

Test Report

Report Number: L20030

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-7MC2-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 9, 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

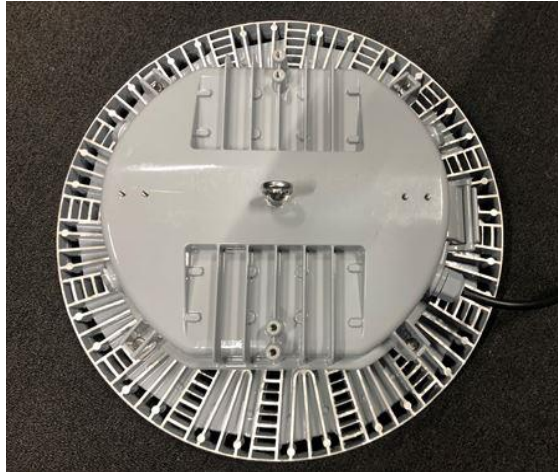
Description of sample:

Sample Number: L20030
Manufacturer: Dialight Corporation
Product Name: Glass, Medium, CW, 120-277V, 60k
Description: Vigilant High Output High Bay
Model Number: H7x-7MC2-Nxxx-xxN

Report Summary

Sample number L20030
Dialight unit model number H7x-7MC2-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:	59690 (lumens)	60132 (lumens)
Electrical Power:	435.9 (W)	435.0 (W)
Luminous Efficacy:	136.9 (lumens/W)	138.2 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 435.9 (W)
Power Factor (120VAC): 0.996
Current ATHD % (120VAC): 5
Input Power (277VAC): 418.1 (W)
Power Factor (277VAC): 0.966
Current ATHD % (277VAC): 9.134

Color Measurements:

Correlated Color Temperature (CCT): 4908
Color Rendering Index (CRI): 84
Chromaticity Coordinate (x): 0.349
Chromaticity Coordinate (y): 0.362
Chromaticity Coordinate (u'): 0.21
Chromaticity Coordinate (v'): 0.327
DUV: 0.0037

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 L20030.

Dialight unit model number H7x-7MC2-Nxxx-xxN

Test Conditions:

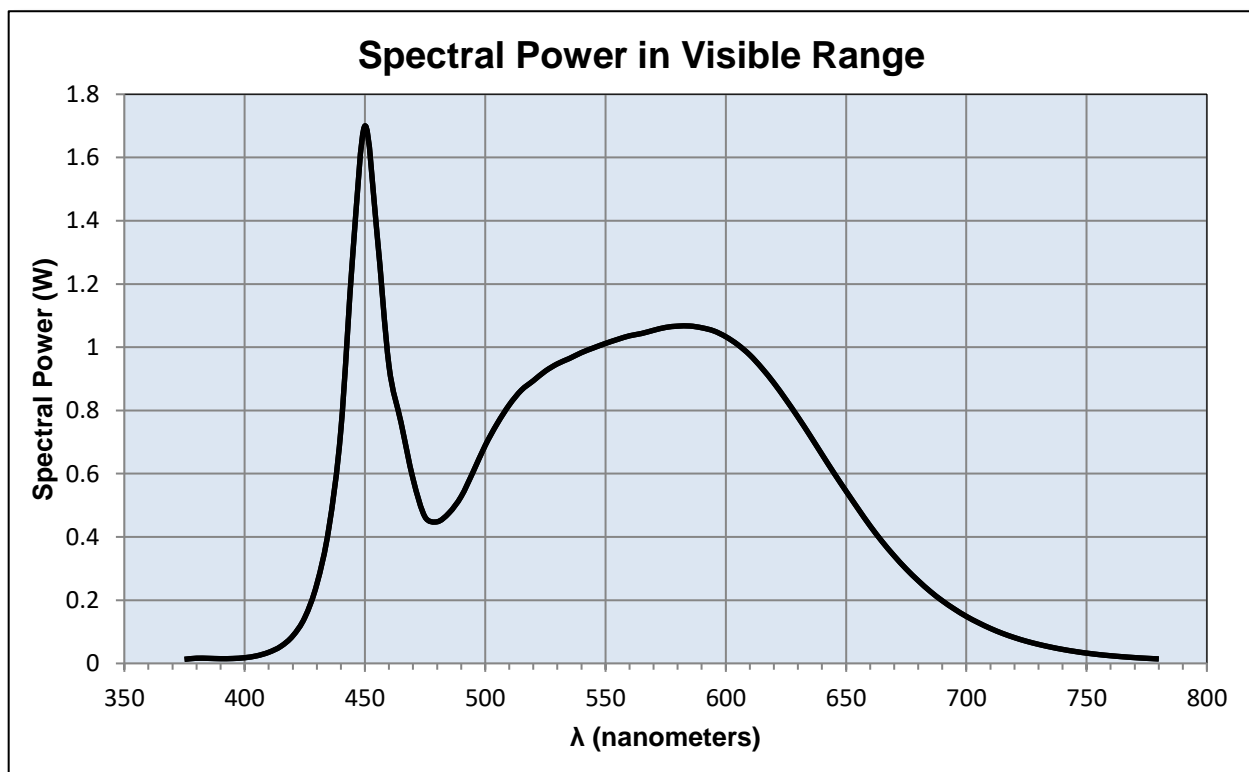
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
Input Current: 3.648 (A)
Input Power: 435.9 (W)
Input Power Factor: 0.996
Current ATHD: 5 (%)

Photometric measurements:

Luminous Flux: 59690 (lumens)
Luminous Efficacy: 136.9 (lumens/W)
Correlated Color Temperature (CCT): 4908 (K)
CRI -Ra: 84
CRI -R9: 14.6
DUV: 0.0037
CIE Coordinate (x): 0.349
CIE Coordinate (y): 0.362
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	0.013	515	0.864	655	0.489
380	0.016	520	0.894	660	0.435
385	0.016	525	0.924	665	0.385
390	0.015	530	0.948	670	0.340
395	0.016	535	0.964	675	0.299
400	0.018	540	0.983	680	0.262
405	0.024	545	0.998	685	0.228
410	0.035	550	1.012	690	0.198
415	0.054	555	1.025	695	0.172
420	0.087	560	1.036	700	0.149
425	0.145	565	1.043	705	0.129
430	0.250	570	1.054	710	0.111
435	0.428	575	1.063	715	0.095
440	0.738	580	1.067	720	0.082
445	1.298	585	1.067	725	0.070
450	1.700	590	1.062	730	0.060
455	1.362	595	1.052	735	0.052
460	0.941	600	1.033	740	0.044
465	0.762	605	1.008	745	0.038
470	0.583	610	0.976	750	0.033
475	0.463	615	0.934	755	0.028
480	0.448	620	0.887	760	0.024
485	0.476	625	0.835	765	0.021
490	0.528	630	0.779	770	0.018
495	0.606	635	0.721	775	0.016
500	0.689	640	0.661	780	0.014
505	0.759	645	0.602		
510	0.818	650	0.545		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L20030.
Dialight unit model number H7x-7MC2-Nxxx-xxN

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 3.657 (A)
Input Power: 435.0 (W)
Power Factor: 0.995

Photometric measurements:

Absolute Luminous Flux: 60132 (lumens)
Luminous Efficacy: 138.2 (lumens/W)

Intensity Summary:

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	23	45	67.5	ACROSS	OUTPUT LUMENS
0	23349	23349	23349	23349	23349	
5	23244	23244	23244	23244	23244	869
15	22628	22628	22628	22628	22628	4876
25	24354	24354	24354	24354	24354	9278
35	29543	29543	29543	29543	29543	15768
45	22973	22973	22973	22973	22973	19580
55	3741	3741	3741	3741	3741	8732
65	197	197	197	197	197	979
75	18	18	18	18	18	48
85	0	0	0	0	0	1
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

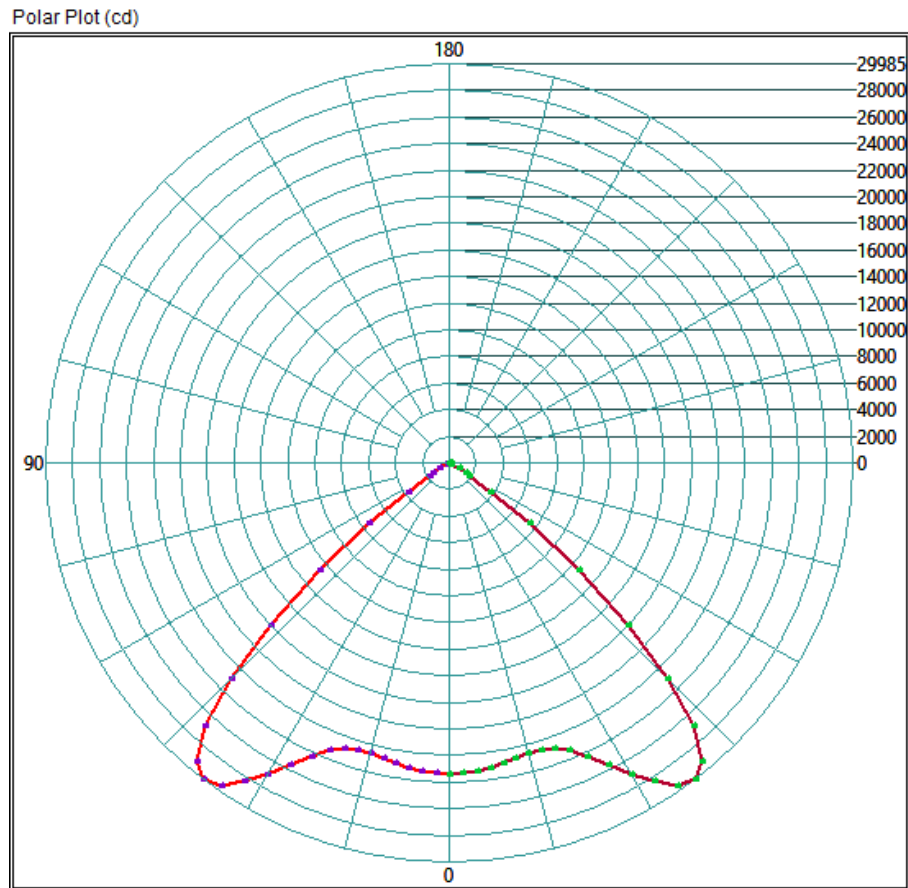
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	21964.32	36.5%
0-40	40944	68.1%
0-60	59818.4	99.5%
60-90	634.24	1.1%
0-90	60131.68	100.0%
90-180	0	0.0%
0-180	60131.68	100.0%

Test Results: Goniometer

Results continued from previous page.

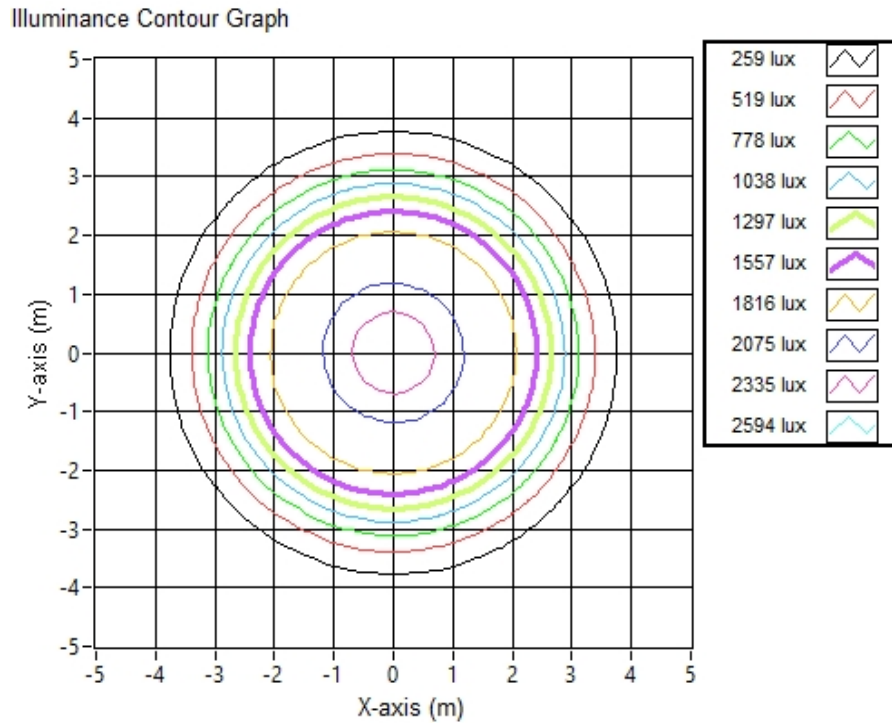
Polar Plot:



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	7.37	7.37	2513.3
6.096	14.75	14.75	628.3
9.144	22.12	22.12	279.3
12.192	29.50	29.50	157.1
15.124	36.59	36.59	102.1
18.288	44.25	44.25	69.8
21.336	51.62	51.62	51.3
24.384	59.00	59.00	39.3
27.432	66.37	66.37	31.0
30.48	73.75	73.75	25.1

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L20030.

Dialight unit model number H7x-7MC2-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:

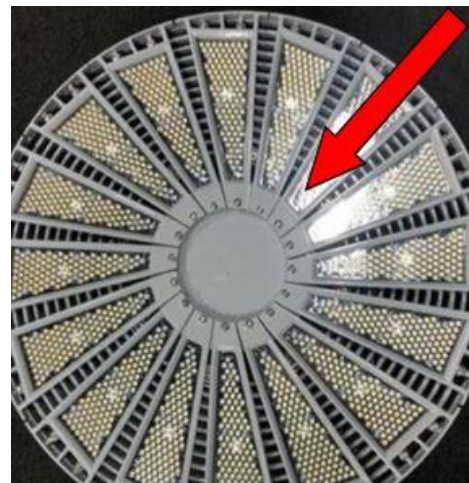
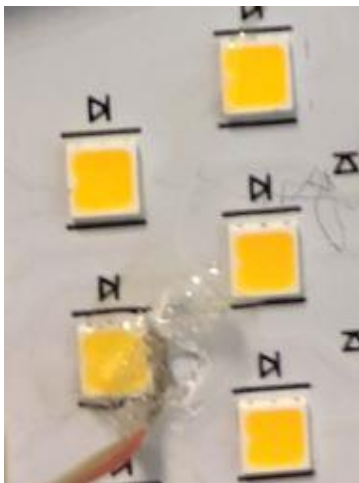
Maximum Power at Indicated Current:	0.27	(W)
Maximum Source Temperature:	120.4	(°C)

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
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