

# Test Report

Report Number: L20035

Date: Jul 13, 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-4MND-Rxxx-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:** July 8, 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

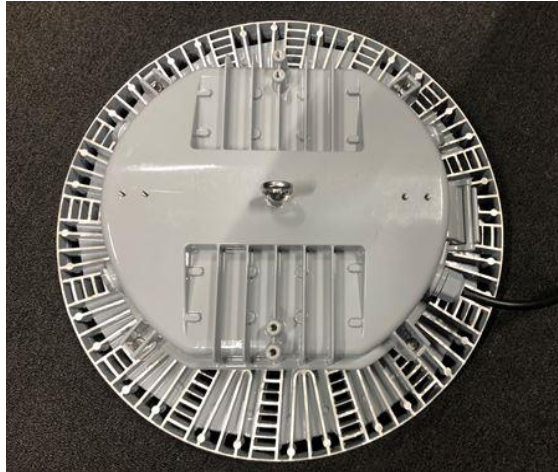
**Description of sample:**

Sample Number: L20035  
Manufacturer: Dialight Corporation  
Product Name: PC, Medium, NW, 347-480V, 72k  
Description: Vigilant High Output High Bay  
Model Number: H7x-4MND-Rxxx-xxN

## Report Summary

Sample number L20035  
Dialight unit model number H7x-4MND-Rxxx-xxN

### Photograph(s) of sample:



\*Photographs not to scale. For reference only.

### Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	63730 (lumens)	63434 (lumens)
Electrical Power:	494.0 (W)	494.2 (W)
Luminous Efficacy:	129 (lumens/W)	128.4 (lumens/W)

### Electrical Measurements:

Input Power (480VAC): 494.0 (W)  
Power Factor (480VAC): 0.989  
Current ATHD % (480VAC): 9.706  
Input Power (347VAC): 496.9 (W)  
Power Factor (347VAC): 0.995  
Current ATHD % (347VAC): 6.125

### Color Measurements:

Correlated Color Temperature (CCT): 3957  
Color Rendering Index (CRI): 84.6  
Chromaticity Coordinate (x): 0.383  
Chromaticity Coordinate (y): 0.381  
Chromaticity Coordinate (u'): 0.225  
Chromaticity Coordinate (v'): 0.336  
DUV: 0.001

### 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 L20035.

Dialight unit model number H7x-4MND-Rxxx-xxN

### Test Conditions:

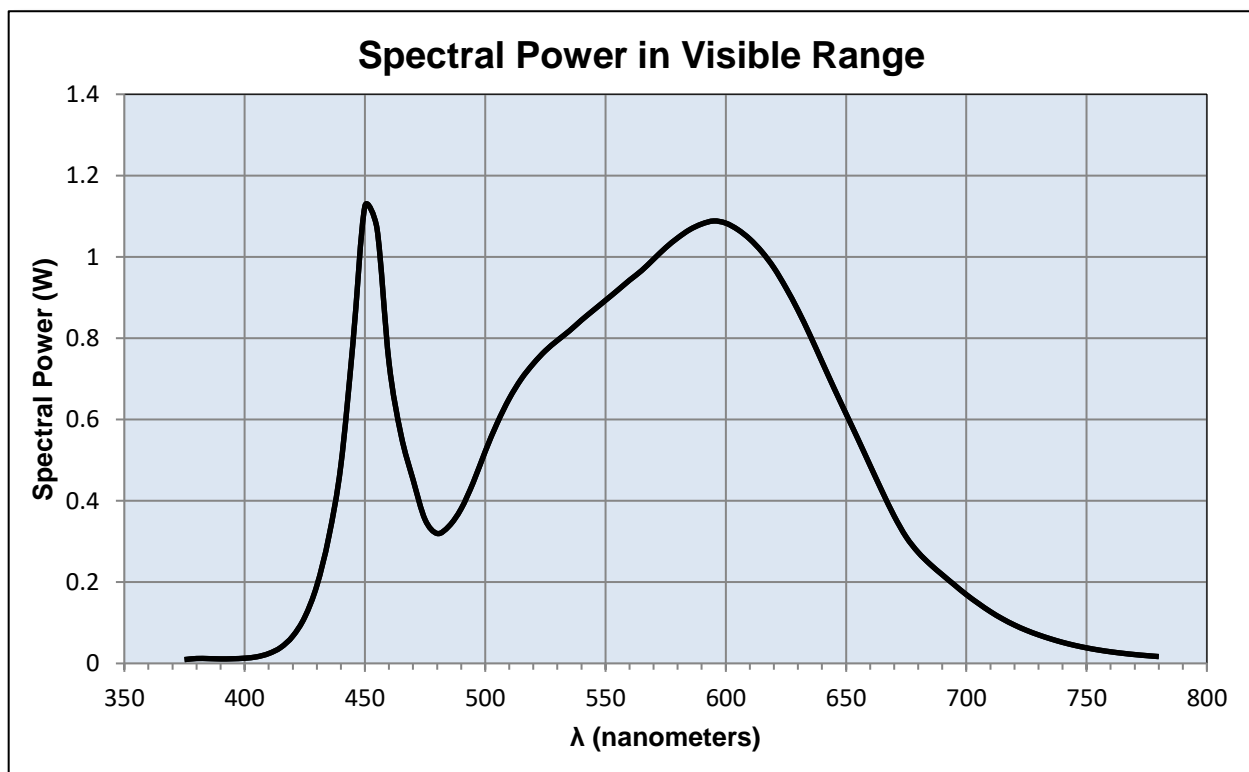
Ambient Temperature:  $25 \pm 1$  (°C)

### Electrical Measurements:

Input Voltage: 480 (VAC)  
Input Current: 1.042 (A)  
Input Power: 494.0 (W)  
Input Power Factor: 0.989  
Current ATHD: 9.706 (%)

### Photometric measurements:

Luminous Flux: 63730 (lumens)  
Luminous Efficacy: 129.0 (lumens/W)  
Correlated Color Temperature (CCT): 3957 (K)  
CRI -Ra: 84.6  
CRI -R9: 19.1  
DUV: 0.001  
CIE Coordinate (x): 0.383  
CIE Coordinate (y): 0.381  
CIE Coordinate (u'): 0.225  
CIE Coordinate (v'): 0.336



## 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	0.009	515	0.700	655	0.551
380	0.012	520	0.737	660	0.487
385	0.012	525	0.769	665	0.423
390	0.011	530	0.794	670	0.363
395	0.011	535	0.818	675	0.311
400	0.013	540	0.844	680	0.273
405	0.016	545	0.869	685	0.244
410	0.024	550	0.893	690	0.218
415	0.039	555	0.918	695	0.193
420	0.067	560	0.943	700	0.169
425	0.114	565	0.966	705	0.148
430	0.191	570	0.994	710	0.127
435	0.312	575	1.023	715	0.110
440	0.487	580	1.047	720	0.094
445	0.786	585	1.067	725	0.081
450	1.125	590	1.081	730	0.070
455	1.071	595	1.088	735	0.061
460	0.741	600	1.083	740	0.052
465	0.563	605	1.067	745	0.045
470	0.452	610	1.044	750	0.038
475	0.354	615	1.013	755	0.033
480	0.320	620	0.973	760	0.029
485	0.338	625	0.924	765	0.025
490	0.380	630	0.869	770	0.022
495	0.445	635	0.808	775	0.019
500	0.521	640	0.742	780	0.017
505	0.591	645	0.677		
510	0.651	650	0.614		

## Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L20035.  
Dialight unit model number H7x-4MND-Rxxx-xxN

### Electrical Measurements:

Input Voltage: 480 (VAC)  
Input current: 1.05 (A)  
Input Power: 494.2 (W)  
Power Factor: 0.984

### Photometric measurements:

Absolute Luminous Flux: 63434 (lumens)  
Luminous Efficacy: 128.4 (lumens/W)

### Intensity Summary:

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	23	45	67.5	ACROSS	OUTPUT LUMENS
0	25222	25222	25222	25222	25222	
5	25102	25102	25102	25102	25102	939
15	25403	25403	25403	25403	25403	5371
25	30178	30178	30178	30178	30178	11194
35	34464	34464	34464	34464	34464	19097
45	19366	19366	19366	19366	19366	19107
55	2922	2922	2922	2922	2922	6468
65	308	308	308	308	308	1181
75	32	32	32	32	32	75
85	0	0	0	0	0	3
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

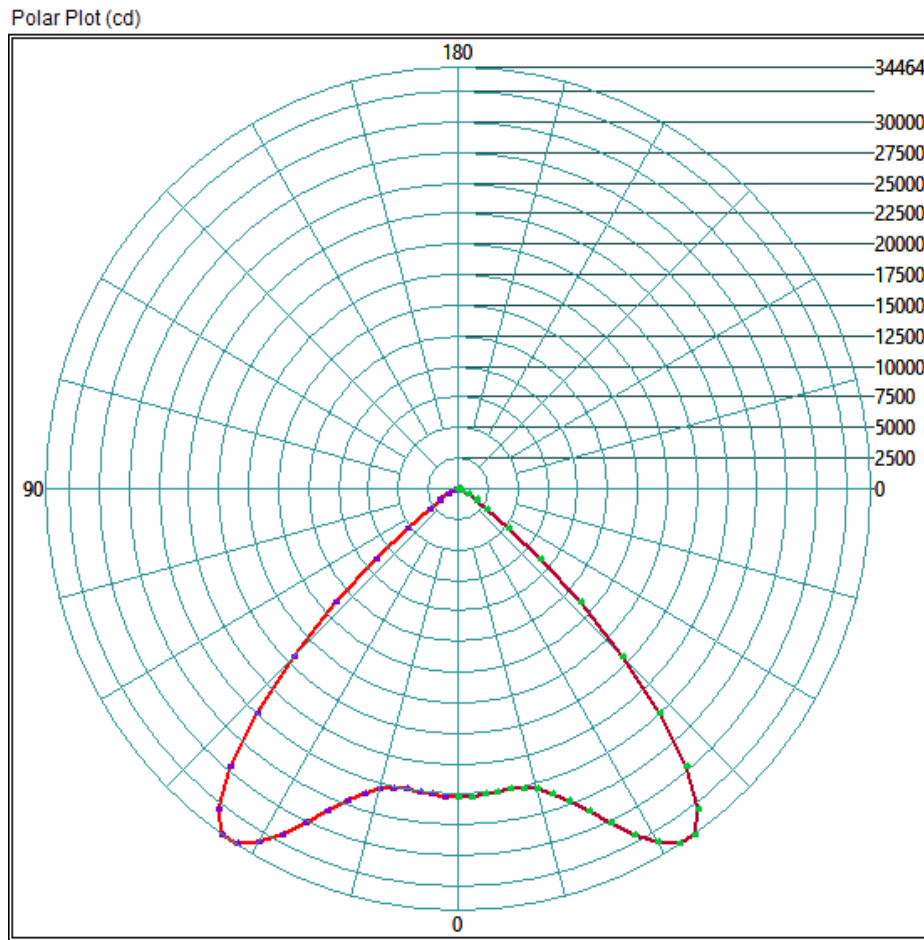
### ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	26111.2	41.2%
0-40	47336.64	74.6%
0-60	63030.72	99.4%
60-90	820.32	1.3%
0-90	63433.92	100.0%
90-180	0	0.0%
0-180	63433.92	100.0%

## Test Results: Goniometer

Results continued from previous page.

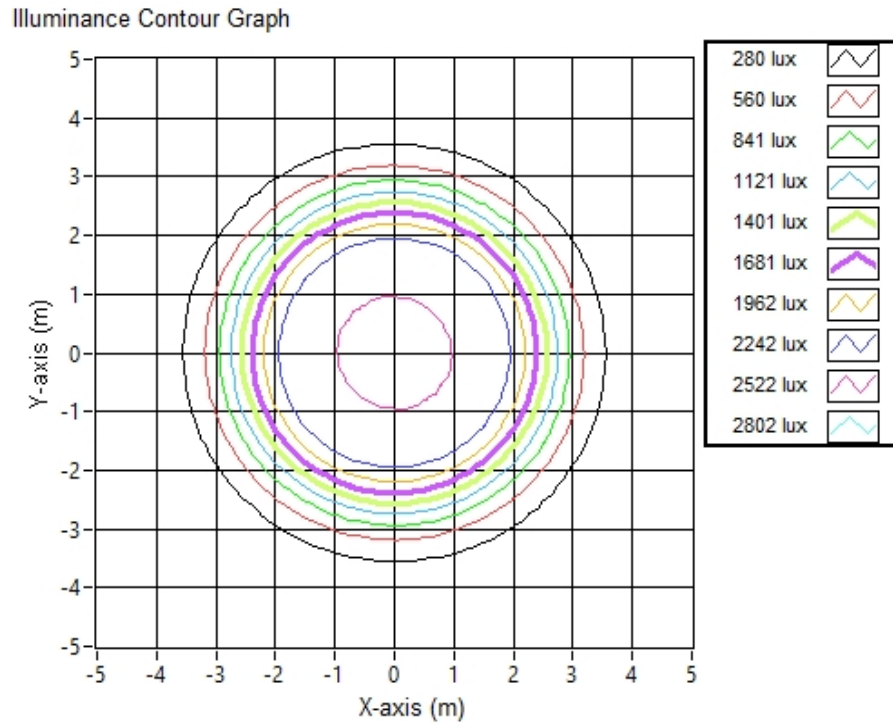
### Polar Plot:



## 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	6.80	6.80	2714.8
6.096	13.59	13.59	678.7
9.144	20.39	20.39	301.6
12.192	27.18	27.18	169.7
15.24	33.98	33.98	108.6
18.288	40.77	40.77	75.4
21.336	47.57	47.57	55.4
24.384	54.37	54.37	42.4
27.432	61.16	61.16	33.5
30.48	67.96	67.96	27.1



## Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L20035.

Dialight unit model number H7x-4MND-Rxxx-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:

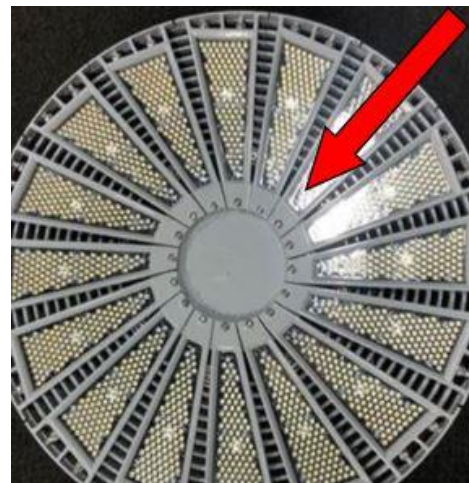
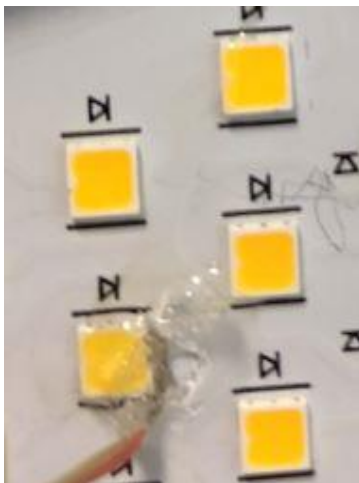
Maximum Power at Indicated Current:	0.312	(W)
Maximum Source Temperature:	119.7	(°C)

### 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
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
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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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