

Test Report

Report Number: L18073

Date: Aug 30, 2018

Issued by:

Dialight Optics Laboratory
1501 Route 34 South, Farmingdale, NJ 07727

Test of one High Output High Bay
Unit manufacturer: Dialight Corporation
Unit model number: H6U-7NCR-Nxxx-xxx

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 29, 2018 through August 30, 2018

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: L18073
Manufacturer: Dialight Corporation
Product Name: H6U-7NCR-Nxxx-xxx
Description: High Output High Bay
Model Number: H6U-7NCR-Nxxx-xxx

Report Summary

Sample number L18073
Dialight unit model number H6U-7NCR-Nxxx-xxx

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	58230 (lumens)	59643 (lumens)
Electrical Power:	464.2 (W)	464.2 (W)
Luminous Efficacy:	125.4 (lumens/W)	128.5 (lumens/W)

Electrical Measurements:

Input Power (120): 464.2 (W)
Power Factor (120): 0.996
Current ATHD % (120): 5.169
Input Power (277): 445.7 (W)
Power Factor (277): 0.968
Current ATHD % (277): 8.444

Color Measurements:

Correlated Color Temperature (CCT): 4772
Color Rendering Index (CRI): 82.2
Chromaticity Coordinate (x): 0.353
Chromaticity Coordinate (y): 0.366
Chromaticity Coordinate (u'): 0.211
Chromaticity Coordinate (v'): 0.329
DUV: 0.0042

Temperature Measurements:

In Situ LED Source Temperature: 54.6 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L18073.

Dialight unit model number H6U-7NCR-Nxxx-xxx

Test Conditions:

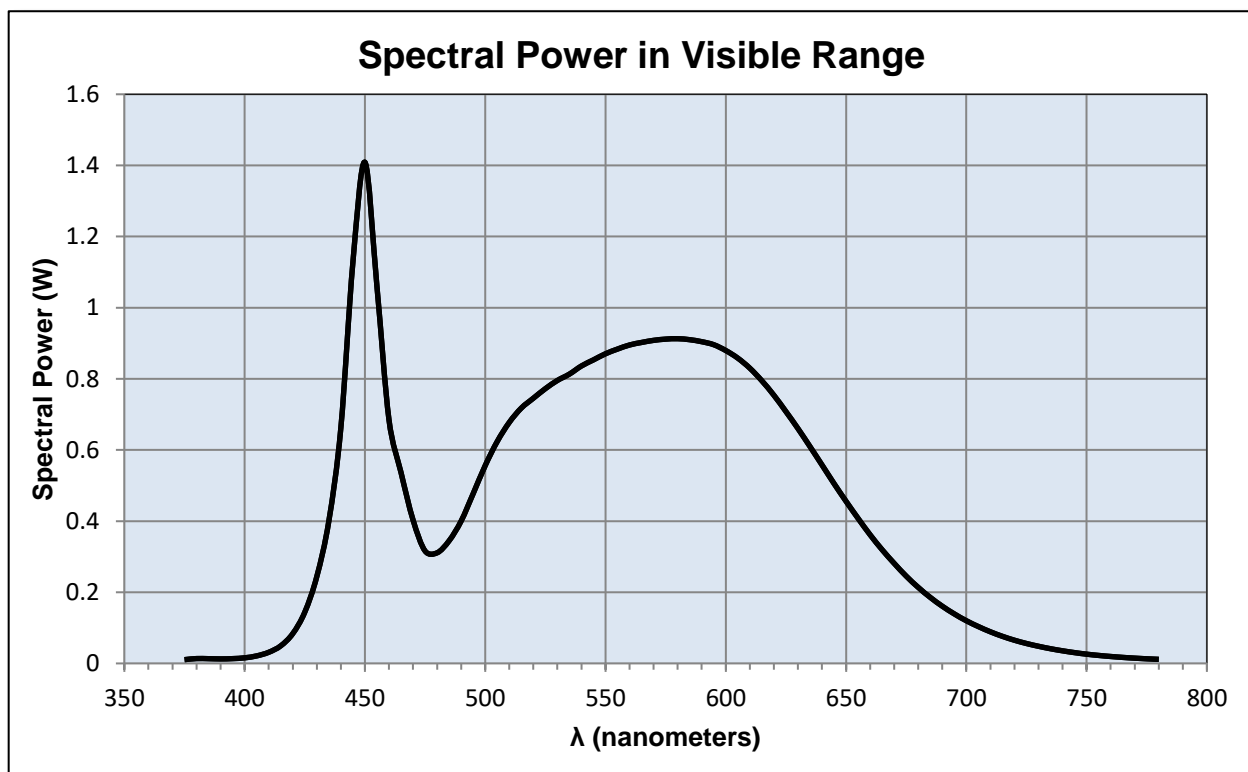
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
Input Current: 3.902 (A)
Input Power: 464.2 (W)
Input Power Factor: 0.996
Current ATHD: 5.169 (%)

Photometric measurements:

Luminous Flux: 58230 (lumens)
Luminous Efficacy: 125.4 (lumens/W)
Correlated Color Temperature (CCT): 4772 (K)
CRI -Ra: 82.2
CRI -R9: 9
DUV: 0.0042
CIE Coordinate (x): 0.353
CIE Coordinate (y): 0.366
CIE Coordinate (u'): 0.211
CIE Coordinate (v'): 0.329



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	0.011	515	0.718	655	0.408
380	0.014	520	0.745	660	0.362
385	0.013	525	0.772	665	0.320
390	0.013	530	0.795	670	0.281
395	0.013	535	0.813	675	0.245
400	0.016	540	0.836	680	0.214
405	0.021	545	0.853	685	0.186
410	0.031	550	0.871	690	0.161
415	0.049	555	0.884	695	0.139
420	0.084	560	0.895	700	0.120
425	0.144	565	0.902	705	0.104
430	0.244	570	0.908	710	0.089
435	0.400	575	0.912	715	0.076
440	0.663	580	0.913	720	0.065
445	1.127	585	0.910	725	0.056
450	1.409	590	0.904	730	0.048
455	1.060	595	0.896	735	0.041
460	0.685	600	0.880	740	0.035
465	0.537	605	0.858	745	0.030
470	0.403	610	0.830	750	0.026
475	0.316	615	0.795	755	0.022
480	0.311	620	0.754	760	0.020
485	0.345	625	0.708	765	0.017
490	0.400	630	0.660	770	0.015
495	0.477	635	0.610	775	0.013
500	0.556	640	0.558	780	0.011
505	0.624	645	0.506		
510	0.677	650	0.456		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L18073.
Dialight unit model number H6U-7NCR-Nxxx-xxx

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 3.902 (A)
Input Power: 464.2 (W)
Power Factor: 0.996

Photometric measurements:

Absolute Luminous Flux: 59643 (lumens)
Luminous Efficacy: 128.5 (lumens/W)

Intensity Summary:

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	23	45	67.5	ACROSS	OUTPUT LUMENS
0	81298	81298	81298	81298	81298	
5	76006	76006	76006	76006	76006	2894
15	50219	50219	50219	50219	50219	12428
25	31390	31390	31390	31390	31390	14731
35	20832	20832	20832	20832	20832	13694
45	10993	10993	10993	10993	10993	10698
55	1969	1969	1969	1969	1969	3957
65	870	870	870	870	870	1013
75	84	84	84	84	84	168
85	31	31	31	31	31	56
95	0	0	0	0	0	4
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

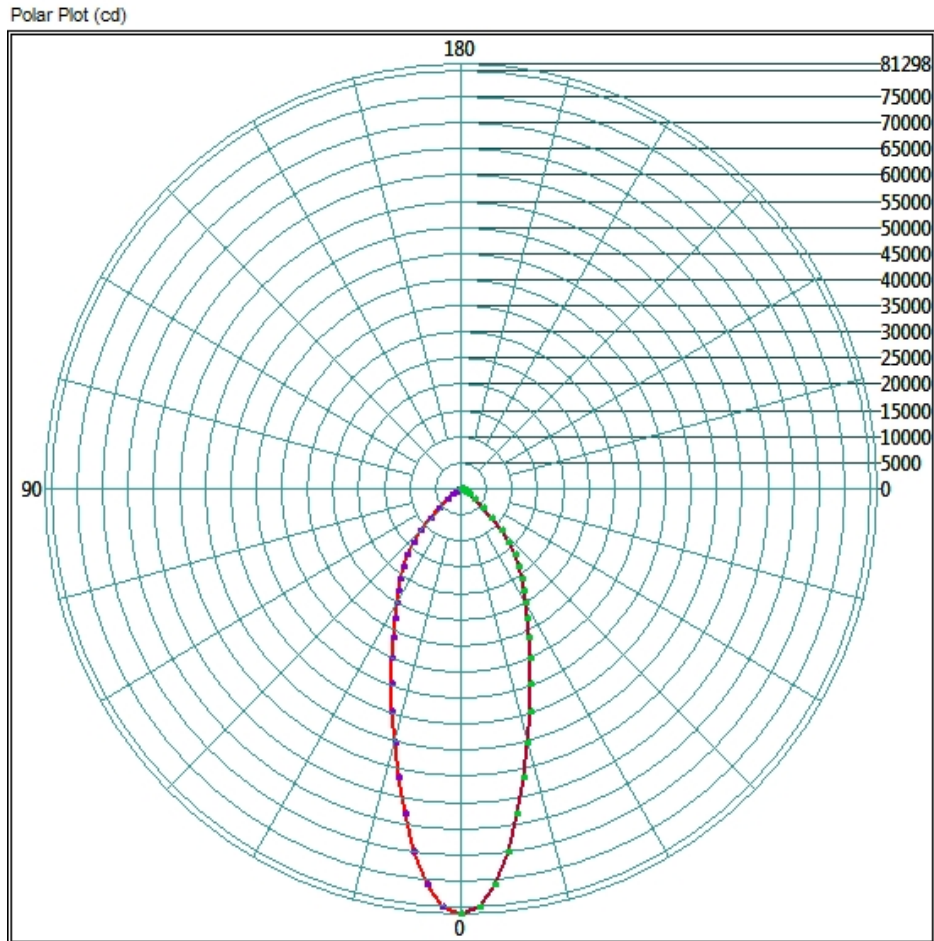
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	37087.2	62.2%
0-40	49756.64	83.4%
0-60	58951.52	98.8%
60-90	941.6	1.6%
0-90	59642.88	100.0%
90-180	0	0.0%
0-180	59642.88	100.0%

Test Results: Goniometer

Results continued from previous page.

Polar Plot:

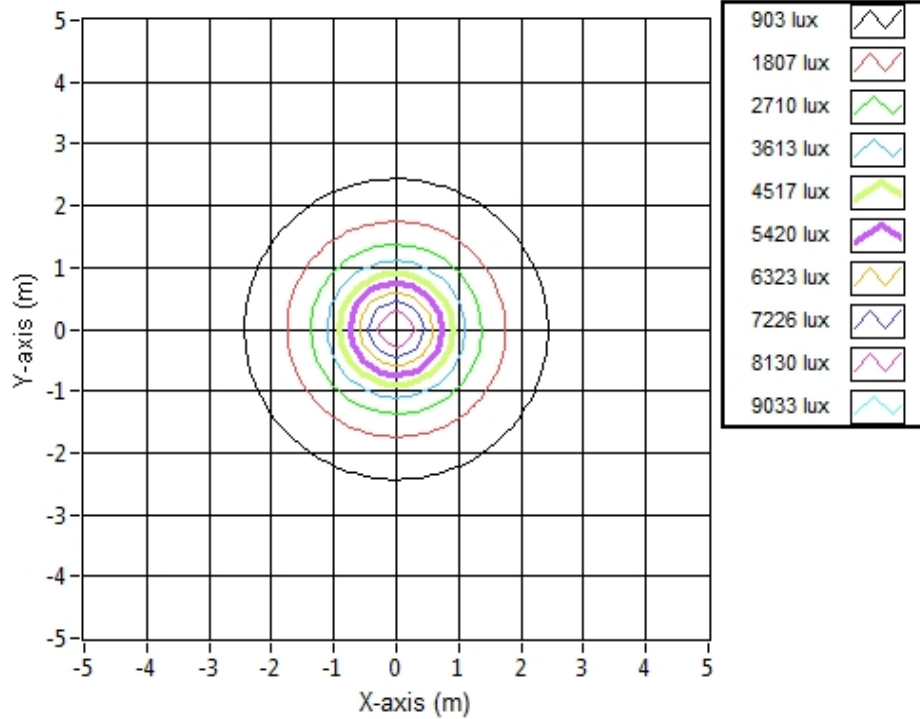


Test Results: Goniometer

Results continued from previous page.

Illuminance Plot:

Illuminance Contour Graph



Illuminance-Cone of Light:

Mounting Height (m)	Beam Cone Width (m)	Orthogonal Beam Cone Width (m)	Projected Illuminance (lux)
3.048	2.16	2.16	8750.8
6.096	4.32	4.32	2187.7
9.144	6.48	6.48	972.3
12.192	8.64	8.64	546.9
15.24	10.80	10.80	350.0
18.288	12.96	12.96	243.1
21.336	15.12	15.12	178.6
24.384	17.28	17.28	136.7
27.432	19.44	19.44	108.0
30.48	21.59	21.59	87.5

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L18073.
Dialight unit model number H6U-7NCR-Nxxx-xxx

LED identified as Seoul part number SAW8C22B.

LED drive current (as indicated by customer): 51 (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:

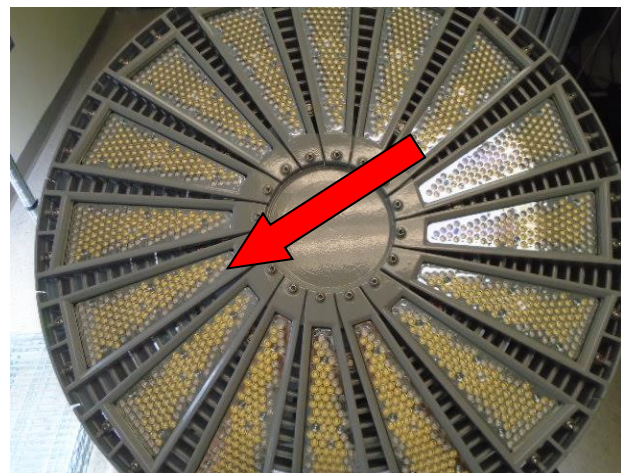
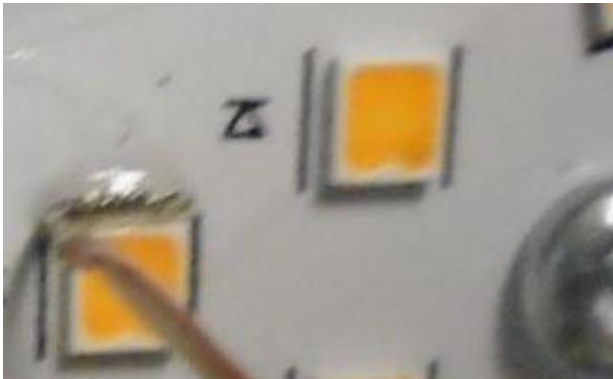
Maximum Power at Indicated Current: 0.306 (W)
Maximum Source Temperature: 119.8 (°C)

Test Conditions:

Temperature Measurement Location: See Photographs Below
Ambient Temperature: $25^{\circ} \pm 5^{\circ}$ (°C)
Ambient temperature at time of measurement: 25.8 (°C)
Relative humidity at time of measurement: 49%

Results:

Measured LED source temperature: 54.6 (°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
ITL Osram Calibraton lamps for Goniometer	J9a8
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. 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.

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Optical Engineer
Approved Signatory