

# Test Report

Report Number: L18075

Date: Sep 14, 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-7NCK-xxxx-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:** September 12, 2018 through September 13, 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: L18075  
Manufacturer: Dialight Corporation  
Product Name: H6U-7NCK-xxxx-xxx  
Description: High Output High Bay  
Model Number: H6U-7NCK-xxxx-xxx

## Report Summary

Sample number L18075  
Dialight unit model number H6U-7NCK-xxxx-xxx

### Photograph(s) of sample:



\*Photographs not to scale. For reference only.

### Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	43930 (lumens)	44839 (lumens)
Electrical Power:	339.5 (W)	339.5 (W)
Luminous Efficacy:	129.4 (lumens/W)	132.1 (lumens/W)

### Electrical Measurements:

Input Power (120): 339.5 (W)  
Power Factor (120): 0.996  
Current ATHD % (120): 4.311  
Input Power (277): 328.3 (W)  
Power Factor (277): 0.953  
Current ATHD % (277): 7.782

### Color Measurements:

Correlated Color Temperature (CCT): 5110  
Color Rendering Index (CRI): 85.9  
Chromaticity Coordinate (x): 0.342  
Chromaticity Coordinate (y): 0.353  
Chromaticity Coordinate (u'): 0.209  
Chromaticity Coordinate (v'): 0.323  
DUV: 0.0016

### Temperature Measurements:

In Situ LED Source Temperature: 50.2 (°C)

## Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L18075.

Dialight unit model number H6U-7NCK-xxxx-xxx

### Test Conditions:

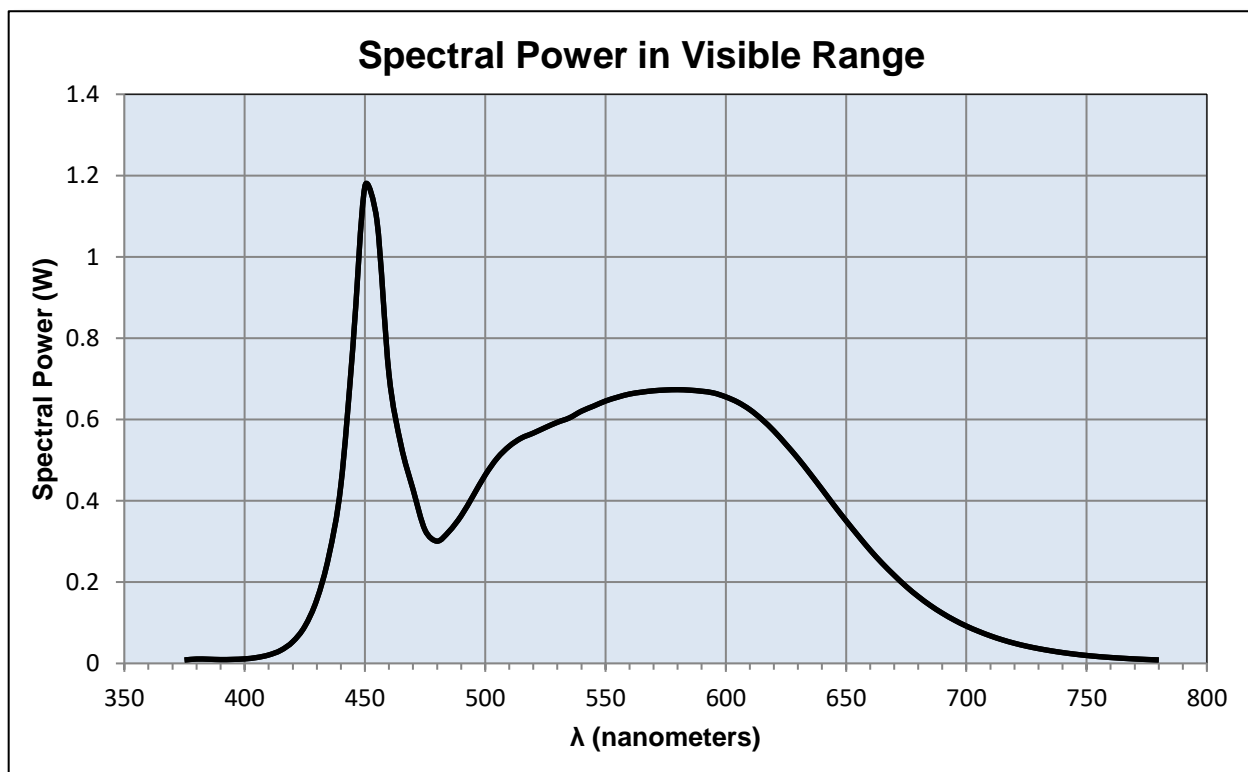
Ambient Temperature:  $25 \pm 1$  (°C)

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input Current: 2.854 (A)  
Input Power: 339.5 (W)  
Input Power Factor: 0.996  
Current ATHD: 4.311 (%)

### Photometric measurements:

Luminous Flux: 43930 (lumens)  
Luminous Efficacy: 129.4 (lumens/W)  
Correlated Color Temperature (CCT): 5110 (K)  
CRI -Ra: 85.9  
CRI -R9: 22.6  
DUV: 0.0016  
CIE Coordinate (x): 0.342  
CIE Coordinate (y): 0.353  
CIE Coordinate (u'): 0.209  
CIE Coordinate (v'): 0.323



## 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	0.008	515	0.554	655	0.314
380	0.011	520	0.567	660	0.279
385	0.010	525	0.580	665	0.247
390	0.009	530	0.593	670	0.217
395	0.010	535	0.604	675	0.189
400	0.011	540	0.621	680	0.165
405	0.014	545	0.633	685	0.143
410	0.021	550	0.645	690	0.124
415	0.032	555	0.655	695	0.107
420	0.053	560	0.663	700	0.092
425	0.091	565	0.667	705	0.079
430	0.157	570	0.671	710	0.068
435	0.264	575	0.673	715	0.058
440	0.438	580	0.673	720	0.050
445	0.779	585	0.672	725	0.042
450	1.174	590	0.670	730	0.036
455	1.089	595	0.665	735	0.031
460	0.711	600	0.656	740	0.027
465	0.538	605	0.643	745	0.023
470	0.428	610	0.624	750	0.020
475	0.328	615	0.600	755	0.017
480	0.301	620	0.572	760	0.015
485	0.325	625	0.539	765	0.013
490	0.363	630	0.505	770	0.011
495	0.413	635	0.467	775	0.010
500	0.463	640	0.428	780	0.009
505	0.505	645	0.389		
510	0.534	650	0.351		

## Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L18075.  
Dialight unit model number H6U-7NCK-xxxx-xxx

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input current: 2.854 (A)  
Input Power: 339.5 (W)  
Power Factor: 0.995

### Photometric measurements:

Absolute Luminous Flux: 44839 (lumens)  
Luminous Efficacy: 132.1 (lumens/W)

### Intensity Summary:

<u>INTENSITY (CANDLEPOWER) SUMMARY</u>						
ANGLE	ALONG	23	45	67.5	ACROSS	OUTPUT LUMENS
0	63647	63647	63647	63647	63647	
5	59008	59008	59008	59008	59008	2252
15	37560	37560	37560	37560	37560	9384
25	23462	23462	23462	23462	23462	11023
35	15492	15492	15492	15492	15492	10184
45	8563	8563	8563	8563	8563	8184
55	1362	1362	1362	1362	1362	2960
65	661	661	661	661	661	705
75	49	49	49	49	49	116
85	14	14	14	14	14	28
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

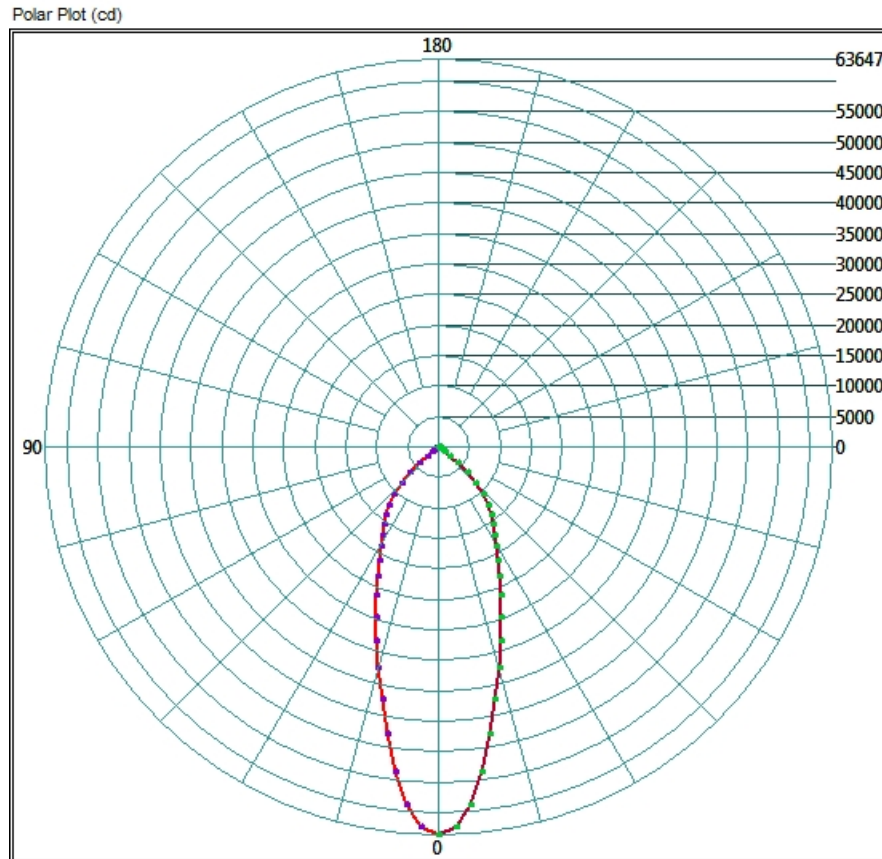
### ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	27897.92	62.2%
0-40	37388.8	83.4%
0-60	44355.2	98.9%
60-90	652.8	1.5%
0-90	44838.72	100.0%
90-180	0	0.0%
0-180	44838.72	100.0%

## Test Results: Goniometer

Results continued from previous page.

### Polar Plot:

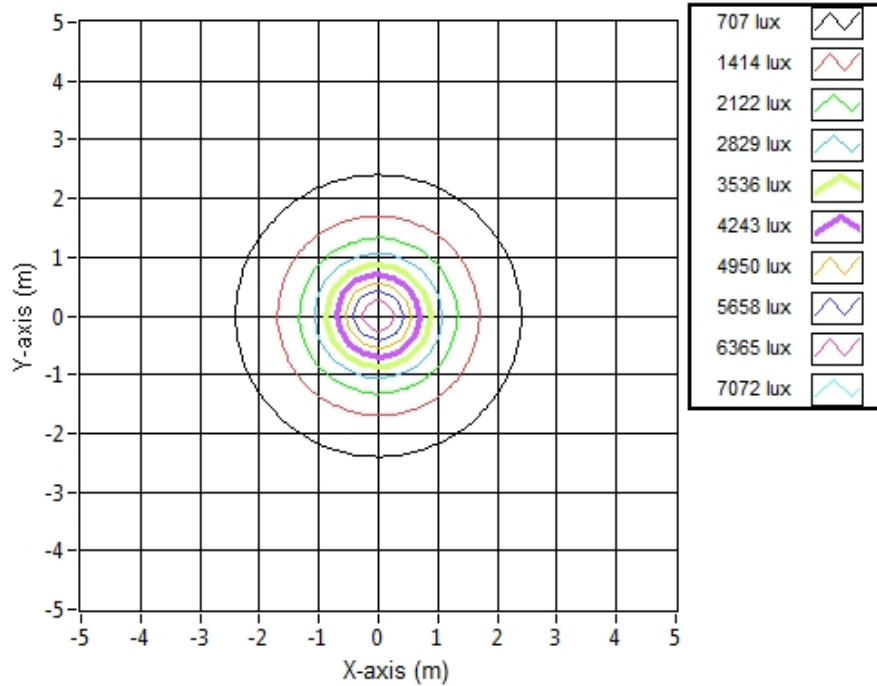


## Test Results: Goniometer

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	2.05	2.05	6850.9
6.096	4.10	4.10	1712.7
9.144	6.14	6.14	761.2
12.192	8.19	8.19	428.2
15.24	10.24	10.24	274.0
18.288	12.29	12.29	190.3
21.336	14.34	14.34	139.8
24.384	16.39	16.39	107.0
27.432	18.43	18.43	84.6
30.48	20.48	20.48	68.5



## Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L18075.  
Dialight unit model number H6U-7NCK-xxxx-xxx

LED identified as Seoul part number SAW8C22B.

LED drive current (as indicated by customer): 53 (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:

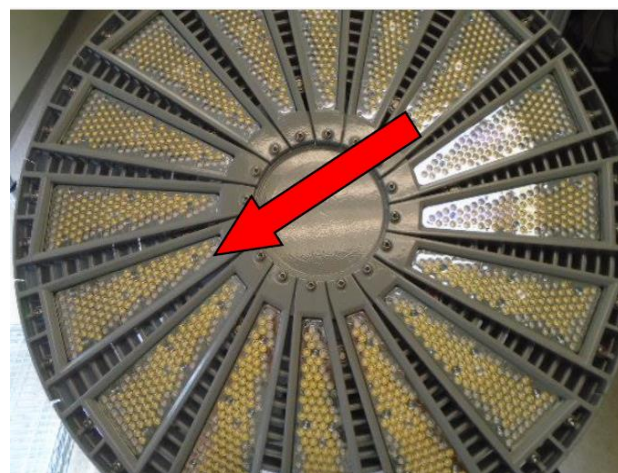
Maximum Power at Indicated Current: 0.318 (W)  
Maximum Source Temperature: 119.6 (°C)

### Test Conditions:

Temperature Measurement Location: See Photographs Below  
Ambient Temperature:  $25^{\circ} \pm 5^{\circ}$  (°C)  
Ambient temperature at time of measurement: 24.3 (°C)  
Relative humidity at time of measurement: 59%

### Results:

**Measured LED source temperature: 50.2 (°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.

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