

Test Report

Report Number: L20031

Date: Jul 9, 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-2MC2-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 17, 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: L20031
Manufacturer: Dialight Corporation
Product Name: Acrylic, Medium, CW, 120-277V, 60k
Description: Vigilant High Output High Bay
Model Number: H7x-2MC2-Nxxx-xxN

Report Summary

Sample number L20031
Dialight unit model number H7x-2MC2-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:	59400 (lumens)	59146 (lumens)
Electrical Power:	436.0 (W)	434.1 (W)
Luminous Efficacy:	136.2 (lumens/W)	136.2 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 436.0 (W)
Power Factor (120VAC): 0.997
Current ATHD % (120VAC): 5.042
Input Power (277VAC): 418.3 (W)
Power Factor (277VAC): 0.966
Current ATHD % (277VAC): 9.2

Color Measurements:

Correlated Color Temperature (CCT): 4858
Color Rendering Index (CRI): 84.5
Chromaticity Coordinate (x): 0.35
Chromaticity Coordinate (y): 0.363
Chromaticity Coordinate (u'): 0.211
Chromaticity Coordinate (v'): 0.327
DUV: 0.0035

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 L20031.

Dialight unit model number H7x-2MC2-Nxxx-xxN

Test Conditions:

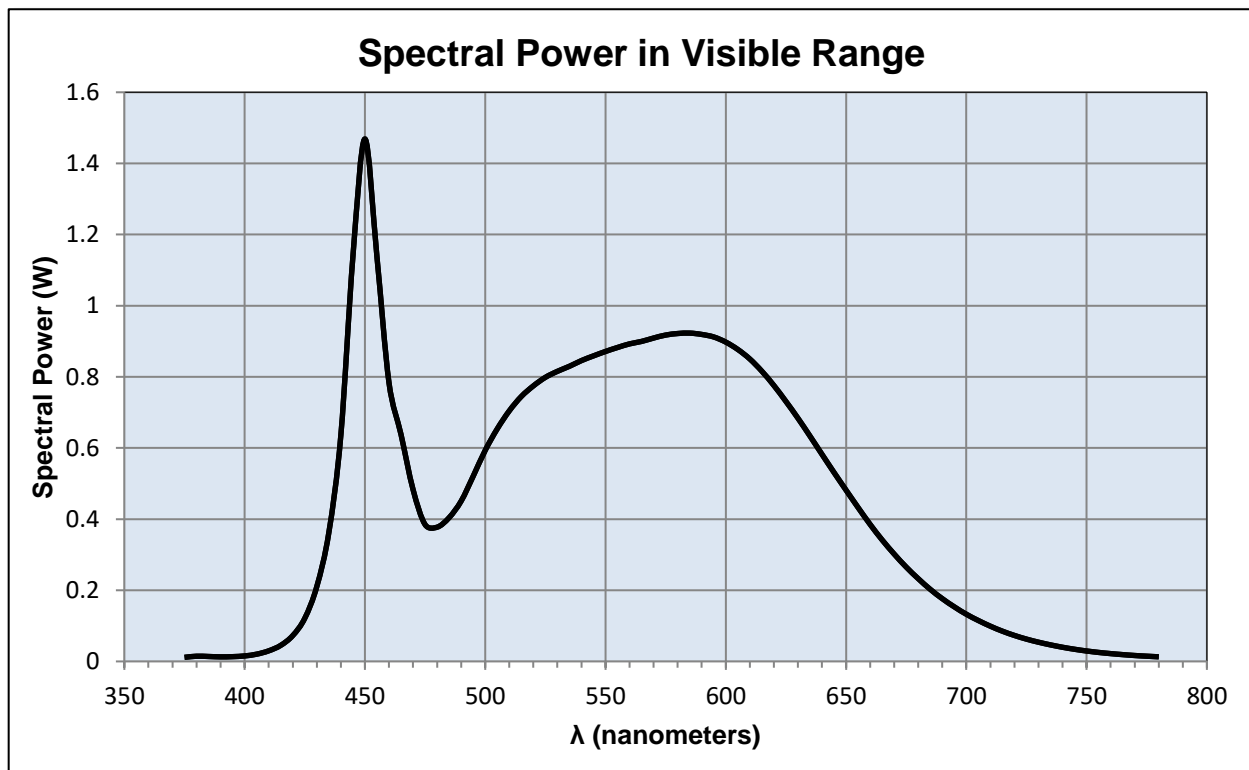
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
Input Current: 3.632 (A)
Input Power: 436.0 (W)
Input Power Factor: 0.997
Current ATHD: 5.042 (%)

Photometric measurements:

Luminous Flux: 59400 (lumens)
Luminous Efficacy: 136.2 (lumens/W)
Correlated Color Temperature (CCT): 4858 (K)
CRI -Ra: 84.5
CRI -R9: 17.9
DUV: 0.0035
CIE Coordinate (x): 0.35
CIE Coordinate (y): 0.363
CIE Coordinate (u'): 0.211
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	0.745	655	0.433
380	0.015	520	0.774	660	0.385
385	0.014	525	0.799	665	0.342
390	0.013	530	0.815	670	0.302
395	0.013	535	0.830	675	0.265
400	0.015	540	0.846	680	0.233
405	0.020	545	0.859	685	0.203
410	0.030	550	0.871	690	0.176
415	0.045	555	0.883	695	0.153
420	0.073	560	0.893	700	0.133
425	0.121	565	0.900	705	0.115
430	0.211	570	0.909	710	0.099
435	0.362	575	0.917	715	0.085
440	0.636	580	0.922	720	0.073
445	1.138	585	0.923	725	0.063
450	1.469	590	0.919	730	0.054
455	1.137	595	0.912	735	0.047
460	0.784	600	0.898	740	0.040
465	0.638	605	0.877	745	0.034
470	0.483	610	0.850	750	0.029
475	0.385	615	0.816	755	0.025
480	0.377	620	0.776	760	0.022
485	0.404	625	0.731	765	0.019
490	0.451	630	0.684	770	0.017
495	0.521	635	0.634	775	0.015
500	0.593	640	0.582	780	0.013
505	0.654	645	0.531		
510	0.704	650	0.482		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L20031.
Dialight unit model number H7x-2MC2-Nxxx-xxN

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 3.628 (A)
Input Power: 434.1 (W)
Power Factor: 0.995

Photometric measurements:

Absolute Luminous Flux: 59146 (lumens)
Luminous Efficacy: 136.2 (lumens/W)

Intensity Summary:

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	23	45	67.5	ACROSS	OUTPUT LUMENS
0	22393	22393	22393	22393	22393	
5	22280	22280	22280	22280	22280	833
15	21930	21930	21930	21930	21930	4697
25	24092	24092	24092	24092	24092	9156
35	28762	28762	28762	28762	28762	15429
45	22509	22509	22509	22509	22509	19071
55	4012	4012	4012	4012	4012	8789
65	316	316	316	316	316	1095
75	35	35	35	35	35	72
85	0	0	0	0	0	4
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

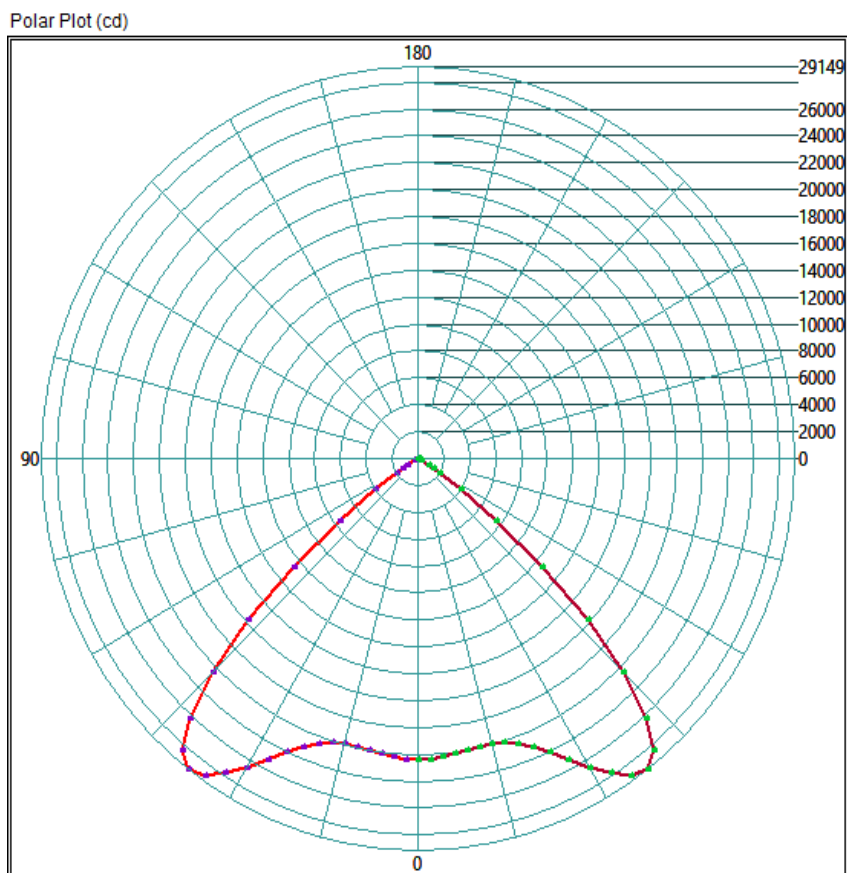
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	21508.96	36.4%
0-40	39979.84	67.6%
0-60	58760.64	99.3%
60-90	715.2	1.2%
0-90	59145.92	100.0%
90-180	0	0.0%
0-180	59145.92	100.0%

Test Results: Goniometer

Results continued from previous page.

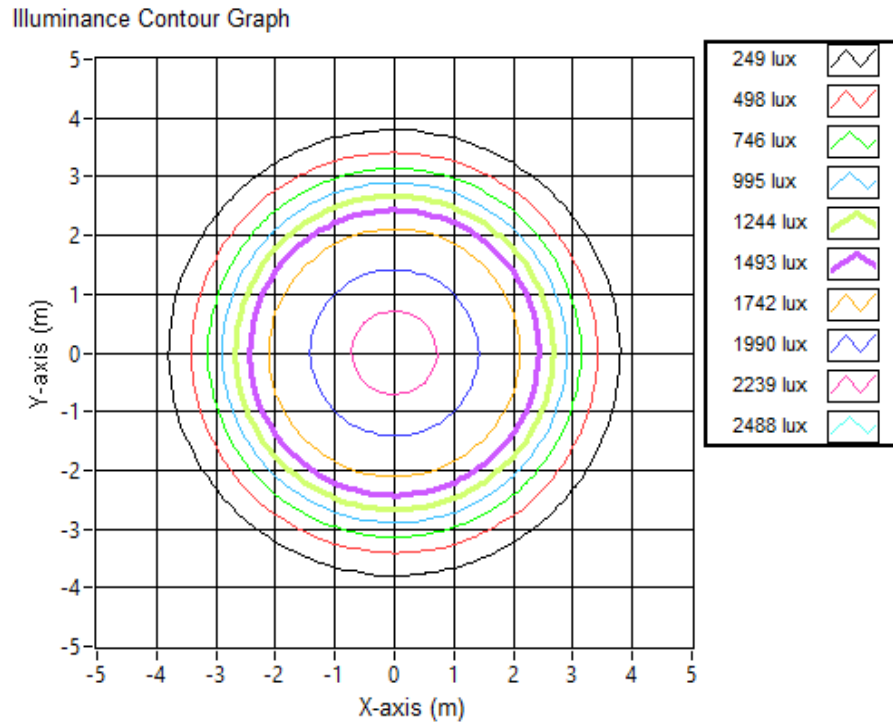
Polar Plot:



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	7.44	7.44	2410.4
6.096	14.89	14.89	602.6
9.144	22.33	22.33	267.8
12.192	29.78	29.78	150.6
15.124	36.94	36.94	97.9
18.288	44.66	44.66	67.0
21.336	52.11	52.11	49.2
24.384	59.55	59.55	37.7
27.432	66.99	66.99	29.8
30.48	74.44	74.44	24.1

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L20031.

Dialight unit model number H7x-2MC2-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:

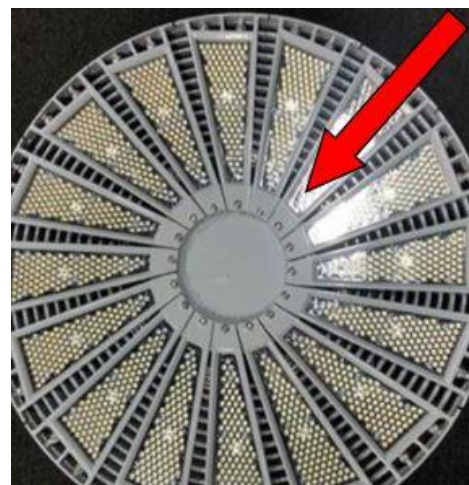
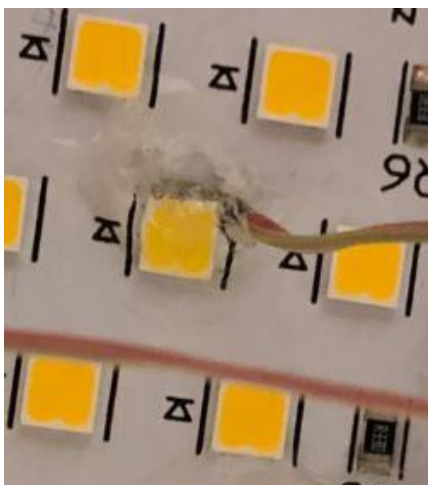
Maximum Power at Indicated Current:	0.27	(W)
Maximum Source Temperature:	120.4	(°C)

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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Test Report Issued By:

Richard Huegi
Dialight Optics Laboratory
Senior Optical Engineering Technician
Lighting Division

Test Report Reviewed and Approved By:

Vishnu Shastry
Dialight Optics Laboratory
Optical Engineer
Approved Signatory