

Test Report

Report Number: L21001

Date: Dec 15, 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-2NC[B,D]-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: December 10, 2020 through December 14, 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

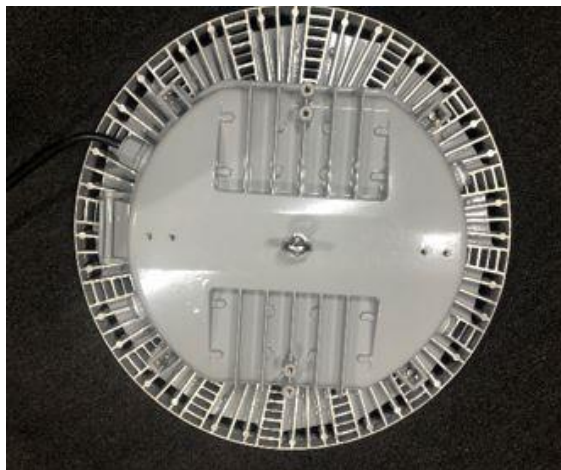
Description of sample:

Sample Number: L21001
Manufacturer: Dialight Corporation
Product Name: Acrylic, Narrow, 347-480V,
Description: Vigilant High Output High Bay
Model Number: H7x-2NC[B,D]-Rxxx-xxN

Report Summary

Sample number L21001
Dialight unit model number H7x-2NC[B,D]-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:	68078 (lumens)	69552 (lumens)
Electrical Power:	495.6 (W)	494.8 (W)
Luminous Efficacy:	137.4 (lumens/W)	140.6 (lumens/W)

Electrical Measurements:

Input Power (480VAC): 495.6 (W)
Power Factor (480VAC): 0.983714
Current ATHD % (480VAC): 9.78484
Input Power (347VAC): 498.0 (W)
Power Factor (347VAC): 0.9948
Current ATHD % (347VAC): 6.079

Color Measurements:

Correlated Color Temperature (CCT): 5160
Color Rendering Index (CRI): 85.1551
Chromaticity Coordinate (x): 0.341
Chromaticity Coordinate (y): 0.356
Chromaticity Coordinate (u'): 0.207
Chromaticity Coordinate (v'): 0.324
DUV: 0.0036

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 L21001.

Dialight unit model number H7x-2NC[B,D]-Rxxx-xxN

Test Conditions:

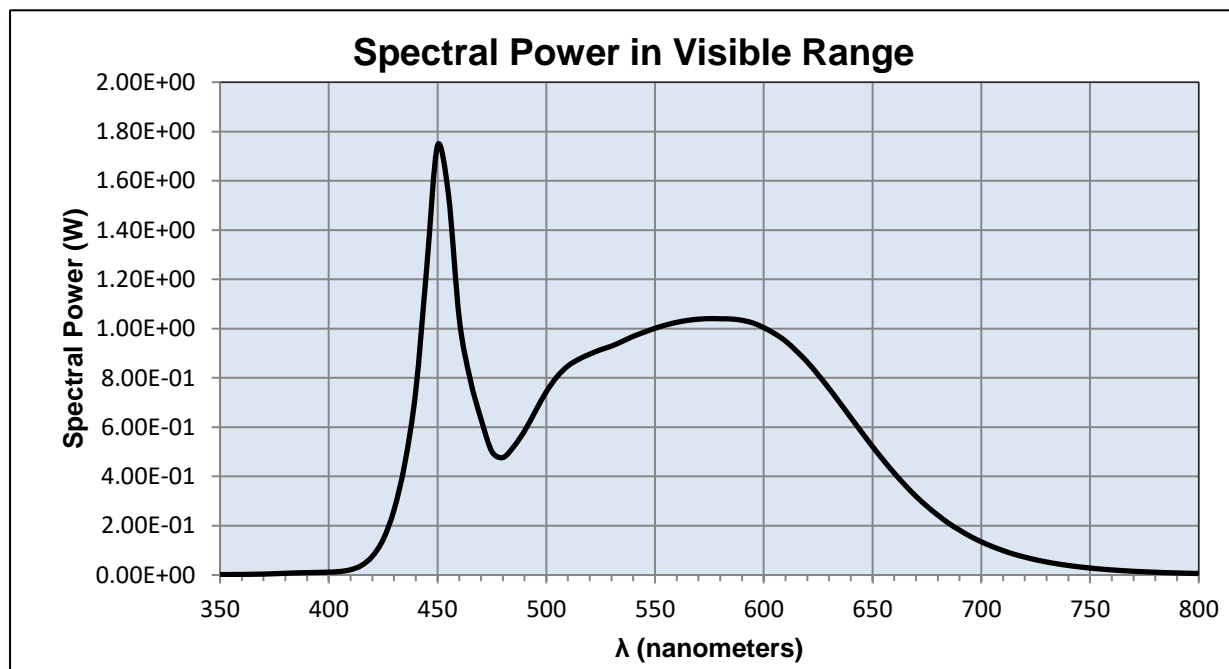
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 480 (VAC)
Input Current: 1.05111 (A)
Input Power: 495.6 (W)
Input Power Factor: 0.983714
Current ATHD: 9.78484 (%)

Photometric measurements:

Luminous Flux: 68078.33 (lumens)
Luminous Efficacy: 137.4 (lumens/W)
Correlated Color Temperature (CCT): 5160 (K)
CRI -Ra: 85.1551
CRI -R9: 16.9387
DUV: 0.0036
CIE Coordinate (x): 0.341
CIE Coordinate (y): 0.356
CIE Coordinate (u'): 0.207
CIE Coordinate (v'): 0.324
TM30_Rf: 84.1
TM30_Rg: 95.7
TM30_Rcs_hue1: -11.09 %



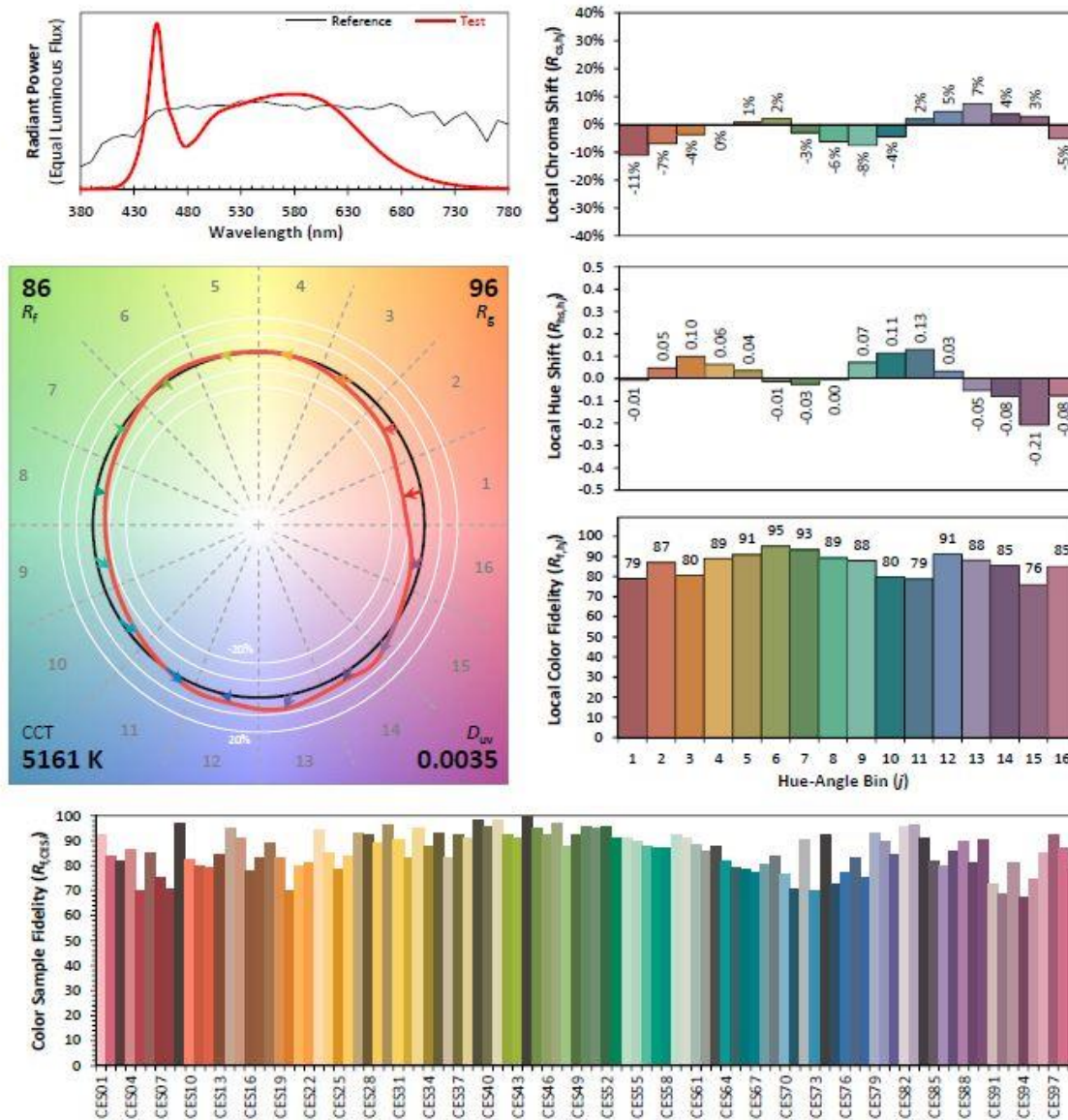
Test Results: Integrating Sphere

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	0.00184	490	0.58456	630	0.75718	770	0.01527
355	0.00204	495	0.66483	635	0.69881	775	0.01312
360	0.00239	500	0.74369	640	0.63902	780	0.01136
365	0.00305	505	0.80545	645	0.57987	785	0.00973
370	0.00389	510	0.84881	650	0.52159	790	0.00838
375	0.00532	515	0.87599	655	0.46604	795	0.00718
380	0.00706	520	0.89650	660	0.41348	800	0.00625
385	0.00864	525	0.91445	665	0.36458		
390	0.00975	530	0.92910	670	0.31938		
395	0.01071	535	0.94849	675	0.27919		
400	0.01167	540	0.96879	680	0.24323		
405	0.01423	545	0.98538	685	0.21014		
410	0.02146	550	1.00135	690	0.18217		
415	0.03874	555	1.01478	695	0.15663		
420	0.07576	560	1.02544	700	0.13488		
425	0.14404	565	1.03345	705	0.11590		
430	0.26418	570	1.03831	710	0.09923		
435	0.45454	575	1.04047	715	0.08458		
440	0.74770	580	1.03996	720	0.07271		
445	1.24317	585	1.03902	725	0.06205		
450	1.74264	590	1.03368	730	0.05296		
455	1.54593	595	1.02278	735	0.04529		
460	1.03929	600	1.00398	740	0.03868		
465	0.79528	605	0.97965	745	0.03310		
470	0.63307	610	0.94952	750	0.02833		
475	0.50091	615	0.90898	755	0.02422		
480	0.47672	620	0.86462	760	0.02078		
485	0.52077	625	0.81277	765	0.01776		

IES TM-30-18 Color Rendition Report



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.3412
 y 0.3555
 u' 0.2073
 v' 0.4860

CIE 13.3-1995
(CRI)
 R_a 85
 R_g 17

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L21001.
Dialight unit model number H7x-2NC[B,D]-Rxxx-xxN

Electrical Measurements:

Input Voltage: 480 (VAC)
Input current: 1.041 (A)
Input Power: 494.8 (W)
Power Factor: 0.9829

Photometric measurements:

Absolute Luminous Flux: 69552 (lumens)
Luminous Efficacy: 140.6 (lumens/W)

Intensity Summary:

Candlepower Summary

H/V	0.00	Lumens
0.00	83527	
5.00	79176	8057
15.00	55751	15804
25.00	37486	17351
35.00	24307	15269
45.00	13574	10513
55.00	2395	2149
65.00	875	869
75.00	112	119
85.00	30	17
90.00	1	

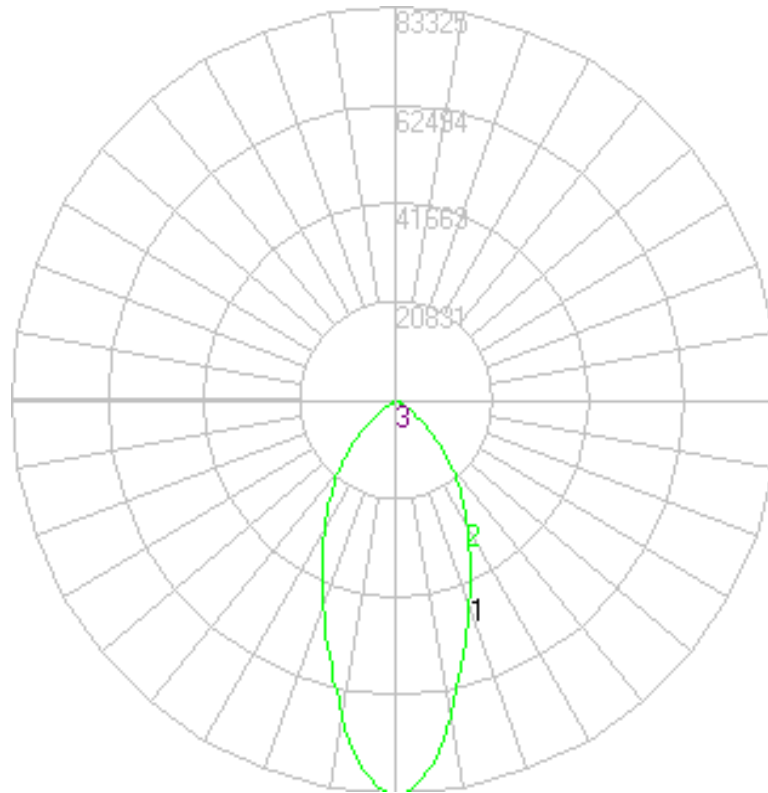
Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0 to 30	40215.52	57.82	57.82
0 to 40	55592.45	79.93	79.93
0 to 60	68709.26	98.79	98.79
0 to 90	69552.65	100.00	100.00
90 to 180	0.00	0.00	0.00
0 to 180	69552.65	100.00	100.00

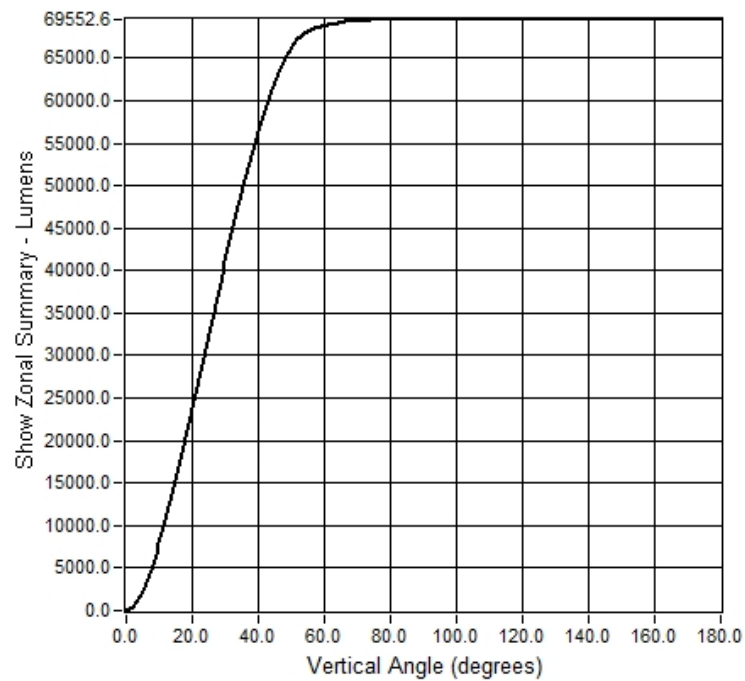
Test Results: Goniometer

Results continued from previous page.

Polar Plot:



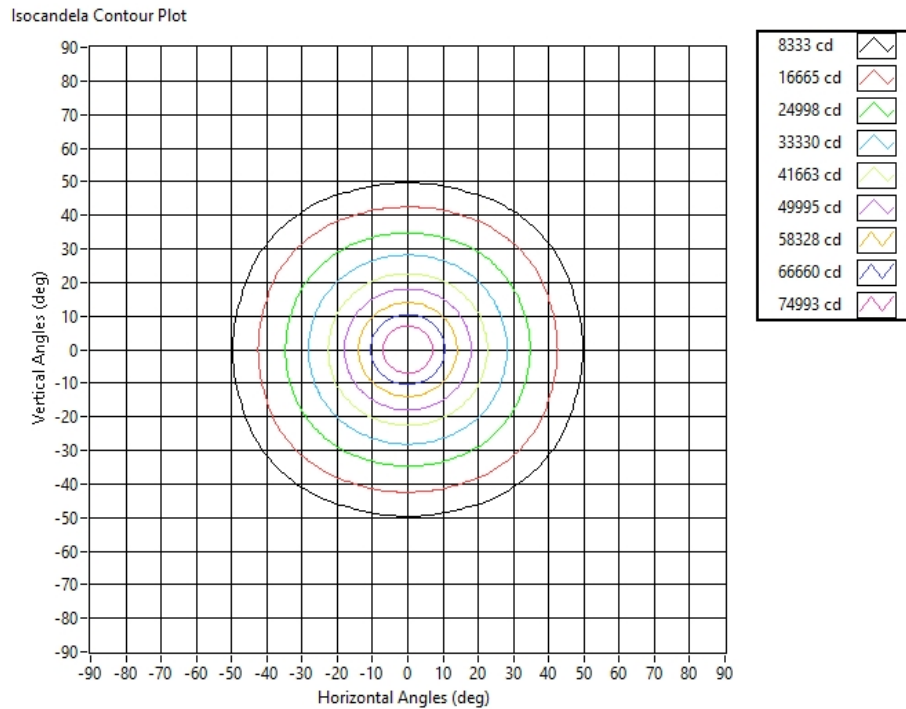
Zonal Flux Graph



Test Results: Goniometer

Results continued from previous page.

Illuminance Plot:



Illuminance-Cone of Light:

Mounting Height (ft)	Beam Cone Width (ft)	Orthogonal Beam Cone Width (ft)	Projected Illuminance (fc)
2	1.65	1.65	20831.3
4	3.30	3.30	5207.8
6	4.95	4.95	2314.6
8	6.60	6.60	1302.0
10	8.25	8.25	833.3
12	9.91	9.91	578.6
14	11.56	11.56	425.1
16	13.21	13.21	325.5
18	14.86	14.86	257.2
20	16.51	16.51	208.3

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L21001.

Dialight unit model number H7x-2NC[B,D]-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:

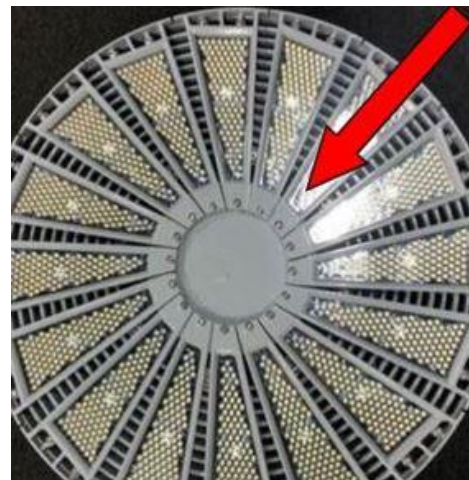
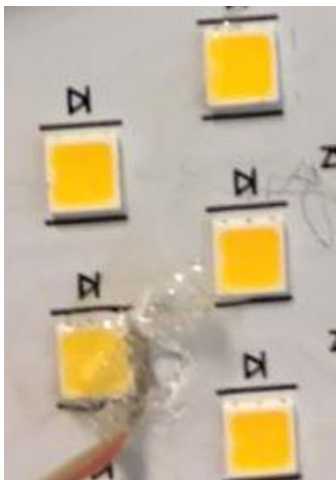
Maximum Power at Indicated Current:	0.27	(W)
Maximum Source Temperature:	120.41	(°C)

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 Humidity 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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Optical Engineer
Approved Signatory