Test Report

Report Number: L18090 Date: Nov 2, 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: H6x-7NCD-Kxxx-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: October 22, 2018 through November 1, 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

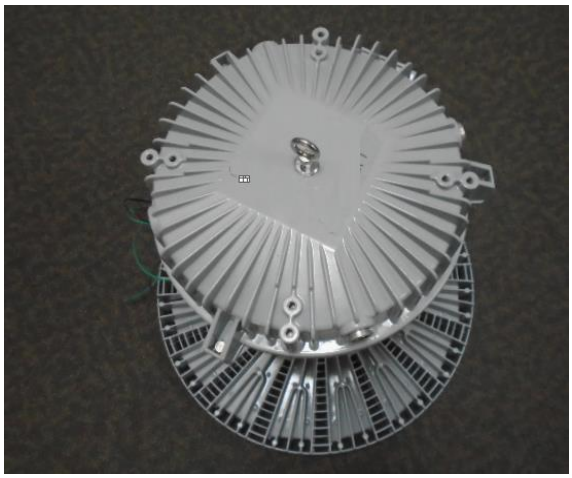
Description of sample:

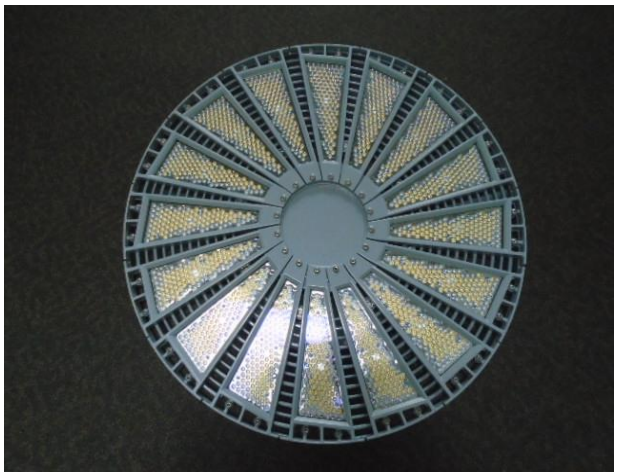
Sample Number:	L18090
Manufacturer:	Dialight Corporation
Product Name:	H6x-7NCD-Kxxx-xxx
Description:	High Output High Bay
Model Number:	H6x-7NCD-Kxxx-xxx

Report Summary

Sample number L18090
Dialight unit model number H6x-7NCD-Kxxx-xxx

Photograph(s) of sample:





*Photographs not to scale. For reference only.

Summary of Results:

	Integrating Sphere	Goniophotometer
Luminous Flux:	43899 (lumens)	43922 (lumens)
Electrical Power:	314.7 (W)	314.7 (W)
Luminous Efficacy:	139.5 (lumens/W)	139.6 (lumens/W)

Electrical Measurements:

Input Power (480VAC):	314.7	(W)
Power Factor (480VAC):	0.968	
Current ATHD % (480VAC):	7.323	

Color Measurements:

Correlated Color Temperature (CCT):	5112
Color Rendering Index (CRI):	85.8
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:	50.8	(°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L18090.
Dialight unit model number H6x-7NCD-Kxxx-xxx

Test Conditions:

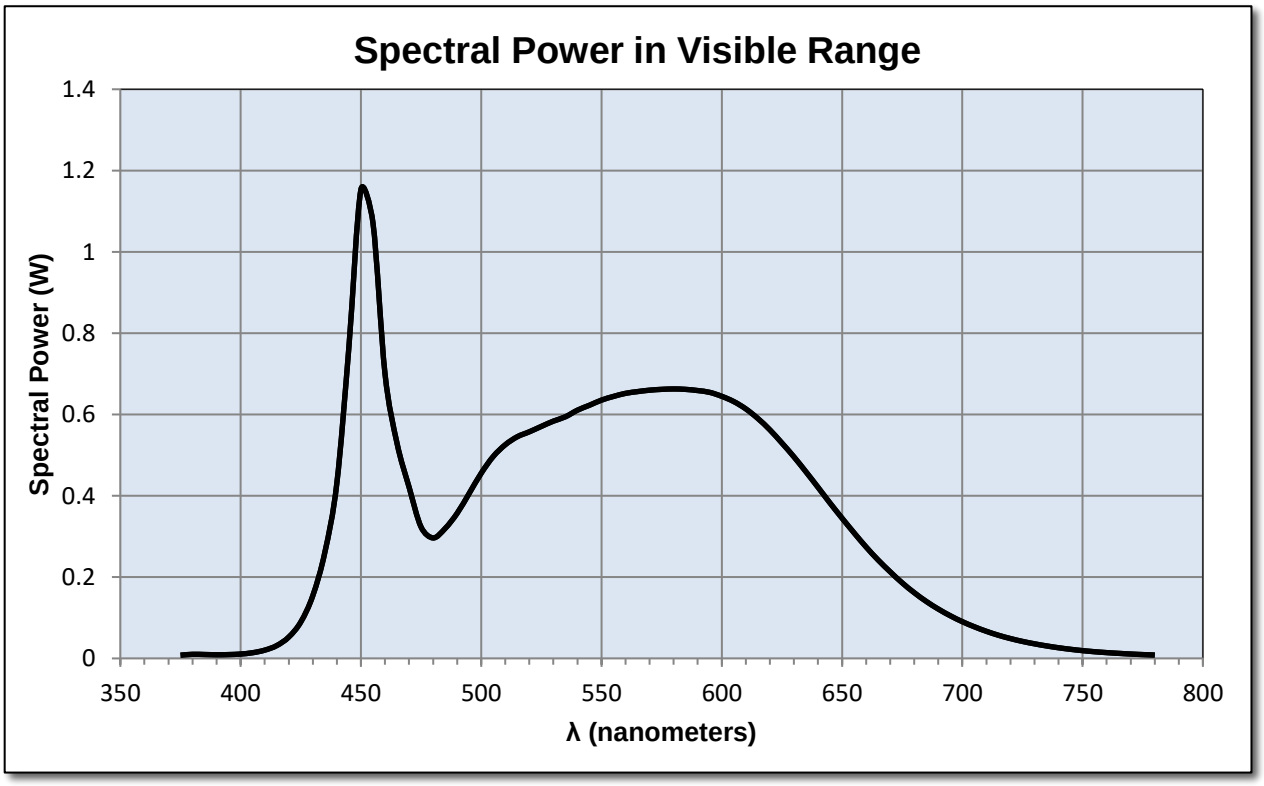
Ambient Temperature:	25 ± 1	(°C)

Electrical Measurements:

Input Voltage:	480	(VAC)
Input Current:	0.677	(A)
Input Power:	314.7	(W)
Input Power Factor:	0.968	
Current ATHD:	7.323	(%)

Photometric measurements:

Luminous Flux:	43899	(lumens)
Luminous Efficacy:	139.5	(lumens/W)
Correlated Color Temperature (CCT):	5112	(K)
CRI -Ra:	85.8	
CRI -R9:	22.4	
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:

λ(nm)	(W/nm)	λ(nm)	(W/nm)	λ(nm)	(W/nm)
375	0.008	515	0.545	655	0.309
380	0.010	520	0.557	660	0.274
385	0.010	525	0.571	665	0.242
390	0.009	530	0.584	670	0.213
395	0.009	535	0.594	675	0.186
400	0.011	540	0.611	680	0.162
405	0.014	545	0.623	685	0.140
410	0.020	550	0.635	690	0.121
415	0.032	555	0.644	695	0.105
420	0.053	560	0.652	700	0.090
425	0.090	565	0.656	705	0.078
430	0.154	570	0.660	710	0.067
435	0.261	575	0.662	715	0.057
440	0.431	580	0.663	720	0.049
445	0.766	585	0.662	725	0.042
450	1.153	590	0.659	730	0.036
455	1.072	595	0.654	735	0.031
460	0.701	600	0.645	740	0.026
465	0.530	605	0.632	745	0.022
470	0.422	610	0.614	750	0.019
475	0.323	615	0.590	755	0.017
480	0.296	620	0.562	760	0.014
485	0.320	625	0.530	765	0.012
490	0.357	630	0.496	770	0.011
495	0.406	635	0.459	775	0.009
500	0.456	640	0.421	780	0.008
505	0.497	645	0.382		
510	0.526	650	0.345		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L18090.
Dialight unit model number H6x-7NCD-Kxxx-xxx

Electrical Measurements:

Input Voltage:	480	(VAC)
Input current:	0.677	(A)
Input Power:	314.7	(W)
Power Factor:	0.968	

Photometric measurements:

Absolute Luminous Flux:	43922	(lumens)
Luminous Efficacy:	139.6	(lumens/W)

Intensity Summary:

INTENSITY (CANDLEPOWER) SUMMARY

ANGLE	ALONG	23	45	67.5	ACROSS	OUTPUT LUMENS
0	62170	62170	62170	62170	62170	
5	57573	57573	57573	57573	57573	2198
15	36737	36737	36737	36737	36737	9163
25	23012	23012	23012	23012	23012	10805
35	15119	15119	15119	15119	15119	9956
45	8361	8361	8361	8361	8361	7988
55	1293	1293	1293	1293	1293	2862
65	637	637	637	637	637	675
75	55	55	55	55	55	110
85	15	15	15	15	15	31
95	8	8	8	8	8	9
105	8	8	8	8	8	9
115	9	9	9	9	9	9
125	13	13	13	13	13	10
135	22	22	22	22	22	15
145	37	37	37	37	37	21
155	55	55	55	55	55	25
165	69	69	69	69	69	22
175	78	78	78	78	78	12
180	78	78	78	78	78	0

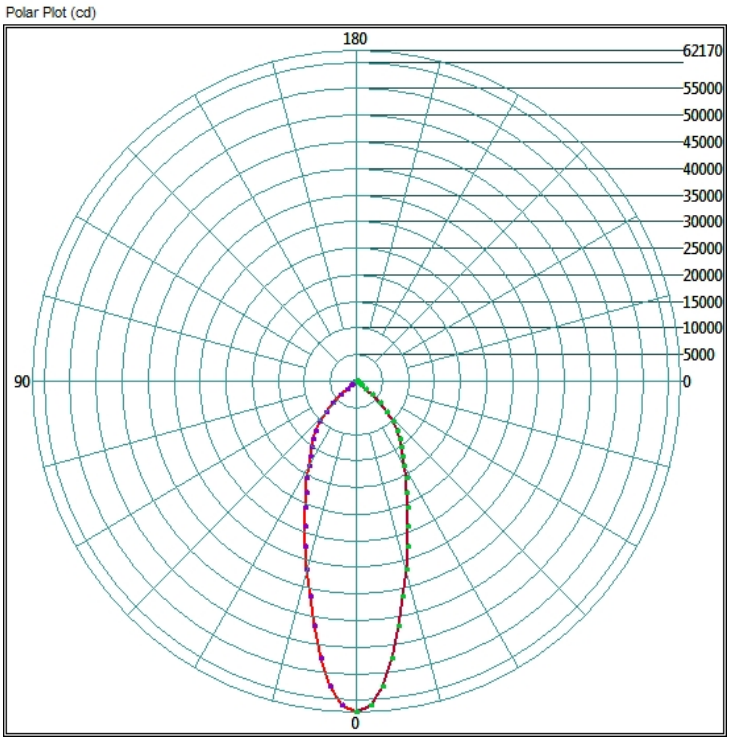
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	27293.92	62.1%
0-40	36556.64	83.2%
0-60	43322.72	98.6%
60-90	632.32	1.4%
0-90	43792.8	99.7%
90-180	131.52	0.3%
0-180	43922.24	100.0%

Test Results: Goniometer

Results continued from previous page.

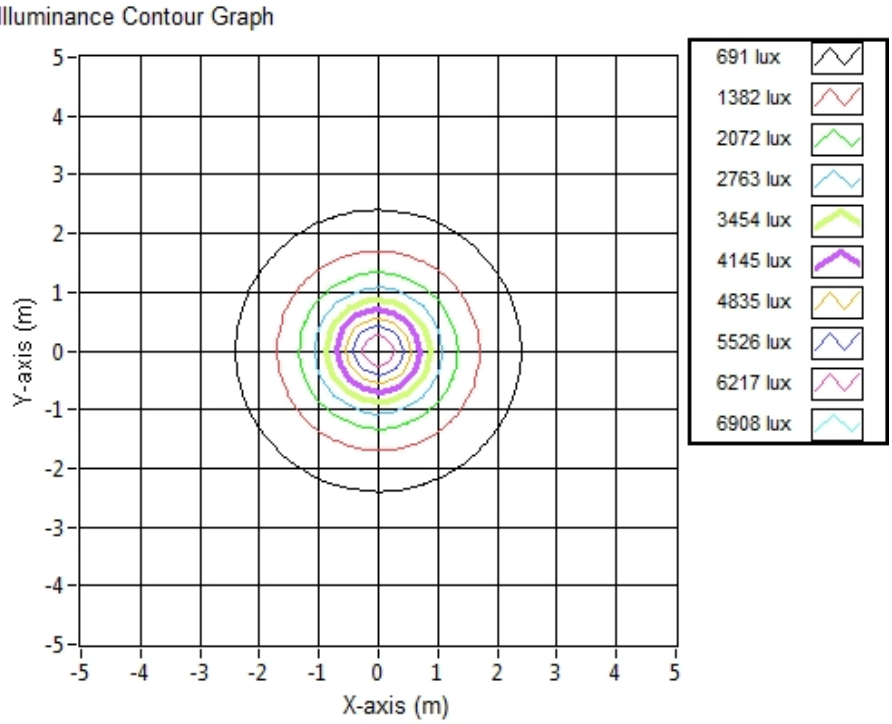
Polar Plot:



Test Results: Goniometer

Results continued from previous page.

Illuminance Plot:



Illuminance-Cone of Light:

Mounting Height (m)	Beam Cone Width (m)	Orthogonal Beam Cone Width (m)	Projected Illuminance (lux)
3.048	2.06	2.06	6691.9
6.096	4.11	4.11	1673.0
9.144	6.17	6.17	743.5
12.192	8.22	8.22	418.2
15.24	10.28	10.28	267.7
18.288	12.33	12.33	185.9
21.336	14.39	14.39	136.6
24.384	16.45	16.45	104.6
27.432	18.50	18.50	82.6
30.48	20.56	20.56	66.9

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L18090.
Dialight unit model number H6x-7NCD-Kxxx-xxx

LED identified as Seoul part number SAW8C22B.

LED drive current (as indicated by customer):	43	(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:

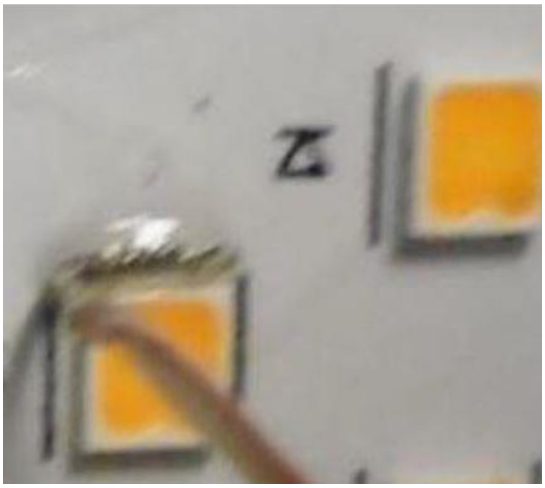
Maximum Power at Indicated Current:	0.258	(W)
Maximum Source Temperature:	120.6	(°C)

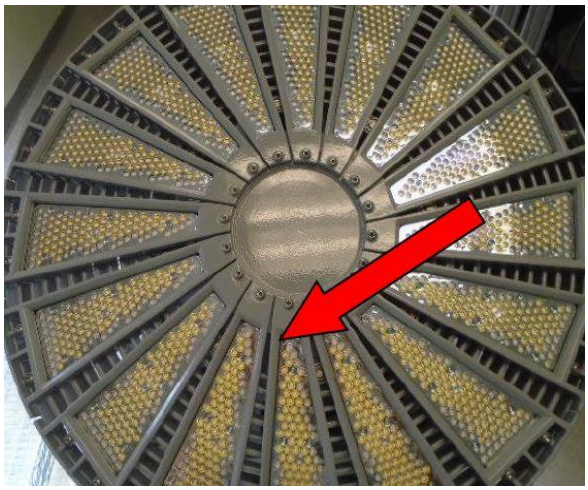
Test Conditions:

Temperature Measurement Location:	See Photographs Below	
Ambient Temperature:	25° ± 5‘	(°C)
Ambient temperature at time of measurement:	24	(°C)
Relative humidity at time of measurement:	45%	

Results:

Measured LED source temperature:	50.8	(°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 Precison	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.

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