

Test Report

Report Number: L20058

Date: Oct 14, 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-Kxxx-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 10, 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

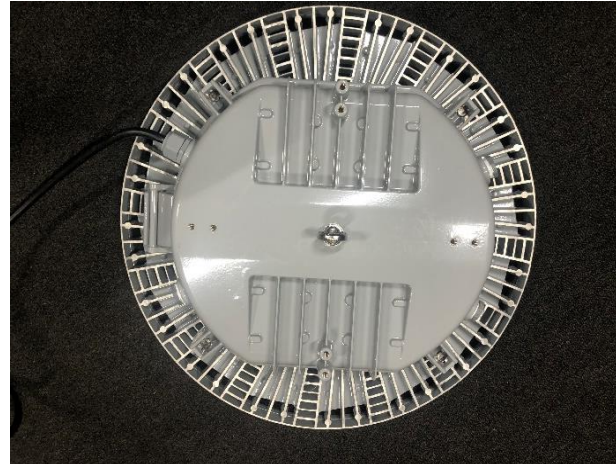
Description of sample:

Sample Number: L20058
Manufacturer: Dialight Corporation
Product Name: Vigilant High Output High Bay
Description: Vigilant High Output High Bay
Model Number: H7x-7MC2-Kxxx-xxN

Report Summary

Sample number L20058
Dialight unit model number H7x-7MC2-Kxxx-xxN

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	43902 (lumens)	44635 (lumens)
Electrical Power:	301.9 (W)	301.0 (W)
Luminous Efficacy:	145.4 (lumens/W)	148.3 (lumens/W)

Electrical Measurements:

Input Power (277VAC): 301.9 (W)
Power Factor (277VAC): 0.93
Current ATHD % (277VAC): 10.34
Input Power (120VAC): 312.4 (W)
Power Factor (120VAC): 0.996
Current ATHD % (120VAC): 5.3

Color Measurements:

Correlated Color Temperature (CCT): 4962
Color Rendering Index (CRI): 83.69
Chromaticity Coordinate (x): 0.347
Chromaticity Coordinate (y): 0.362
Chromaticity Coordinate (u'): 0.209
Chromaticity Coordinate (v'): 0.327
DUV: 0.0045

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 L20058.

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

Test Conditions:

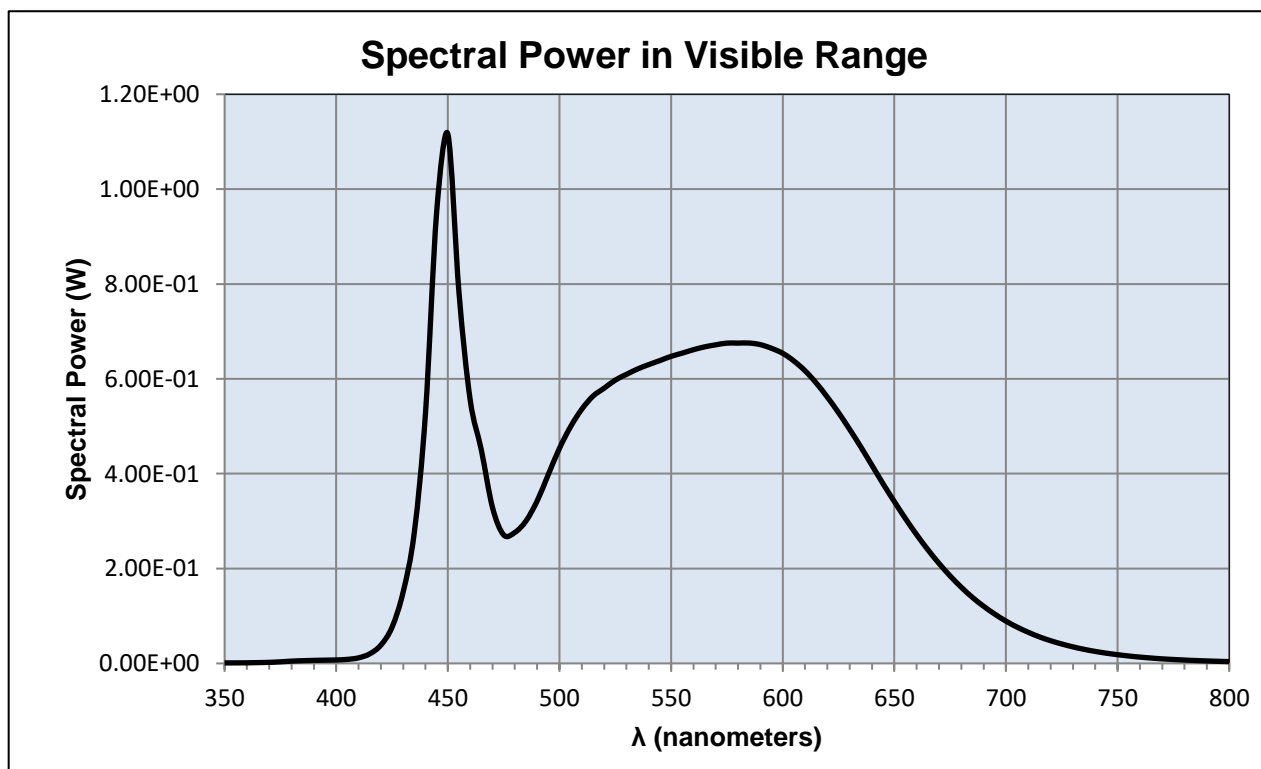
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 277 (VAC)
Input Current: 1.17 (A)
Input Power: 301.9 (W)
Input Power Factor: 0.93
Current ATHD: 10.34 (%)

Photometric measurements:

Luminous Flux: 43902 (lumens)
Luminous Efficacy: 145.4 (lumens/W)
Correlated Color Temperature (CCT): 4962 (K)
CRI -Ra: 83.69
CRI -R9: 13.22
DUV: 0.0045
CIE Coordinate (x): 0.347
CIE Coordinate (y): 0.362
CIE Coordinate (u'): 0.209
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)	$\lambda(\text{nm})$	(W/nm)
350	0.00106	490	0.34259	630	0.49340	770	0.00964
355	0.00118	495	0.39826	635	0.45626	775	0.00829
360	0.00131	500	0.45357	640	0.41741	780	0.00712
365	0.00175	505	0.49940	645	0.37840	785	0.00608
370	0.00227	510	0.53601	650	0.34116	790	0.00524
375	0.00337	515	0.56351	655	0.30519	795	0.00446
380	0.00483	520	0.58030	660	0.27138	800	0.00383
385	0.00573	525	0.59732	665	0.23985		
390	0.00640	530	0.60940	670	0.21092		
395	0.00687	535	0.62087	675	0.18439		
400	0.00733	540	0.63007	680	0.16055		
405	0.00856	545	0.63863	685	0.13911		
410	0.01179	550	0.64743	690	0.12051		
415	0.02017	555	0.65427	695	0.10392		
420	0.03859	560	0.66146	700	0.08918		
425	0.07632	565	0.66744	705	0.07654		
430	0.15115	570	0.67173	710	0.06561		
435	0.27719	575	0.67535	715	0.05597		
440	0.52889	580	0.67533	720	0.04788		
445	0.95246	585	0.67551	725	0.04095		
450	1.11606	590	0.67213	730	0.03491		
455	0.78091	595	0.66434	735	0.02969		
460	0.55580	600	0.65389	740	0.02530		
465	0.45000	605	0.63768	745	0.02157		
470	0.32883	610	0.61709	750	0.01841		
475	0.27095	615	0.59124	755	0.01567		
480	0.27616	620	0.56138	760	0.01333		
485	0.30036	625	0.52868	765	0.01140		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L20058.
Dialight unit model number H7x-7MC2-Kxxx-xxN

Electrical Measurements:

Input Voltage: 277 (VAC)
Input current: 1.173 (A)
Input Power: 301.0 (W)
Power Factor: 0.928

Photometric measurements:

Absolute Luminous Flux: 44635 (lumens)
Luminous Efficacy: 148.3 (lumens/W)

Intensity Summary:

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	23	45	67.5	ACROSS	OUTPUT LUMENS
0	17209	17209	17209	17209	17209	
5	17139	17139	17139	17139	17139	641
15	16740	16740	16740	16740	16740	3602
25	18251	18251	18251	18251	18251	6920
35	22265	22265	22265	22265	22265	11886
45	16548	16548	16548	16548	16548	14409
55	2664	2664	2664	2664	2664	6152
65	244	244	244	244	244	834
75	55	55	55	55	55	84
85	12	12	12	12	12	28
95	1	1	1	1	1	2
105	1	1	1	1	1	1
115	3	3	3	3	3	2
125	11	11	11	11	11	7
135	20	20	20	20	20	14
145	28	28	28	28	28	17
155	34	34	34	34	34	17
165	37	37	37	37	37	13
175	38	38	38	38	38	6
180	37	37	37	37	37	0

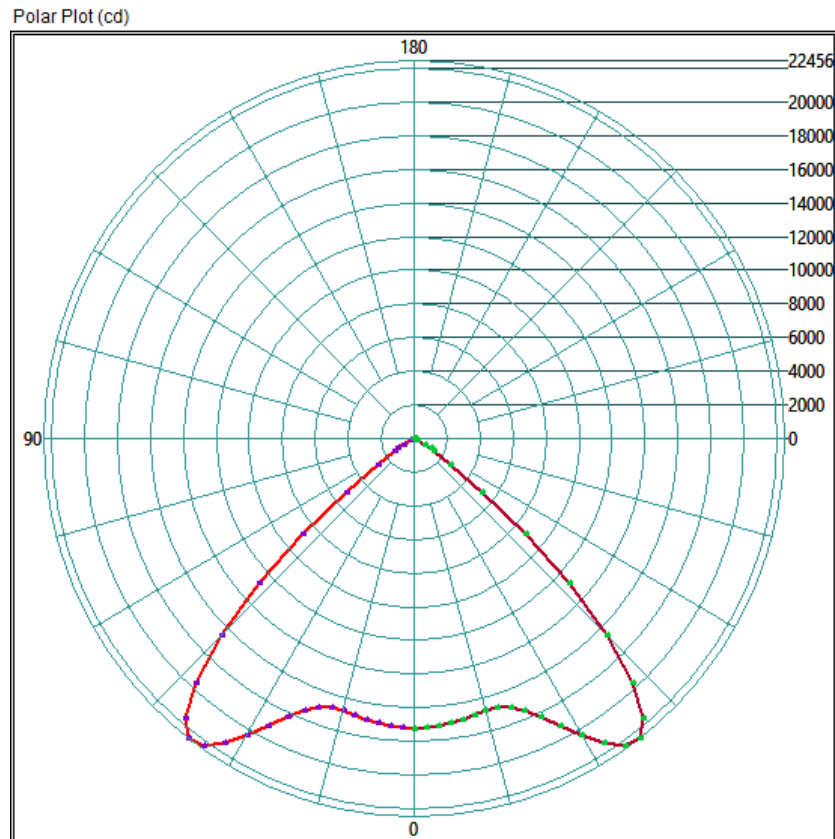
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	16390.24	36.7%
0-40	30611.36	68.6%
0-60	44199.68	99.0%
60-90	623.36	1.4%
0-90	44557.12	99.8%
90-180	78.08	0.2%
0-180	44634.88	100.0%

Test Results: Goniometer

Results continued from previous page.

Polar Plot:

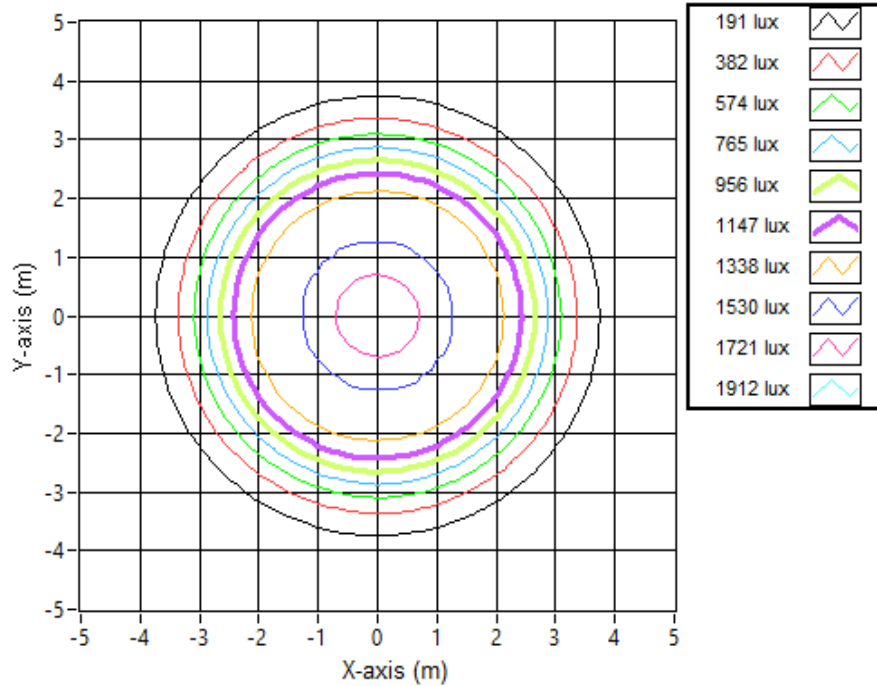


Test Results: Goniometer

Results continued from previous page.

Illuminance Plot:

Illuminance Contour Graph



Illuminance-Cone of Light:

Mounting Height (m)	Beam Cone Width (m)	Orthogonal Beam Cone	Projected Illuminance (lux)
3.048	7.30	7.30	1852.3
6.096	14.59	14.59	463.1
9.144	21.89	21.89	205.8
12.192	29.18	29.18	115.8
15.124	36.20	36.20	75.2
18.288	43.77	43.77	51.5
21.336	51.07	51.07	37.8
24.384	58.37	58.37	28.9
27.432	65.66	65.66	22.9
30.48	72.96	72.96	18.5

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L20058.

Dialight unit model number H7x-7MC2-Kxxx-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:

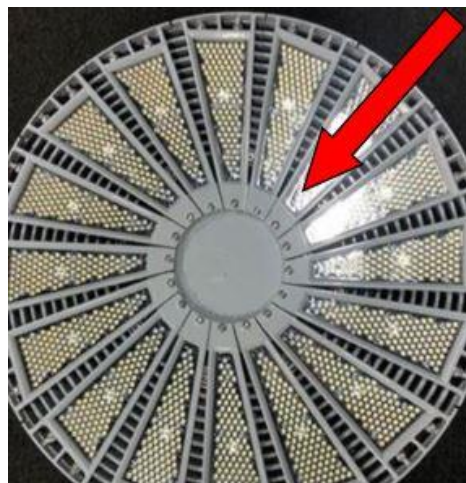
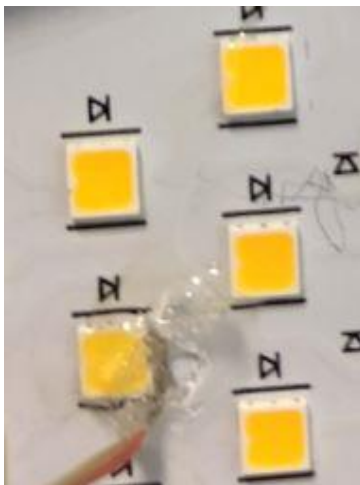
Maximum Power at Indicated Current:	0.27	(W)
Maximum Source Temperature:	120.4	(°C)

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