

Test Report

Report Number: L20056

Date: Sep 8, 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-7MC[B,D]-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: August 25, 2020 through September 3, 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

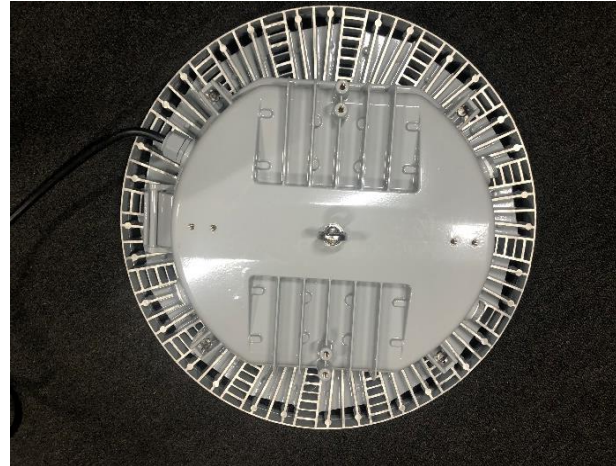
Description of sample:

Sample Number: L20056
Manufacturer: Dialight Corporation
Product Name: Glass, Medium, 347-480V, 60K
Description: Vigilant High Output High Bay
Model Number: H7x-7MC[B,D]-Nxxx-xxN

Report Summary

Sample number L20056
Dialight unit model number H7x-7MC[B,D]-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:	59199 (lumens)	60466 (lumens)
Electrical Power:	429.2 (W)	428.8 (W)
Luminous Efficacy:	137.9 (lumens/W)	141 (lumens/W)

Electrical Measurements:

Input Power (480VAC): 429.2 (W)
Power Factor (480VAC): 0.981
Current ATHD % (480VAC): 10.21
Input Power (347VAC): 429.9 (W)
Power Factor (347VAC): 0.994
Current ATHD % (347VAC): 5.9

Color Measurements:

Correlated Color Temperature (CCT): 4996
Color Rendering Index (CRI): 83.76
Chromaticity Coordinate (x): 0.346
Chromaticity Coordinate (y): 0.361
Chromaticity Coordinate (u'): 0.209
Chromaticity Coordinate (v'): 0.326
DUV: 0.0042

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 L20056.

Dialight unit model number H7x-7MC[B,D]-Nxxx-xxN

Test Conditions:

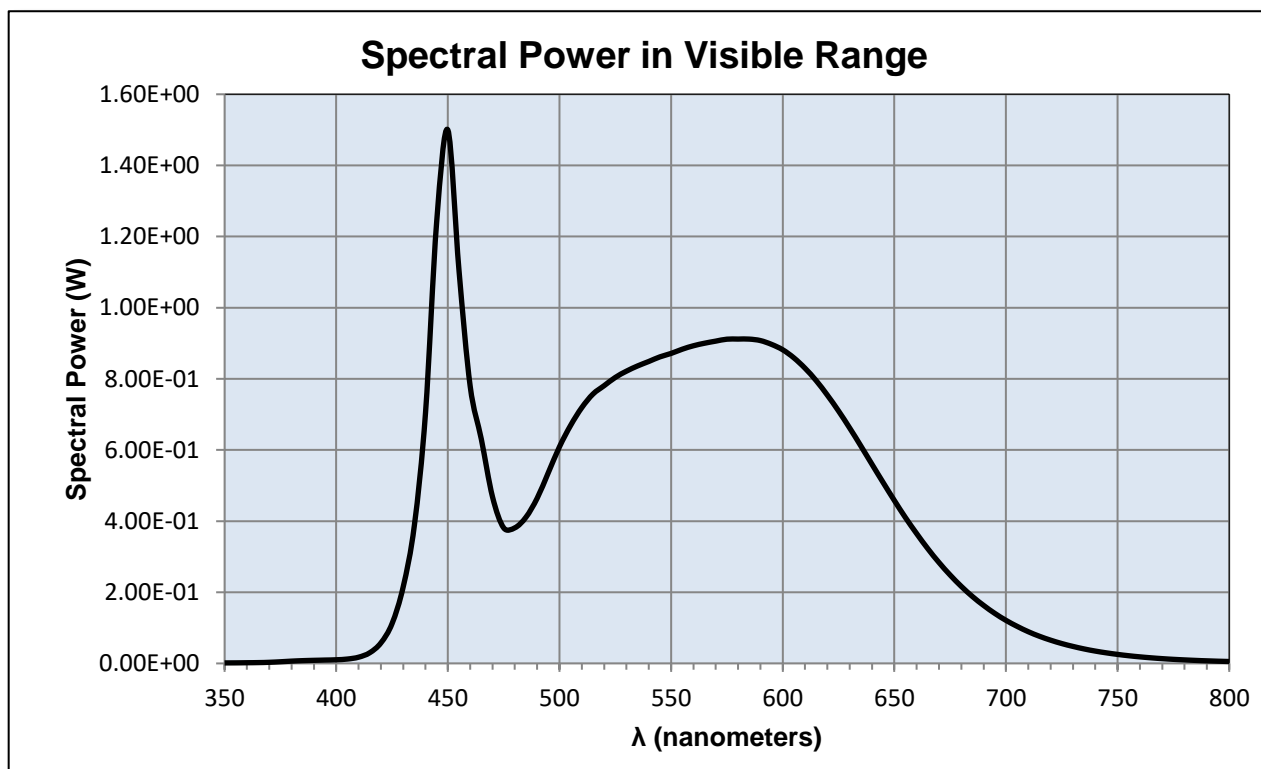
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 480 (VAC)
Input Current: 0.911 (A)
Input Power: 429.2 (W)
Input Power Factor: 0.981
Current ATHD: 10.21 (%)

Photometric measurements:

Luminous Flux: 59199 (lumens)
Luminous Efficacy: 137.9 (lumens/W)
Correlated Color Temperature (CCT): 4996 (K)
CRI -Ra: 83.76
CRI -R9: 13.34
DUV: 0.0042
CIE Coordinate (x): 0.346
CIE Coordinate (y): 0.361
CIE Coordinate (u'): 0.209
CIE Coordinate (v'): 0.326



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	0.00147	490	0.46434	630	0.66177	770	0.01343
355	0.00159	495	0.53623	635	0.61131	775	0.01149
360	0.00194	500	0.60903	640	0.55956	780	0.00991
365	0.00232	505	0.66933	645	0.50834	785	0.00847
370	0.00314	510	0.71920	650	0.45805	790	0.00726
375	0.00467	515	0.75723	655	0.40970	795	0.00627
380	0.00645	520	0.78077	660	0.36489	800	0.00540
385	0.00784	525	0.80396	665	0.32242		
390	0.00869	530	0.82168	670	0.28368		
395	0.00943	535	0.83630	675	0.24837		
400	0.01026	540	0.84888	680	0.21653		
405	0.01230	545	0.86181	685	0.18794		
410	0.01749	550	0.87148	690	0.16298		
415	0.03001	555	0.88333	695	0.14066		
420	0.05750	560	0.89304	700	0.12110		
425	0.11178	565	0.90024	705	0.10421		
430	0.21542	570	0.90607	710	0.08917		
435	0.38792	575	0.91152	715	0.07631		
440	0.70509	580	0.91183	720	0.06540		
445	1.24171	585	0.91178	725	0.05587		
450	1.49959	590	0.90763	730	0.04781		
455	1.10389	595	0.89690	735	0.04071		
460	0.77949	600	0.88175	740	0.03472		
465	0.63022	605	0.85903	745	0.02969		
470	0.46842	610	0.82985	750	0.02535		
475	0.38122	615	0.79486	755	0.02159		
480	0.38121	620	0.75418	760	0.01847		
485	0.41111	625	0.70975	765	0.01576		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L20056.
Dialight unit model number H7x-7MC[B,D]-Nxxx-xxN

Electrical Measurements:

Input Voltage: 480 (VAC)
Input current: 0.907 (A)
Input Power: 428.8 (W)
Power Factor: 0.98

Photometric measurements:

Absolute Luminous Flux: 60466 (lumens)
Luminous Efficacy: 141.0 (lumens/W)

Intensity Summary:

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	23	45	67.5	ACROSS	OUTPUT LUMENS
0	23374	23374	23374	23374	23374	
5	23275	23275	23275	23275	23275	870
15	22729	22729	22729	22729	22729	4892
25	24878	24878	24878	24878	24878	9415
35	30483	30483	30483	30483	30483	16250
45	22503	22503	22503	22503	22503	19683
55	3448	3448	3448	3448	3448	8220
65	217	217	217	217	217	1071
75	25	25	25	25	25	62
85	0	0	0	0	0	2
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

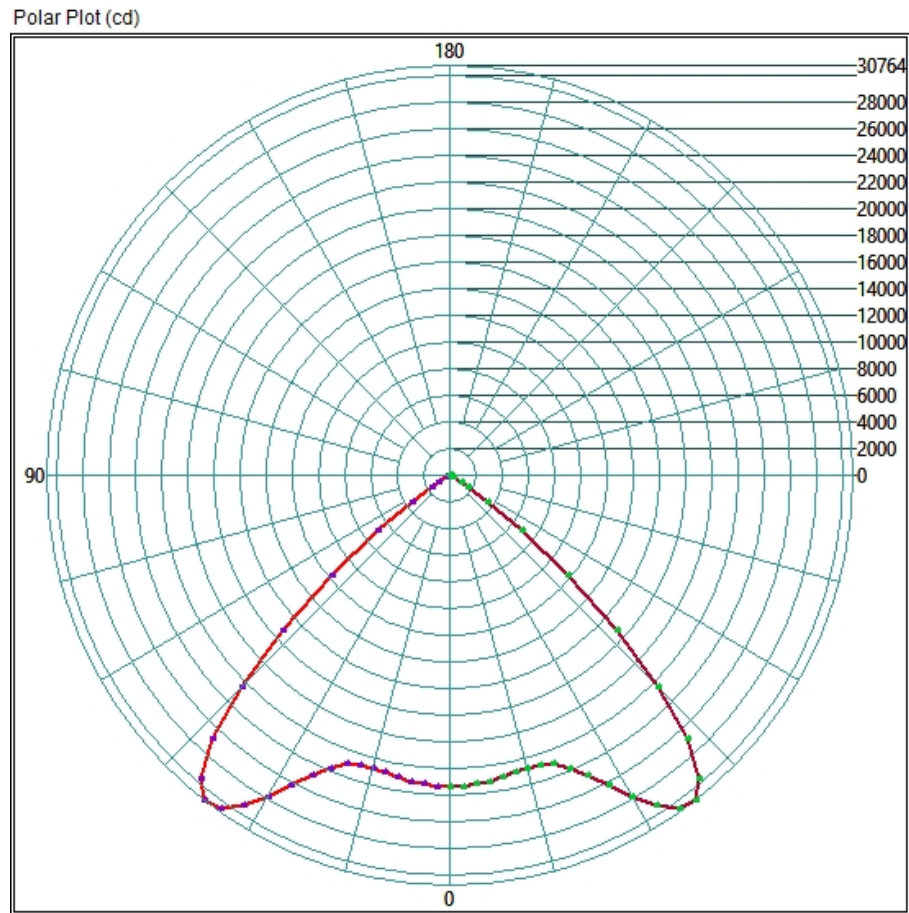
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	22314.88	36.9%
0-40	41783.2	69.1%
0-60	60109.6	99.4%
60-90	743.04	1.2%
0-90	60465.76	100.0%
90-180	0	0.0%
0-180	60465.76	100.0%

Test Results: Goniometer

Results continued from previous page.

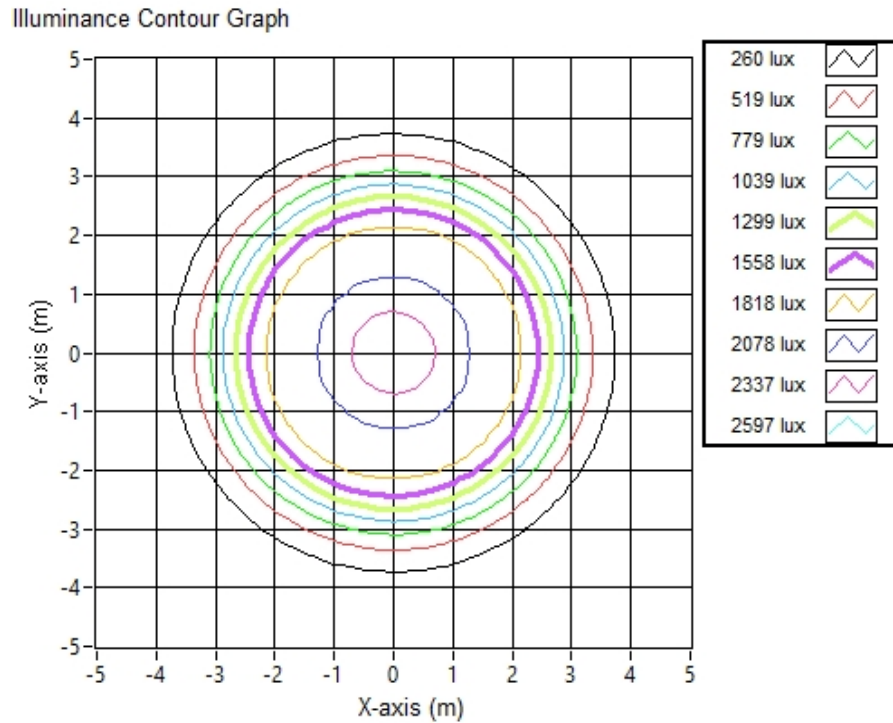
Polar Plot:



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	7.27	7.27	2516.0
6.096	14.54	14.54	629.0
9.144	21.81	21.81	279.6
12.192	29.08	29.08	157.2
15.124	36.08	36.08	102.2
18.288	43.62	43.62	69.9
21.336	50.89	50.89	51.3
24.384	58.16	58.16	39.3
27.432	65.43	65.43	31.1
30.48	72.70	72.70	25.2

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L20056.

Dialight unit model number H7x-7MC[B,D]-Nxxx-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:

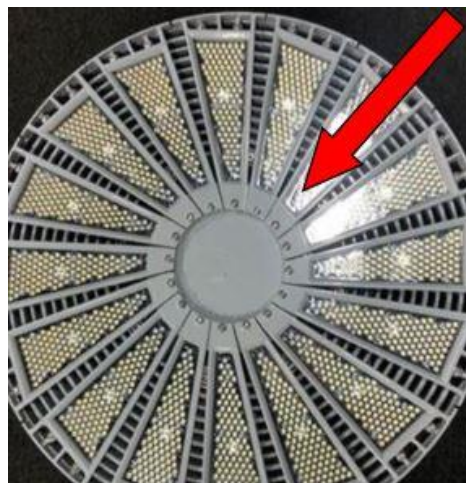
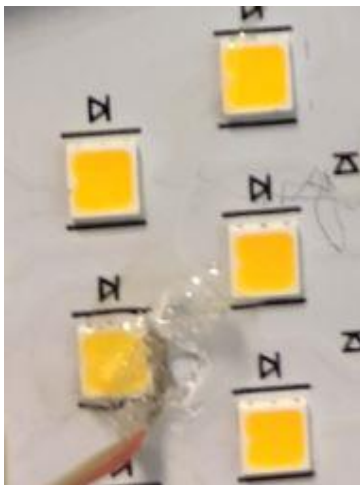
Maximum Power at Indicated Current:	0.27	(W)
Maximum Source Temperature:	120.4	(°C)

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