

Test Report

Report Number: L20034

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-4MND-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: July 1, 2020 through July 9, 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

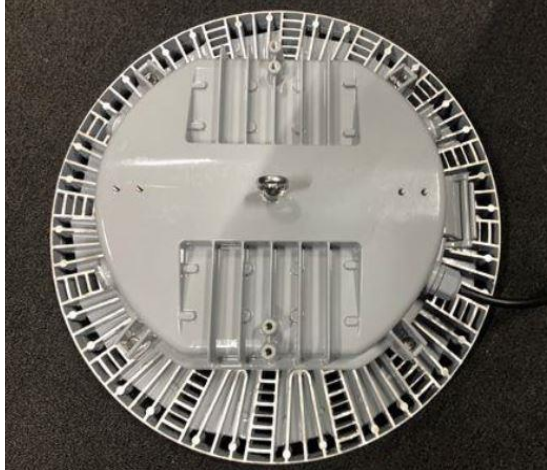
Description of sample:

Sample Number: L20034
Manufacturer: Dialight Corporation
Product Name: PC, Medium, NW, 347-480V, 60k
Description: Vigilant High Output High Bay
Model Number: H7x-4MND-Nxxx-xxN

Report Summary

Sample number L20034
Dialight unit model number H7x-4MND-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:	56110 (lumens)	56149 (lumens)
Electrical Power:	426.6 (W)	427.9 (W)
Luminous Efficacy:	131.5 (lumens/W)	131.2 (lumens/W)

Electrical Measurements:

Input Power (480VAC): 426.6 (W)
Power Factor (480VAC): 0.982
Current ATHD % (480VAC): 10.19
Input Power (347VAC): 427.9 (W)
Power Factor (347VAC): 0.994
Current ATHD % (347VAC): 5.784

Color Measurements:

Correlated Color Temperature (CCT): 3947
Color Rendering Index (CRI): 83.9
Chromaticity Coordinate (x): 0.384
Chromaticity Coordinate (y): 0.381
Chromaticity Coordinate (u'): 0.226
Chromaticity Coordinate (v'): 0.336
DUV: 0.0011

Temperature Measurements:

In Situ LED Source Temperature: 59.6 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L20034.

Dialight unit model number H7x-4MND-Nxxx-xxN

Test Conditions:

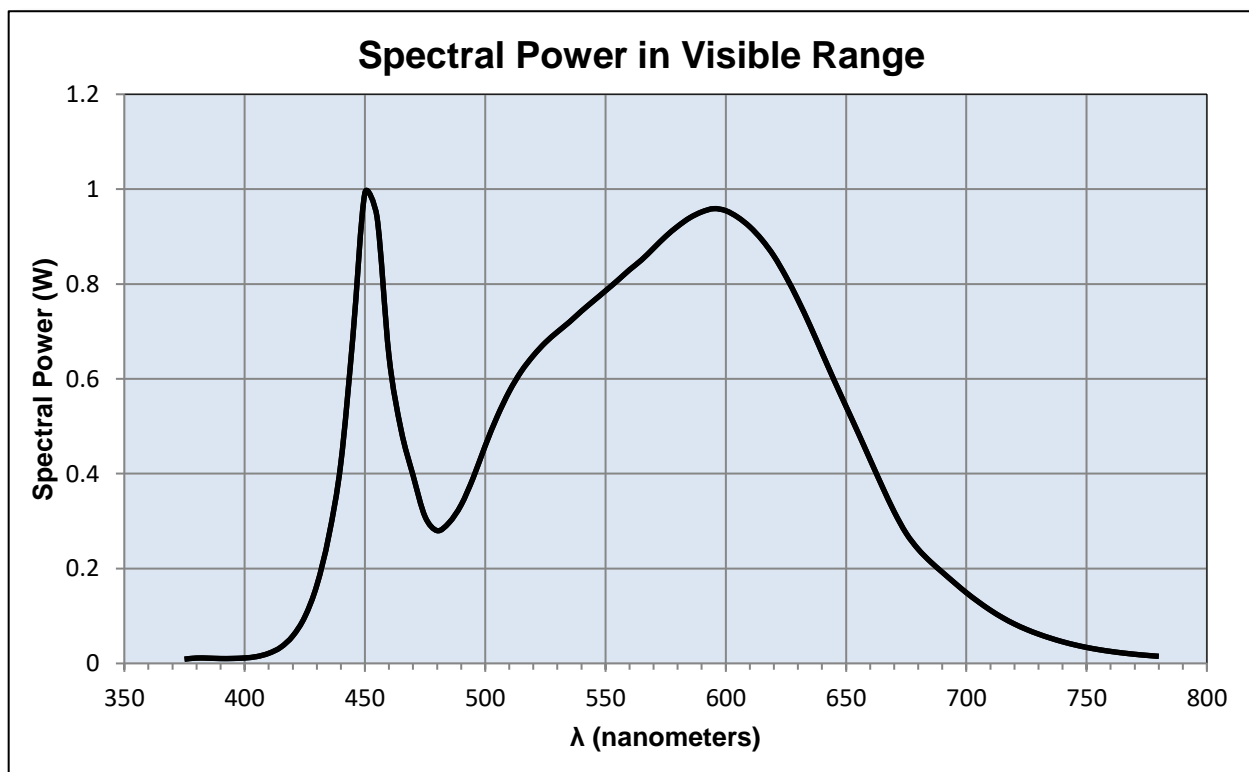
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 480 (VAC)
Input Current: 0.905 (A)
Input Power: 426.6 (W)
Input Power Factor: 0.982
Current ATHD: 10.19 (%)

Photometric measurements:

Luminous Flux: 56110 (lumens)
Luminous Efficacy: 131.5 (lumens/W)
Correlated Color Temperature (CCT): 3947 (K)
CRI -Ra: 83.9
CRI -R9: 14.8
DUV: 0.0011
CIE Coordinate (x): 0.384
CIE Coordinate (y): 0.381
CIE Coordinate (u'): 0.226
CIE Coordinate (v'): 0.336



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	0.009	515	0.616	655	0.487
380	0.011	520	0.649	660	0.430
385	0.011	525	0.677	665	0.374
390	0.010	530	0.699	670	0.320
395	0.010	535	0.720	675	0.274
400	0.012	540	0.743	680	0.241
405	0.014	545	0.764	685	0.215
410	0.021	550	0.786	690	0.192
415	0.034	555	0.807	695	0.170
420	0.058	560	0.830	700	0.149
425	0.098	565	0.851	705	0.130
430	0.165	570	0.875	710	0.112
435	0.269	575	0.900	715	0.097
440	0.423	580	0.922	720	0.083
445	0.689	585	0.939	725	0.072
450	0.992	590	0.952	730	0.062
455	0.942	595	0.959	735	0.053
460	0.648	600	0.955	740	0.046
465	0.493	605	0.941	745	0.039
470	0.397	610	0.921	750	0.034
475	0.309	615	0.893	755	0.029
480	0.280	620	0.859	760	0.025
485	0.297	625	0.816	765	0.022
490	0.334	630	0.767	770	0.019
495	0.391	635	0.713	775	0.017
500	0.459	640	0.655	780	0.015
505	0.521	645	0.598		
510	0.573	650	0.542		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L20034.
Dialight unit model number H7x-4MND-Nxxx-xxN

Electrical Measurements:

Input Voltage: 480 (VAC)
Input current: 0.91 (A)
Input Power: 427.9 (W)
Power Factor: 0.98

Photometric measurements:

Absolute Luminous Flux: 56149 (lumens)
Luminous Efficacy: 131.2 (lumens/W)

Intensity Summary:

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	23	45	67.5	ACROSS	OUTPUT LUMENS
0	22139	22139	22139	22139	22139	
5	22029	22029	22029	22029	22029	824
15	22222	22222	22222	22222	22222	4704
25	26293	26293	26293	26293	26293	9763
35	30377	30377	30377	30377	30377	16727
45	17614	17614	17614	17614	17614	17164
55	2574	2574	2574	2574	2574	5863
65	255	255	255	255	255	1036
75	28	28	28	28	28	65
85	0	0	0	0	0	3
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

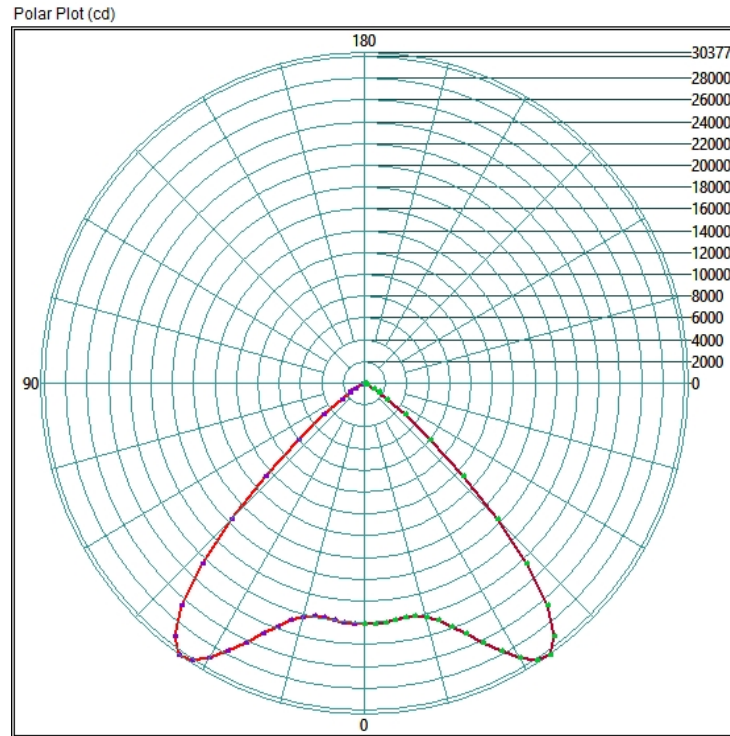
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	22799.84	40.6%
0-40	41597.28	74.1%
0-60	55789.28	99.4%
60-90	735.52	1.3%
0-90	56148.8	100.0%
90-180	0	0.0%
0-180	56148.8	100.0%

Test Results: Goniometer

Results continued from previous page.

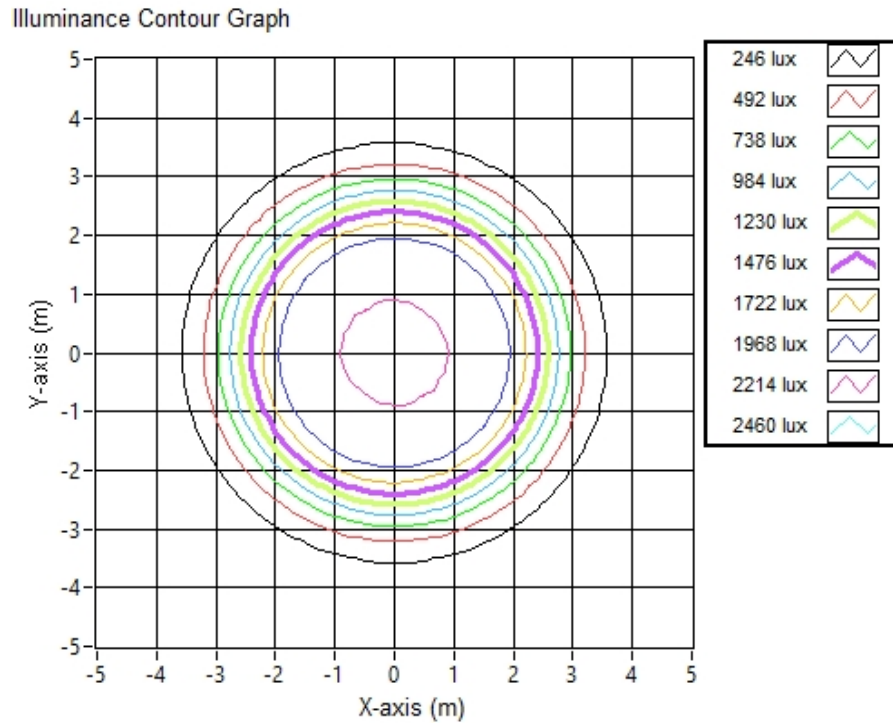
Polar Plot:



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	6.85	6.85	2383.0
6.096	13.71	13.71	595.7
9.144	20.56	20.56	264.8
12.192	27.42	27.42	148.9
15.24	34.27	34.27	95.3
18.288	41.13	41.13	66.2
21.336	47.98	47.98	48.6
24.384	54.83	54.83	37.2
27.432	61.69	61.69	29.4
30.48	68.54	68.54	23.8

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L20034.

Dialight unit model number H7x-4MND-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:

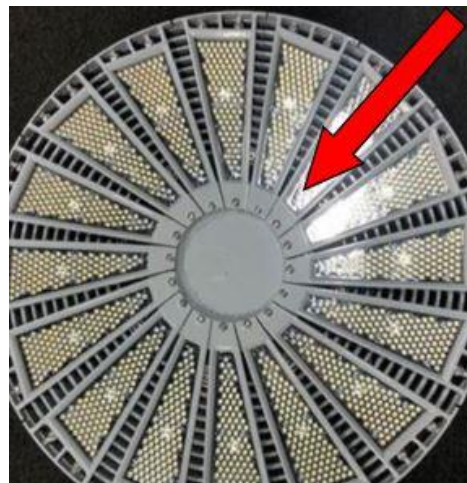
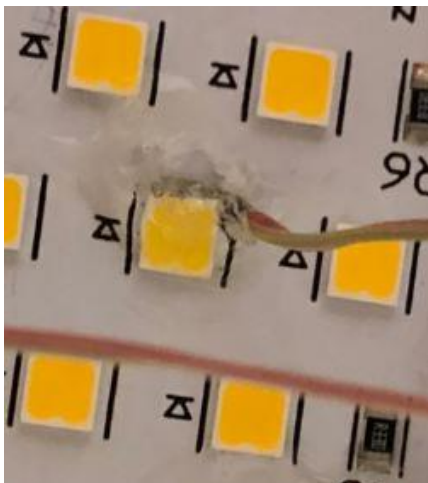
Maximum Power at Indicated Current:	0.27	(W)
Maximum Source Temperature:	120.4	(°C)

Test Conditions:

Temperature Measurement Location:	See Photographs Below
Ambient Temperature:	25° ± 5' (°C)
Ambient temperature at time of measurement:	23.9 (°C)
Relative humidity at time of measurement:	39%

Results:

Measured LED source temperature: 59.6 (°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
Approved Signatory