

# Test Report

Report Number: L20055

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]-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 2, 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

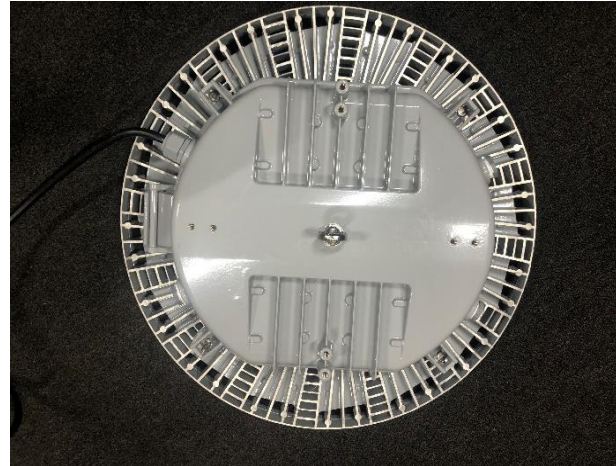
**Description of sample:**

Sample Number: L20055  
Manufacturer: Dialight Corporation  
Product Name: Vigilant High Output High Bay  
Description: Vigilant High Output High Bay  
Model Number: H7x-7MC[B,D]-Kxxx-xxN

## Report Summary

Sample number L20055  
Dialight unit model number H7x-7MC[B,D]-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:	43794 (lumens)	44501 (lumens)
Electrical Power:	307.9 (W)	307.7 (W)
Luminous Efficacy:	142.2 (lumens/W)	144.6 (lumens/W)

### Electrical Measurements:

Input Power (480 VAC): 307.9 (W)  
Power Factor (480 VAC): 0.973  
Current ATHD % (480 VAC): 11.69  
Input Power (347VAC): 307.1 (W)  
Power Factor (347VAC): 0.986  
Current ATHD % (347VAC): 11.47

### Color Measurements:

Correlated Color Temperature (CCT): 4966  
Color Rendering Index (CRI): 83.7  
Chromaticity Coordinate (x): 0.347  
Chromaticity Coordinate (y): 0.362  
Chromaticity Coordinate (u'): 0.209  
Chromaticity Coordinate (v'): 0.327  
DUV: 0.0044

### 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 L20055.

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

### Test Conditions:

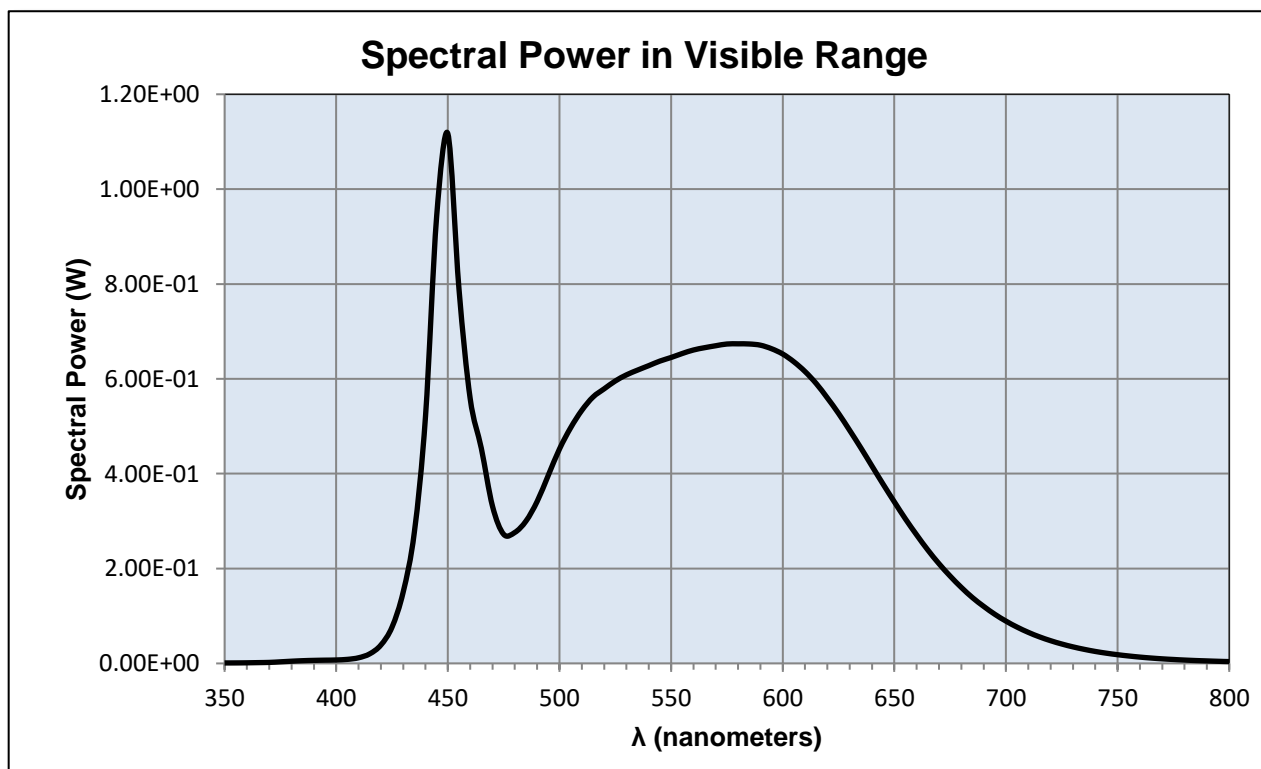
Ambient Temperature:  $25 \pm 1$  (°C)

### Electrical Measurements:

Input Voltage: 480 (VAC)  
Input Current: 0.659 (A)  
Input Power: 307.9 (W)  
Input Power Factor: 0.973  
Current ATHD: 11.69 (%)

### Photometric measurements:

Luminous Flux: 43794 (lumens)  
Luminous Efficacy: 142.2 (lumens/W)  
Correlated Color Temperature (CCT): 4966 (K)  
CRI -Ra: 83.7  
CRI -R9: 13.24  
DUV: 0.0044  
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	0.00104	490	0.34150	630	0.49135	770	0.00969
355	0.00108	495	0.39675	635	0.45441	775	0.00832
360	0.00131	500	0.45208	640	0.41592	780	0.00709
365	0.00171	505	0.49686	645	0.37768	785	0.00611
370	0.00217	510	0.53354	650	0.34054	790	0.00527
375	0.00337	515	0.56160	655	0.30449	795	0.00449
380	0.00467	520	0.57890	660	0.27091	800	0.00388
385	0.00577	525	0.59548	665	0.23914		
390	0.00645	530	0.60842	670	0.21023		
395	0.00685	535	0.61849	675	0.18410		
400	0.00729	540	0.62789	680	0.16023		
405	0.00858	545	0.63748	685	0.13875		
410	0.01192	550	0.64505	690	0.12034		
415	0.02020	555	0.65346	695	0.10364		
420	0.03873	560	0.66084	700	0.08916		
425	0.07657	565	0.66570	705	0.07656		
430	0.15064	570	0.66982	710	0.06553		
435	0.27677	575	0.67347	715	0.05603		
440	0.52164	580	0.67387	720	0.04791		
445	0.94333	585	0.67354	725	0.04094		
450	1.11684	590	0.67100	730	0.03491		
455	0.78844	595	0.66353	735	0.02974		
460	0.55852	600	0.65237	740	0.02528		
465	0.45340	605	0.63596	745	0.02157		
470	0.33151	610	0.61539	750	0.01838		
475	0.27222	615	0.59008	755	0.01570		
480	0.27621	620	0.55975	760	0.01332		
485	0.30017	625	0.52714	765	0.01138		

## Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L20055.  
Dialight unit model number H7x-7MC[B,D]-Kxxx-xxN

### Electrical Measurements:

Input Voltage: 480 (VAC)  
Input current: 0.662 (A)  
Input Power: 307.7 (W)  
Power Factor: 0.973

### Photometric measurements:

Absolute Luminous Flux: 44501 (lumens)  
Luminous Efficacy: 144.6 (lumens/W)

### Intensity Summary:

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	23	45	67.5	ACROSS	OUTPUT LUMENS
0	17141	17141	17141	17141	17141	
5	17069	17069	17069	17069	17069	638
15	16682	16682	16682	16682	16682	3589
25	18202	18202	18202	18202	18202	6899
35	22195	22195	22195	22195	22195	11849
45	16608	16608	16608	16608	16608	14404
55	2755	2755	2755	2755	2755	6240
65	242	242	242	242	242	832
75	19	19	19	19	19	47
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

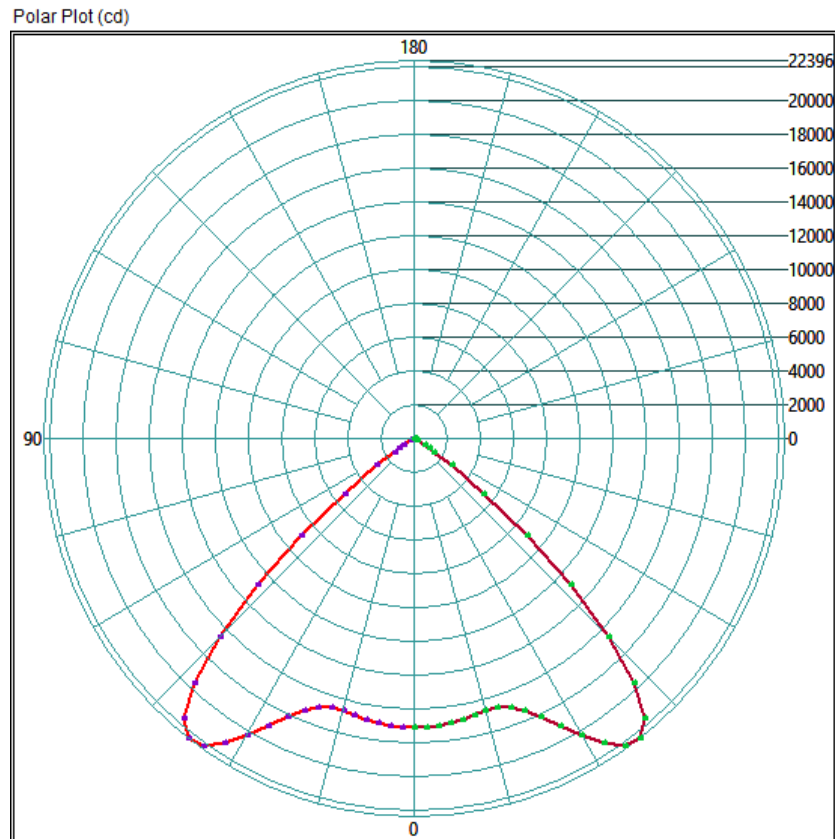
### ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	16338.4	36.7%
0-40	30522.08	68.6%
0-60	44210.08	99.3%
60-90	547.36	1.2%
0-90	44501.12	100.0%
90-180	0	0.0%
0-180	44501.12	100.0%

## Test Results: Goniometer

Results continued from previous page.

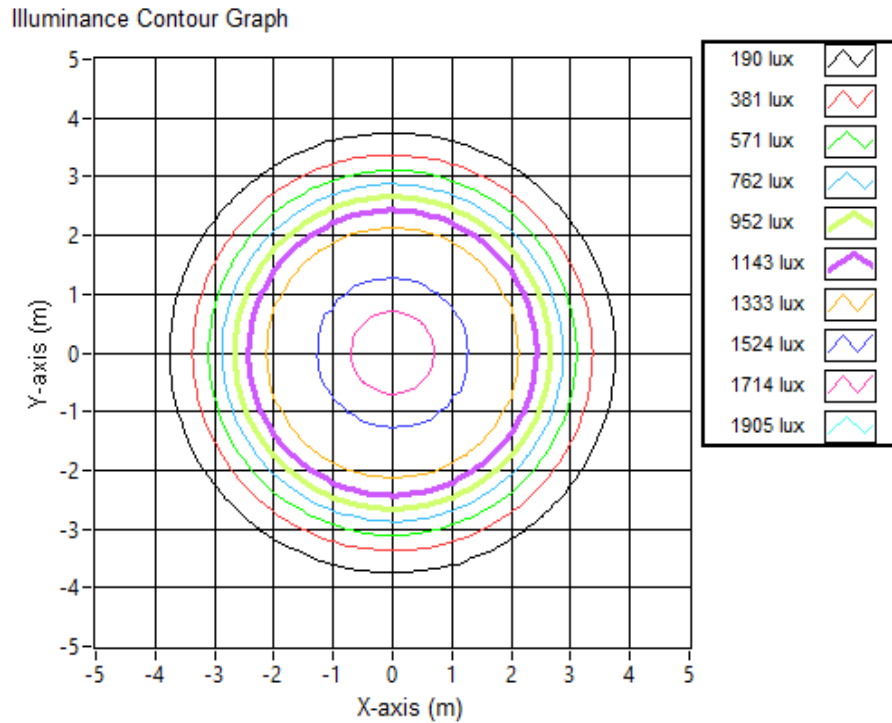
### Polar Plot:



## 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	7.32	7.32	1845.0
6.086	14.62	14.62	462.8
9.144	21.97	21.97	205.0
12.192	29.29	29.29	115.3
15.124	36.33	36.33	74.9
18.288	43.93	43.93	51.3
21.336	51.25	51.25	37.7
24.384	58.58	58.58	28.8
27.432	65.90	65.90	22.8
30.48	73.22	73.22	18.5



## Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L20055.

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

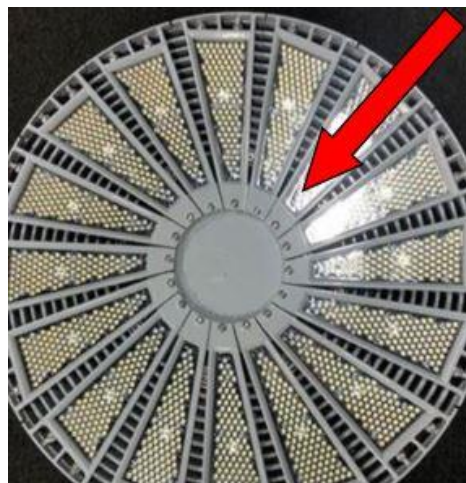
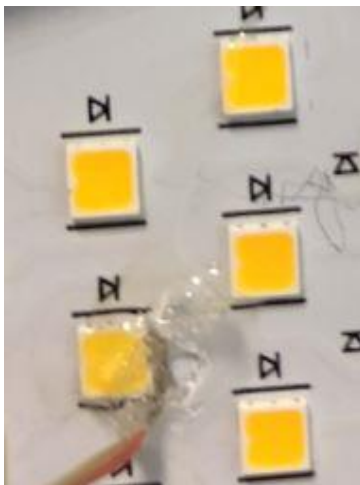
Maximum Power at Indicated Current:	0.27	(W)
Maximum Source Temperature:	120.4	(°C)

### 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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## 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