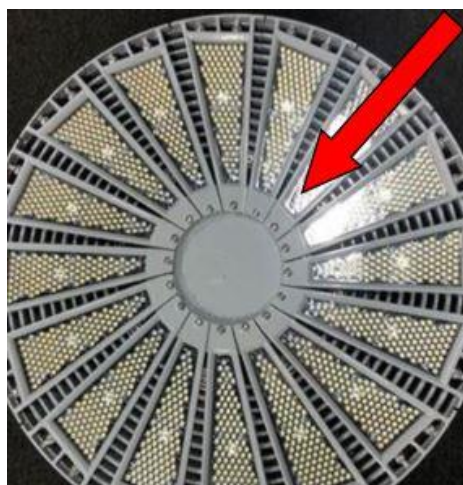
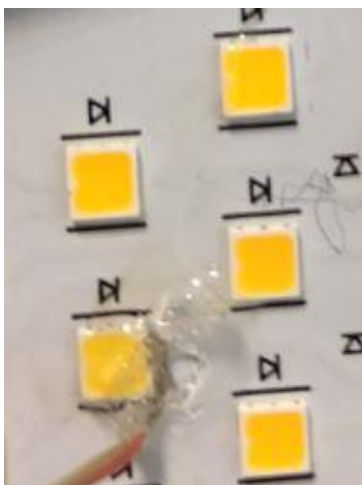
Maximum Power at Indicated Current:	0.27	(W)
Maximum Source Temperature:	120.4	(°C)

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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Dialight Optics Laboratory
Optical Engineer
Approved Signatory