

Test Report

Report Number: L20036

Date: Jul 13, 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-7NC2-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: June 23, 2020 through July 8, 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

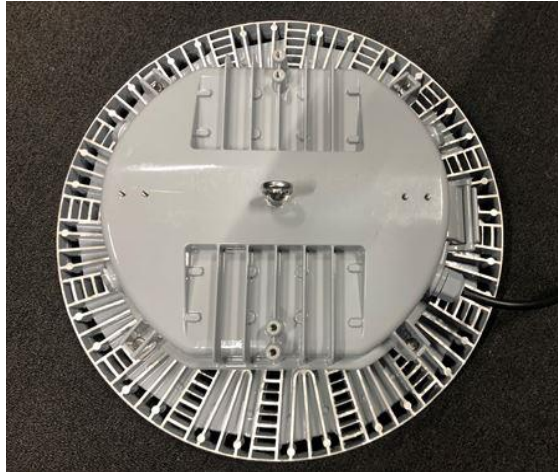
Description of sample:

Sample Number: L20036
Manufacturer: Dialight Corporation
Product Name: Glass, Narrow, CW, 120-277V, 60k
Description: Vigilant High Output High Bay
Model Number: H7x-7NC2-Nxxx-xxN

Report Summary

Sample number L20036
Dialight unit model number H7x-7NC2-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:	61170 (lumens)	61175 (lumens)
Electrical Power:	436.9 (W)	434.3 (W)
Luminous Efficacy:	140 (lumens/W)	140.9 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 436.9 (W)
Power Factor (120VAC): 0.997
Current ATHD % (120VAC): 5.047
Input Power (277VAC): 418.7 (W)
Power Factor (277VAC): 0.966
Current ATHD % (277VAC): 9.28

Color Measurements:

Correlated Color Temperature (CCT): 4887
Color Rendering Index (CRI): 84
Chromaticity Coordinate (x): 0.349
Chromaticity Coordinate (y): 0.363
Chromaticity Coordinate (u'): 0.21
Chromaticity Coordinate (v'): 0.327
DUV: 0.0039

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 L20036.

Dialight unit model number H7x-7NC2-Nxxx-xxN

Test Conditions:

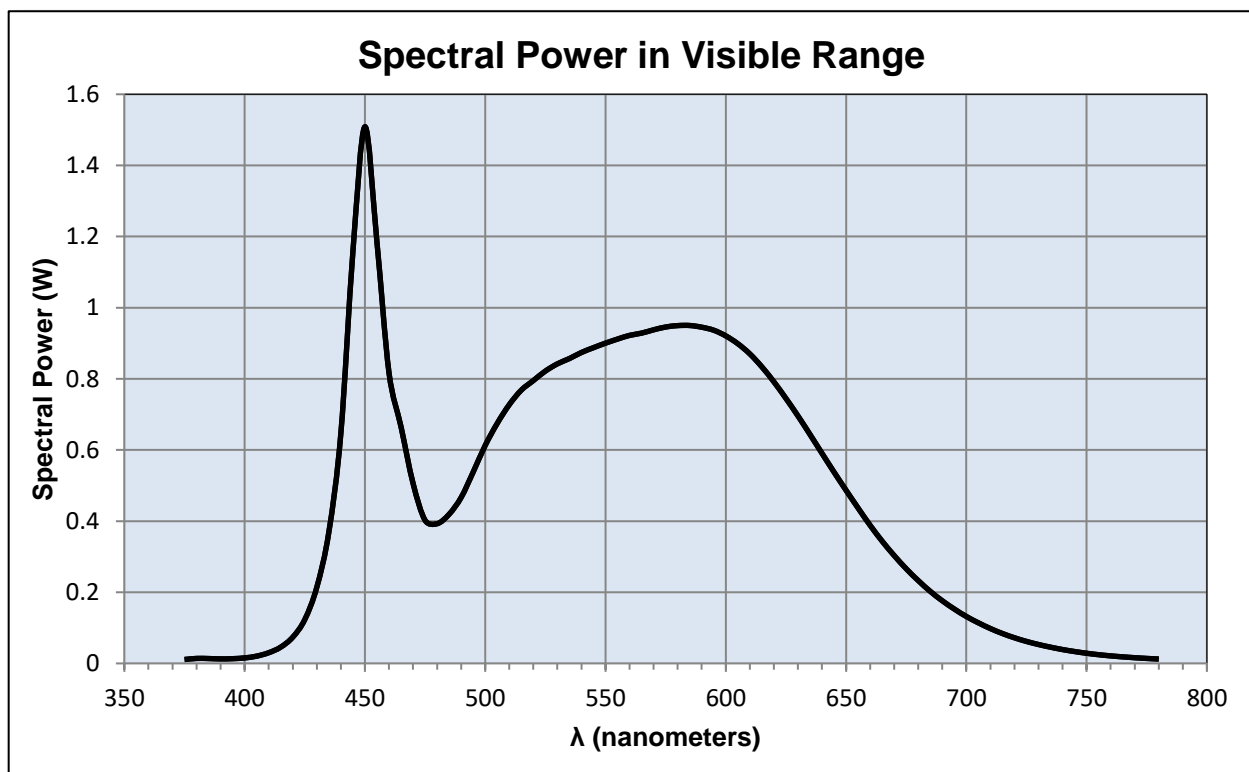
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
Input Current: 3.65 (A)
Input Power: 436.9 (W)
Input Power Factor: 0.997
Current ATHD: 5.047 (%)

Photometric measurements:

Luminous Flux: 61170 (lumens)
Luminous Efficacy: 140.0 (lumens/W)
Correlated Color Temperature (CCT): 4887 (K)
CRI -Ra: 84
CRI -R9: 14.9
DUV: 0.0039
CIE Coordinate (x): 0.349
CIE Coordinate (y): 0.363
CIE Coordinate (u'): 0.21
CIE Coordinate (v'): 0.327



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	0.011	515	0.768	655	0.437
380	0.014	520	0.795	660	0.388
385	0.014	525	0.822	665	0.344
390	0.013	530	0.842	670	0.303
395	0.013	535	0.857	675	0.266
400	0.016	540	0.874	680	0.233
405	0.020	545	0.888	685	0.203
410	0.030	550	0.900	690	0.176
415	0.046	555	0.912	695	0.153
420	0.074	560	0.922	700	0.132
425	0.123	565	0.929	705	0.114
430	0.214	570	0.938	710	0.098
435	0.369	575	0.946	715	0.084
440	0.647	580	0.950	720	0.072
445	1.157	585	0.950	725	0.062
450	1.509	590	0.945	730	0.053
455	1.184	595	0.937	735	0.046
460	0.818	600	0.921	740	0.039
465	0.666	605	0.899	745	0.033
470	0.506	610	0.870	750	0.029
475	0.402	615	0.834	755	0.025
480	0.393	620	0.792	760	0.021
485	0.419	625	0.745	765	0.018
490	0.467	630	0.696	770	0.016
495	0.538	635	0.644	775	0.014
500	0.613	640	0.591	780	0.012
505	0.675	645	0.538		
510	0.727	650	0.487		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L20036.
Dialight unit model number H7x-7NC2-Nxxx-xxN

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 3.636 (A)
Input Power: 434.3 (W)
Power Factor: 0.995

Photometric measurements:

Absolute Luminous Flux: 61175 (lumens)
Luminous Efficacy: 140.9 (lumens/W)

Intensity Summary:

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	23	45	67.5	ACROSS	OUTPUT LUMENS
0	79440	79440	79440	79440	79440	
5	74184	74184	74184	74184	74184	2825
15	50454	50454	50454	50454	50454	12308
25	33745	33745	33745	33745	33745	15482
35	21389	21389	21389	21389	21389	14443
45	11895	11895	11895	11895	11895	11182
55	1781	1781	1781	1781	1781	4180
65	625	625	625	625	625	714
75	0	0	0	0	0	41
85	0	0	0	0	0	0
95	0	0	0	0	0	0
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	1	1	1	1	1	0
180	0	0	0	0	0	0

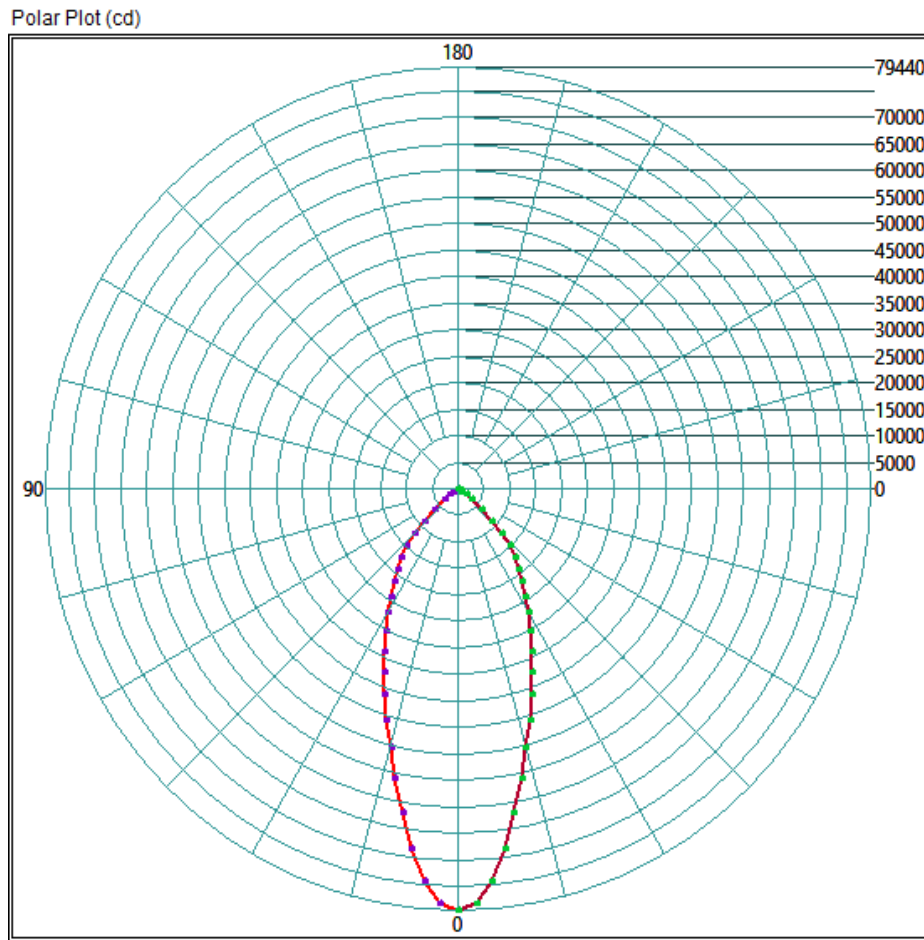
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	38156.8	62.4%
0-40	51231.84	83.7%
0-60	60809.12	99.4%
60-90	536.16	0.9%
0-90	61174.72	100.0%
90-180	0	0.0%
0-180	61174.72	100.0%

Test Results: Goniometer

Results continued from previous page.

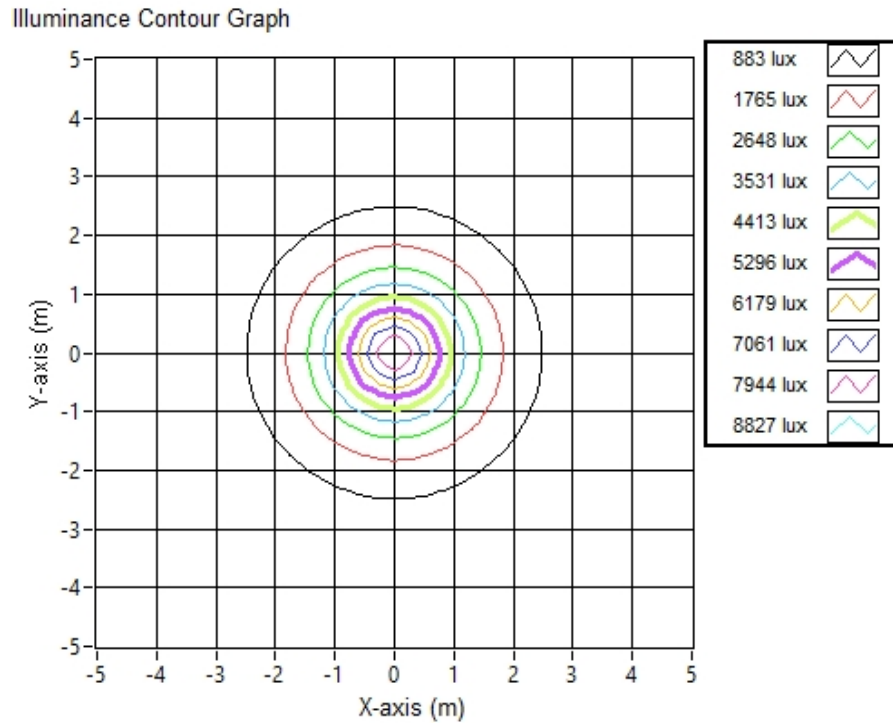
Polar Plot:



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	2.35	2.35	8550.9
6.096	4.69	4.69	2137.7
9.144	7.04	7.04	950.1
12.192	9.38	9.38	534.4
15.24	11.73	11.73	342.0
18.288	14.08	14.08	237.5
21.336	16.42	16.42	174.5
24.384	18.77	18.77	133.6
27.432	21.11	21.11	105.6
30.48	23.46	23.46	85.5

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L20036.

Dialight unit model number H7x-7NC2-Nxxx-xxN

LED identified as Seoul Semi part number SAW8C22BNZ.

LED drive current (as indicated by customer): 45 (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:

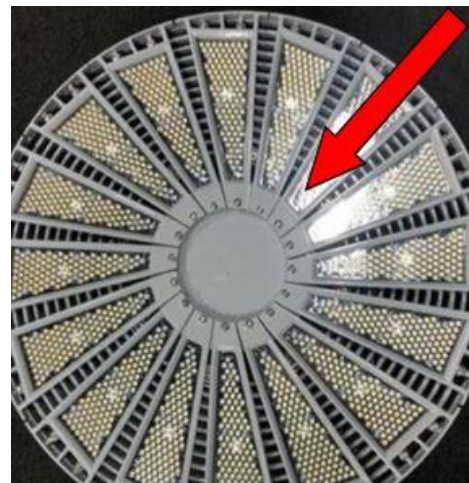
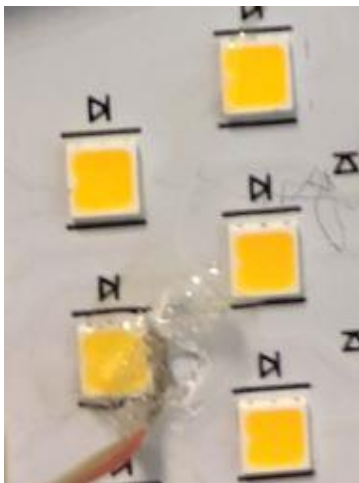
Maximum Power at Indicated Current:	0.27	(W)
Maximum Source Temperature:	120.4	(°C)

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
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
Delta Elektronika DC Power Supply	SM.300-5
Instek AC Power Supply	APS-9501
Sorensen DC Power Supply	XHR150-7
TPI Digital Thermometer	TPI 343
Fluke 52II Thermometer	068158
Fluke 971 Humidity Meter	971
Volttech Power Analyzer	PM1000+
Volttech Universal Breakout Box	PM1000+
BK Precision	1715A
Step-Up Transformer	
Omega TC	Dpi8-C24
Agilent True RMS OLED Multimeter	U1273A
ITL Osram Calibraton lamps for Goniometer	J9a8
ITL Osram Calibraton lamps for Goniometer	J9a8
ITL Osram Calibraton lamps for Goniometer	J9a8
Adaptive Power Systems AC Power Supply	FC-210
Xitron Power Analyzer	XT2640
GwINSTEK DC Power Supply	GEP172679
Osram Sylvania Calibration Lamp for Sphere	STD-20WF-3

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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Optical Engineer
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