

Test Report

Report Number: L20070

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-4NC2-Rxxx-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 19, 2020 through October 28, 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

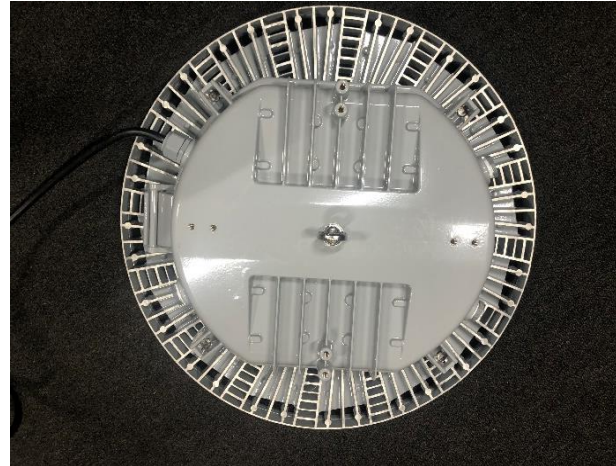
Description of sample:

Sample Number: L20070
Manufacturer: Dialight Corporation
Product Name: PC flat clear, Narrow, 120-277V, 70K
Description: Vigilant High Output High Bay
Model Number: H7x-4NC2-Rxxx-xxN

Report Summary

Sample number L20070
Dialight unit model number H7x-4NC2-Rxxx-xxN

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	64801 (lumens)	65995 (lumens)
Electrical Power:	514.4 (W)	501.1 (W)
Luminous Efficacy:	126 (lumens/W)	131.7 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 514.4 (W)
Power Factor (120VAC): 0.997
Current ATHD % (120VAC): 4.637
Input Power (277VAC): 485.2 (W)
Power Factor (277VAC): 0.972
Current ATHD % (277VAC): 9.52

Color Measurements:

Correlated Color Temperature (CCT): 5182
Color Rendering Index (CRI): 85.71
Chromaticity Coordinate (x): 0.341
Chromaticity Coordinate (y): 0.354
Chromaticity Coordinate (u'): 0.207
Chromaticity Coordinate (v'): 0.323
DUV: 0.0031

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 L20070.

Dialight unit model number H7x-4NC2-Rxxx-xxN

Test Conditions:

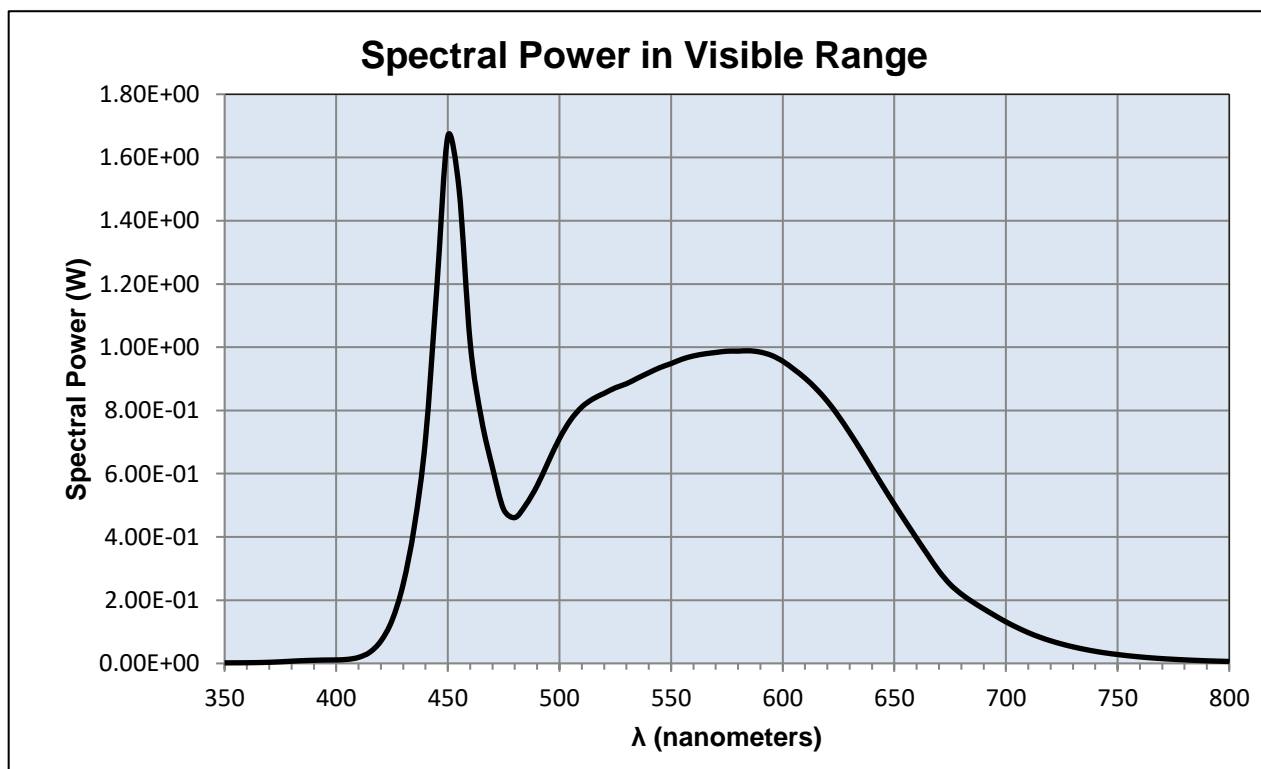
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 277 (VAC)
Input Current: 4.387 (A)
Input Power: 514.4 (W)
Input Power Factor: 0.997
Current ATHD: 4.637 (%)

Photometric measurements:

Luminous Flux: 64801 (lumens)
Luminous Efficacy: 126.0 (lumens/W)
Correlated Color Temperature (CCT): 5182 (K)
CRI -Ra: 85.71
CRI -R9: 19.71
DUV: 0.0031
CIE Coordinate (x): 0.341
CIE Coordinate (y): 0.354
CIE Coordinate (u'): 0.207
CIE Coordinate (v'): 0.323



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	0.00179	490	0.56213	630	0.72985	770	0.01510
355	0.00194	495	0.63780	635	0.67439	775	0.01306
360	0.00220	500	0.71142	640	0.61644	780	0.01125
365	0.00276	505	0.77001	645	0.55896	785	0.00969
370	0.00364	510	0.81088	650	0.50300	790	0.00833
375	0.00517	515	0.83666	655	0.44893	795	0.00720
380	0.00700	520	0.85410	660	0.39526	800	0.00617
385	0.00878	525	0.87164	665	0.34282		
390	0.00988	530	0.88451	670	0.29177		
395	0.01071	535	0.90222	675	0.25008		
400	0.01110	540	0.91931	680	0.21948		
405	0.01280	545	0.93560	685	0.19478		
410	0.01915	550	0.94841	690	0.17266		
415	0.03528	555	0.96254	695	0.15160		
420	0.07073	560	0.97240	700	0.13144		
425	0.13617	565	0.97899	705	0.11354		
430	0.25114	570	0.98338	710	0.09734		
435	0.43378	575	0.98742	715	0.08345		
440	0.71005	580	0.98771	720	0.07152		
445	1.18171	585	0.98874	725	0.06133		
450	1.66723	590	0.98448	730	0.05249		
455	1.50157	595	0.97420	735	0.04491		
460	1.01448	600	0.95584	740	0.03828		
465	0.77511	605	0.93031	745	0.03275		
470	0.61902	610	0.90217	750	0.02815		
475	0.48702	615	0.86856	755	0.02404		
480	0.46120	620	0.82898	760	0.02060		
485	0.50244	625	0.78205	765	0.01763		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L20070.
Dialight unit model number H7x-4NC2-Rxxx-xxN

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 4.206 (A)
Input Power: 501.1 (W)
Power Factor: 0.996

Photometric measurements:

Absolute Luminous Flux: 65995 (lumens)
Luminous Efficacy: 131.7 (lumens/W)

Intensity Summary:

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	23	45	67.5	ACROSS	OUTPUT LUMENS
0	78816	78816	78816	78816	78816	
5	74816	74816	74816	74816	74816	2836
15	53117	53117	53117	53117	53117	12803
25	35909	35909	35909	35909	35909	16424
35	23185	23185	23185	23185	23185	15604
45	12945	12945	12945	12945	12945	12036
55	2460	2460	2460	2460	2460	4969
65	841	841	841	841	841	1019
75	130	130	130	130	130	226
85	33	33	33	33	33	77
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

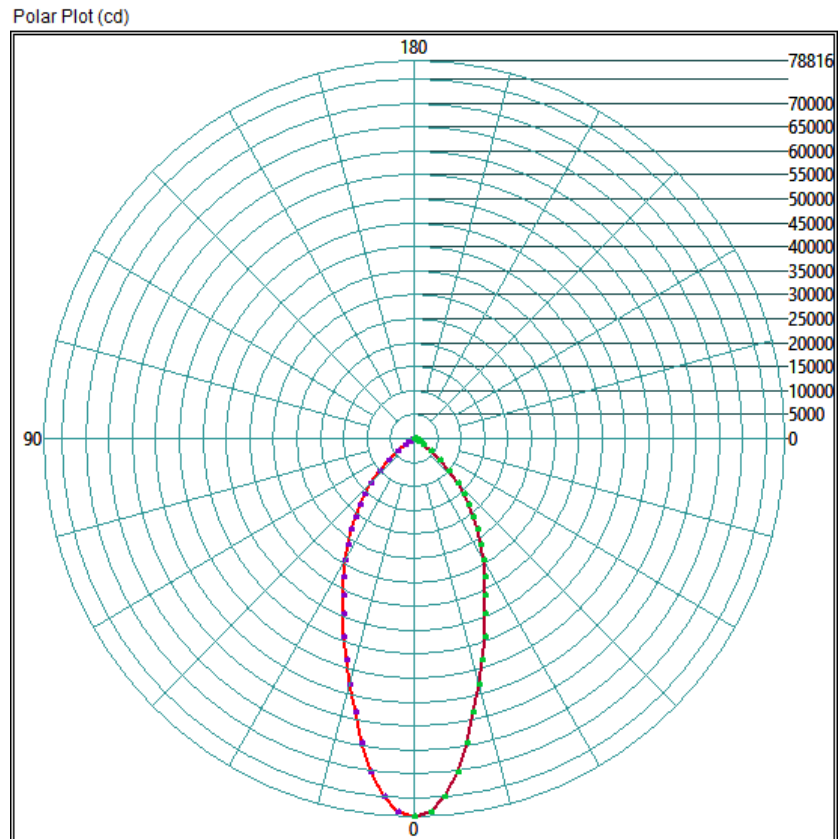
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	40177.44	60.9%
0-40	54293.44	82.3%
0-60	65244.96	98.9%
60-90	997.92	1.5%
0-90	65995.2	100.0%
90-180	0	0.0%
0-180	65995.2	100.0%

Test Results: Goniometer

Results continued from previous page.

Polar Plot:

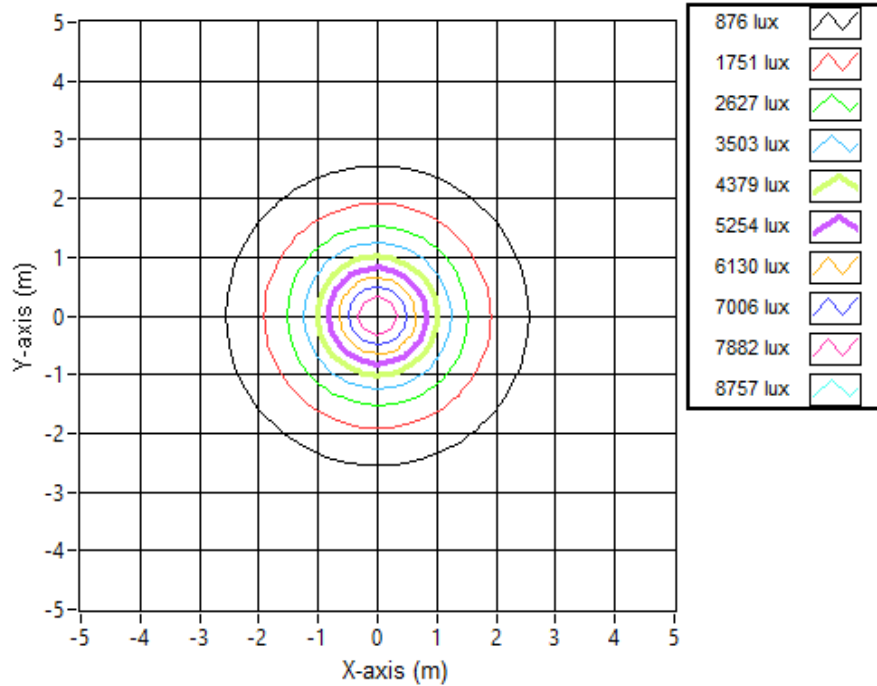


Test Results: Goniometer

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	2.55	2.55	8483.7
6.096	5.10	5.10	2120.9
9.144	7.64	7.64	942.6
12.192	10.19	10.19	530.2
15.24	12.74	12.74	339.3
18.288	15.29	15.29	235.7
21.336	17.84	17.84	173.1
24.384	20.38	20.38	132.6
27.432	22.93	22.93	104.7
30.48	25.48	25.48	84.8

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L20070.

Dialight unit model number H7x-4NC2-Rxxx-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:

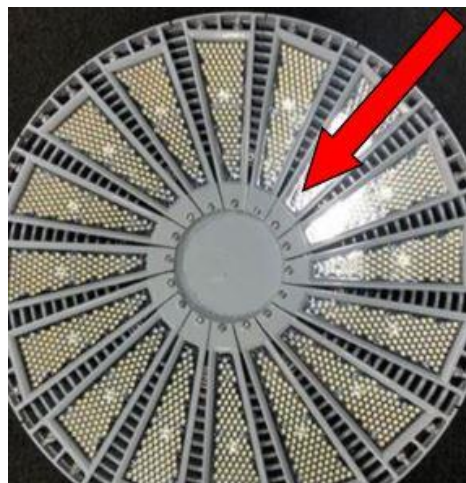
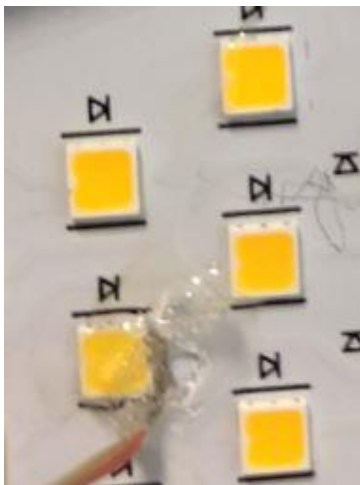
Maximum Power at Indicated Current:	0.27	(W)
Maximum Source Temperature:	120.4	(°C)

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