

Test Report

Report Number: L20073

Date: Nov 2, 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-7NC2-Rxxx-xxN 120

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: October 12, 2020 through October 21, 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

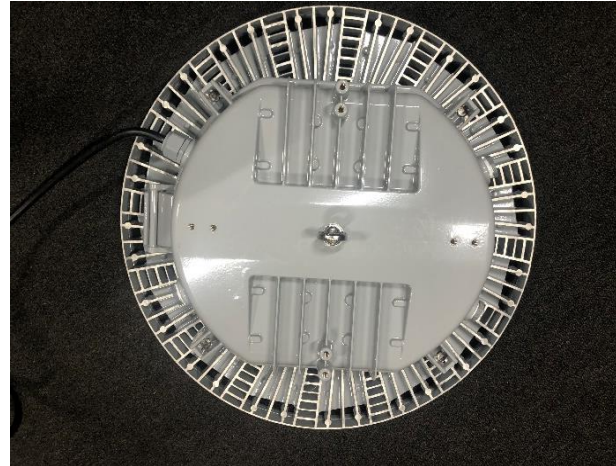
Description of sample:

Sample Number: L20073
Manufacturer: Dialight Corporation
Product Name: Vigilant High Output High Bay
Description: Vigilant High Output High Bay
Model Number: H7x-7NC2-Rxxx-xxN 120

Report Summary

Sample number L20073
Dialight unit model number H7x-7NC2-Rxxx-xxN 120

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	69145 (lumens)	70583 (lumens)
Electrical Power:	511.5 (W)	501.3 (W)
Luminous Efficacy:	135.2 (lumens/W)	140.8 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 511.5 (W)
Power Factor (120VAC): 0.996
Current ATHD % (120VAC): 4.783
Input Power (277VAC): 482.9 (W)
Power Factor (277VAC): 0.977
Current ATHD % (277VAC): 9.508

Color Measurements:

Correlated Color Temperature (CCT): 5183
Color Rendering Index (CRI): 84.98
Chromaticity Coordinate (x): 0.341
Chromaticity Coordinate (y): 0.356
Chromaticity Coordinate (u'): 0.207
Chromaticity Coordinate (v'): 0.324
DUV: 0.0040

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 L20073.

Dialight unit model number H7x-7NC2-Rxxx-xxN 120

Test Conditions:

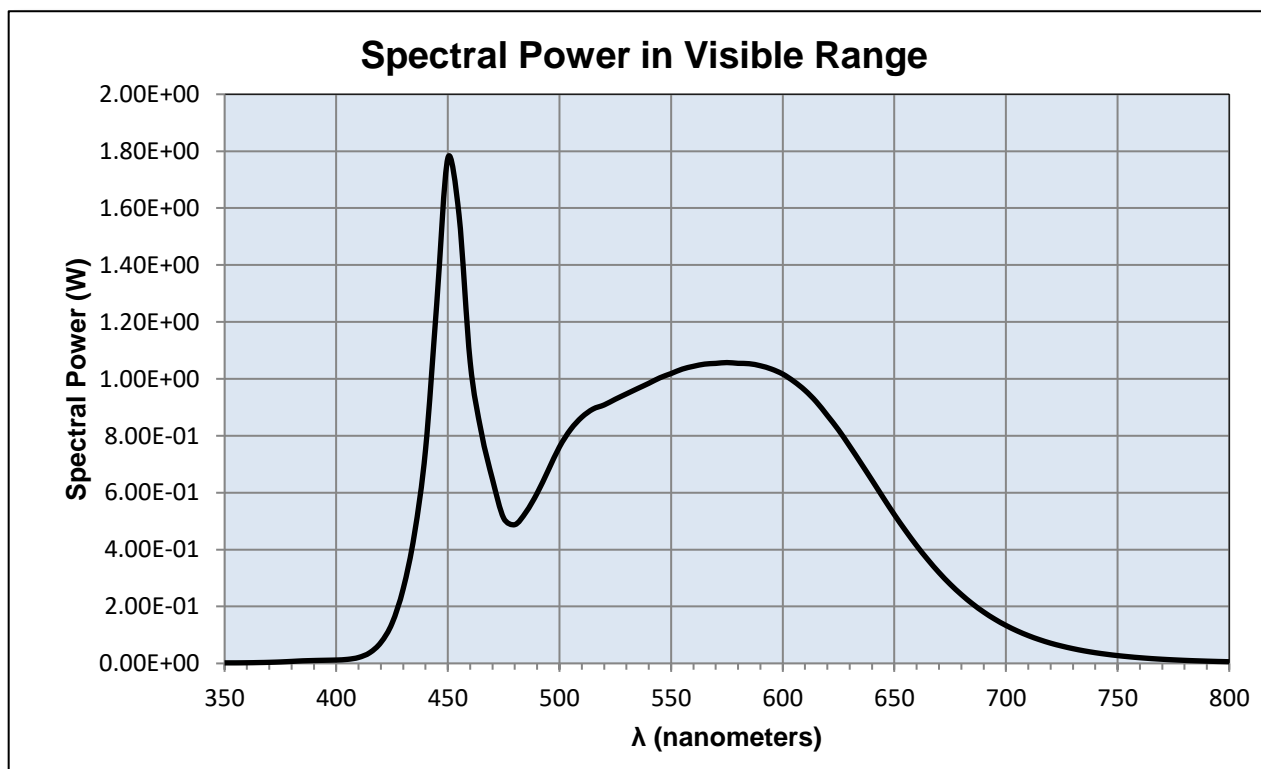
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 277 (VAC)
Input Current: 4.274 (A)
Input Power: 511.5 (W)
Input Power Factor: 0.996
Current ATHD: 4.783 (%)

Photometric measurements:

Luminous Flux: 69145 (lumens)
Luminous Efficacy: 135.2 (lumens/W)
Correlated Color Temperature (CCT): 5183 (K)
CRI -Ra: 84.98
CRI -R9: 15.8
DUV: 0.0040
CIE Coordinate (x): 0.341
CIE Coordinate (y): 0.356
CIE Coordinate (u'): 0.207
CIE Coordinate (v'): 0.324



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	0.00198	490	0.59815	630	0.76333	770	0.01461
355	0.00201	495	0.67923	635	0.70403	775	0.01259
360	0.00233	500	0.76095	640	0.64367	780	0.01083
365	0.00298	505	0.82232	645	0.58262	785	0.00929
370	0.00388	510	0.86539	650	0.52280	790	0.00802
375	0.00521	515	0.89386	655	0.46679	795	0.00690
380	0.00709	520	0.90837	660	0.41356	800	0.00596
385	0.00908	525	0.92839	665	0.36461		
390	0.01023	530	0.94725	670	0.31937		
395	0.01112	535	0.96599	675	0.27844		
400	0.01195	540	0.98430	680	0.24209		
405	0.01424	545	1.00383	685	0.20934		
410	0.02095	550	1.01864	690	0.18058		
415	0.03762	555	1.03428	695	0.15546		
420	0.07354	560	1.04409	700	0.13345		
425	0.14082	565	1.05177	705	0.11436		
430	0.26231	570	1.05436	710	0.09778		
435	0.45312	575	1.05726	715	0.08353		
440	0.75088	580	1.05451	720	0.07118		
445	1.26084	585	1.05325	725	0.06094		
450	1.77576	590	1.04601	730	0.05190		
455	1.57621	595	1.03426	735	0.04420		
460	1.05943	600	1.01680	740	0.03772		
465	0.81240	605	0.99112	745	0.03222		
470	0.64664	610	0.95954	750	0.02750		
475	0.51051	615	0.91978	755	0.02351		
480	0.48767	620	0.87112	760	0.02007		
485	0.53165	625	0.82041	765	0.01711		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L20073.
Dialight unit model number H7x-7NC2-Rxxx-xxN 120

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 4.196 (A)
Input Power: 501.3 (W)
Power Factor: 0.996

Photometric measurements:

Absolute Luminous Flux: 70583 (lumens)
Luminous Efficacy: 140.8 (lumens/W)

Intensity Summary:

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	23	45	67.5	ACROSS	OUTPUT LUMENS
0	86399	86399	86399	86399	86399	
5	81641	81641	81641	81641	81641	3099
15	57641	57641	57641	57641	57641	13909
25	38501	38501	38501	38501	38501	17683
35	24798	24798	24798	24798	24798	16689
45	13894	13894	13894	13894	13894	12918
55	2370	2370	2370	2370	2370	5170
65	802	802	802	802	802	888
75	92	92	92	92	92	166
85	30	30	30	30	30	60
95	0	0	0	0	0	2
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	0	0	0	0	0	0
180	0	0	0	0	0	0

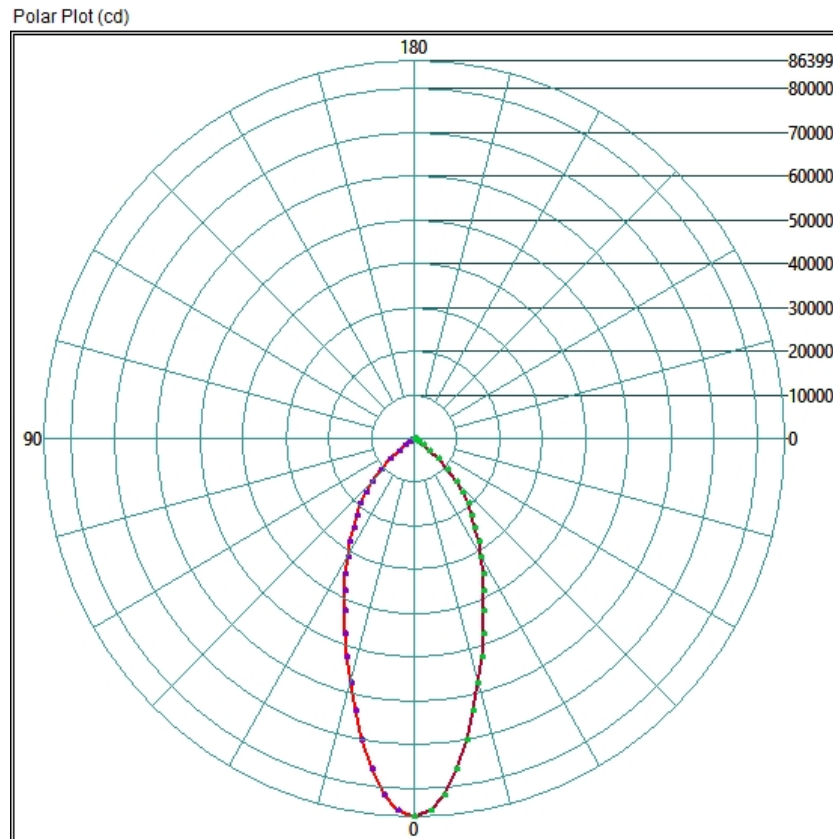
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	43372.48	61.4%
0-40	58487.2	82.9%
0-60	69953.28	99.1%
60-90	834.88	1.2%
0-90	70583.36	100.0%
90-180	0	0.0%
0-180	70583.36	100.0%

Test Results: Goniometer

Results continued from previous page.

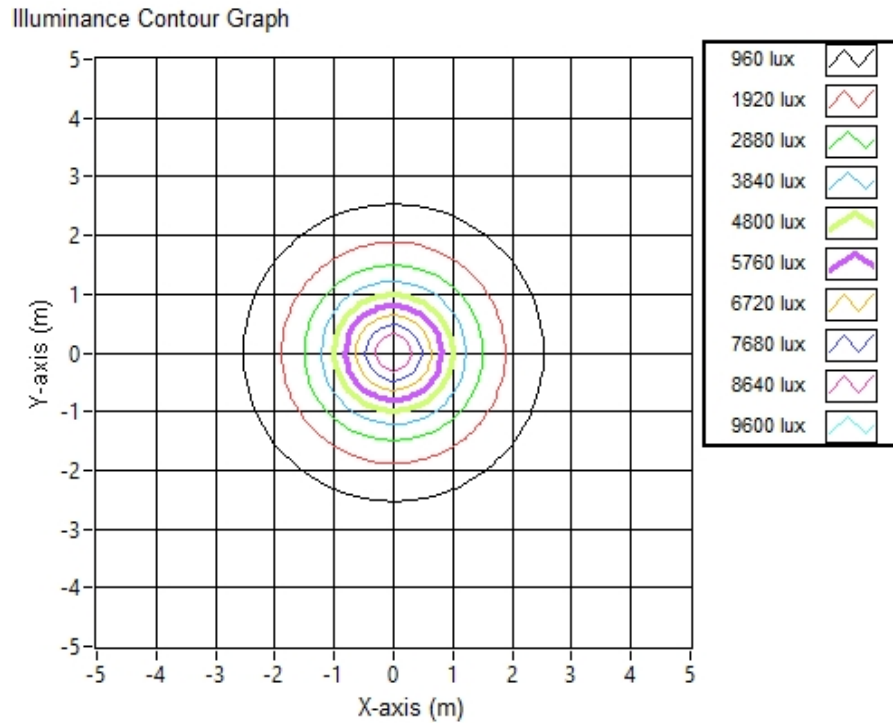
Polar Plot:



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	2.49	2.49	9300.0
6.096	4.98	4.98	2325.0
9.144	7.46	7.46	1033.3
12.192	9.95	9.95	581.2
15.24	12.44	12.44	372.0
18.288	14.93	14.93	258.3
21.336	17.42	17.42	189.8
24.384	19.90	19.90	145.3
27.432	22.39	22.39	114.8
30.48	24.88	24.88	93.0

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L20073.

Dialight unit model number H7x-7NC2-Rxxx-xxN 120

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:

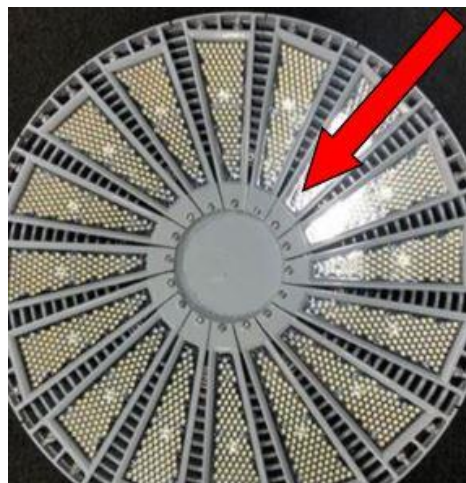
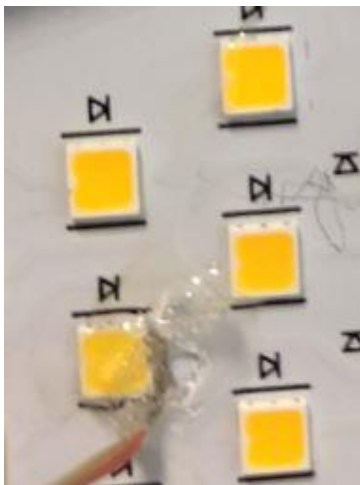
Maximum Power at Indicated Current:	0.27	(W)
Maximum Source Temperature:	120.4	(°C)

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
Fluke 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
Fluke 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.

This report shall not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

This report shall not be reproduced, except in full, without the express written permission of Dialight Optics Laboratory.

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