

Test Report

Report Number: L21186

Date: Mar 1, 2022

Issued by:

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

Test of one BH Z1 CL W CW 3klm 230V
Unit manufacturer: Dialight Corporation
Unit model number: BxA4UCG3xxxxxx

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: February 25, 2022 through February 28, 2022

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: L21186
Manufacturer: Dialight Corporation
Product Name: SafeSite Bulkhead
Description: BH Z1 CL W CW 3klm 230V
Model Number: BxA4UCG3xxxxxx

Report Summary

Sample number L21186
Dialight unit model number BxA4UCG3xxxxxx

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	3132 (lumens)	3120 (lumens)
Electrical Power:	26.4 (W)	26.0 (W)
Luminous Efficacy:	118.8 (lumens/W)	120 (lumens/W)

Electrical Measurements:

Input Power (240VAC): 26.4 (W)
Power Factor (240VAC): 0.8883
Current ATHD % (240VAC): 39.61
Input Power (120VAC): 26.3 (W)
Power Factor (120VAC): 0.9561
Current ATHD % (120VAC): 25.51

Color Measurements:

Correlated Color Temperature (CCT): 5259
Color Rendering Index (CRI): 82.09
Chromaticity Coordinate (x): 0.338
Chromaticity Coordinate (y): 0.349
Chromaticity Coordinate (u'): 0.208
Chromaticity Coordinate (v'): 0.482
DUV: 0.0014

Temperature Measurements:

In Situ LED Source Temperature: 34.8 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L21186.

Dialight unit model number BxA4UCG3xxxxxx

Test Conditions:

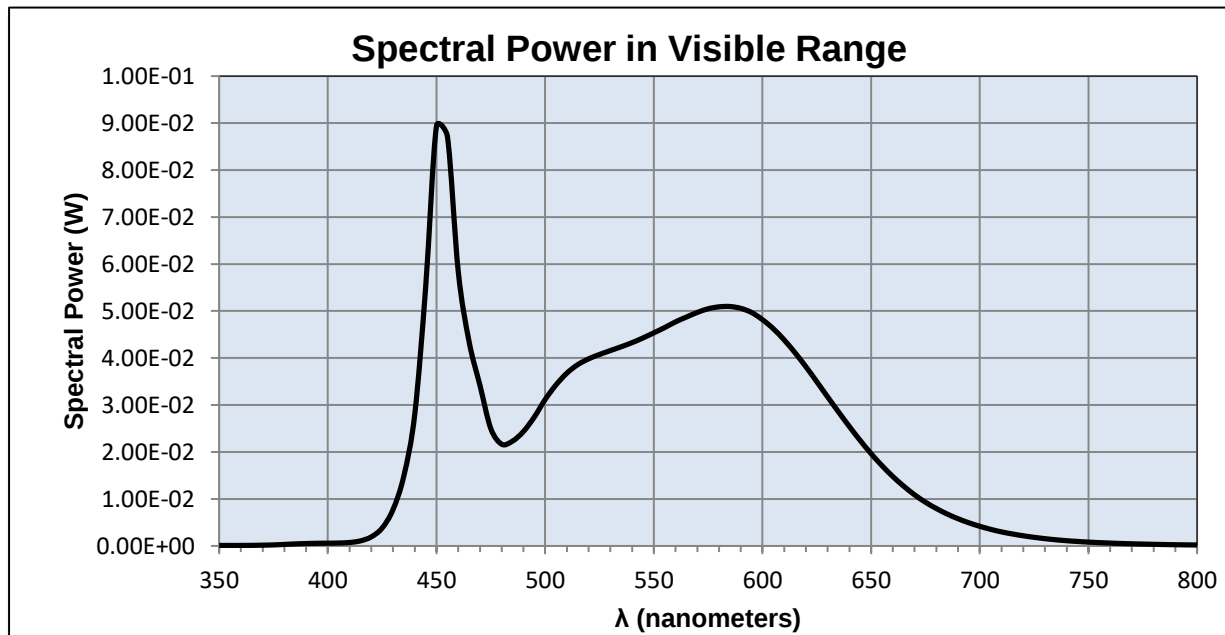
Ambient Temperature: 25 ± 1.0 (°C)

Electrical Measurements:

Input Voltage: 240.0 (VAC)
Input Current: 0.124 (A)
Input Power: 26.4 (W)
Input Power Factor: 0.8883
Current ATHD: 39.61 (%)

Photometric measurements:

Luminous Flux: 3132.5 (lumens)
Luminous Efficacy: 118.8 (lumens/W)
Correlated Color Temperature (CCT): 5259 (K)
CRI -Ra: 82.09
CRI -R9: -3.53
DUV: 0.0014
CIE Coordinate (x): 0.338
CIE Coordinate (y): 0.349
CIE Coordinate (u'): 0.208
CIE Coordinate (v'): 0.482
TM30_Rf: 82.4
TM30_Rg: 93.8
TM30_Rcs_hue1: -14.38 %



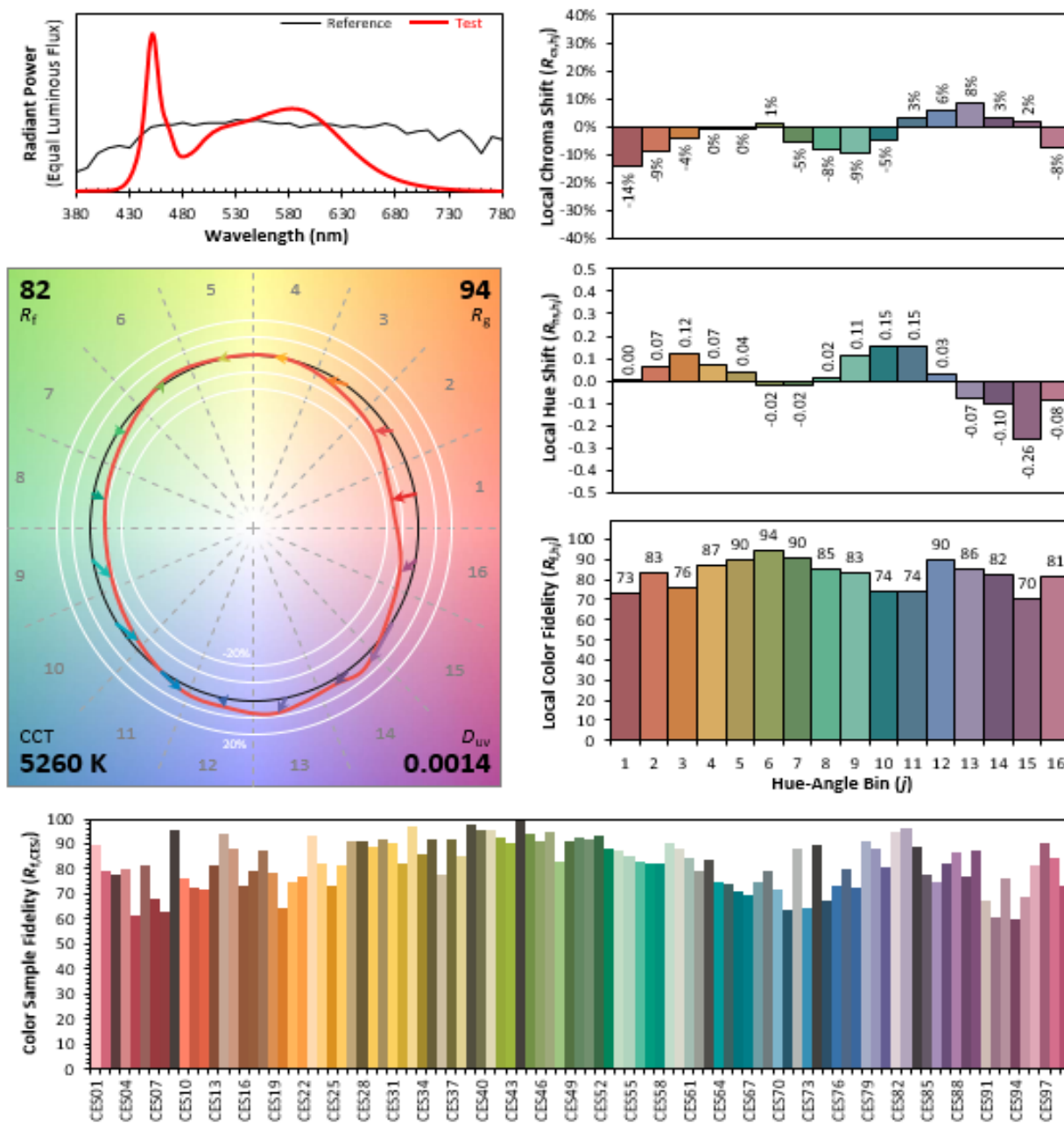
Test Results: Integrating Sphere

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	0.00010	490	0.02435	630	0.03170	770	0.00045
355	0.00010	495	0.02742	635	0.02852	775	0.00039
360	0.00010	500	0.03117	640	0.02540	780	0.00034
365	0.00012	505	0.03428	645	0.02242	785	0.00029
370	0.00016	510	0.03678	650	0.01963	790	0.00025
375	0.00021	515	0.03858	655	0.01708	795	0.00022
380	0.00032	520	0.03982	660	0.01476	800	0.00019
385	0.00043	525	0.04075	665	0.01271		
390	0.00051	530	0.04158	670	0.01088		
395	0.00056	535	0.04239	675	0.00930		
400	0.00058	540	0.04327	680	0.00796		
405	0.00062	545	0.04426	685	0.00679		
410	0.00073	550	0.04536	690	0.00578		
415	0.00107	555	0.04648	695	0.00492		
420	0.00193	560	0.04769	700	0.00417		
425	0.00381	565	0.04872	705	0.00353		
430	0.00775	570	0.04969	710	0.00299		
435	0.01496	575	0.05048	715	0.00254		
440	0.02804	580	0.05089	720	0.00216		
445	0.05504	585	0.05096	725	0.00183		
450	0.08940	590	0.05057	730	0.00155		
455	0.08719	595	0.04968	735	0.00130		
460	0.05844	600	0.04816	740	0.00110		
465	0.04347	605	0.04623	745	0.00095		
470	0.03417	610	0.04384	750	0.00081		
475	0.02495	615	0.04110	755	0.00070		
480	0.02165	620	0.03813	760	0.00060		
485	0.02232	625	0.03495	765	0.00052		

IES TM-30-18 Color Rendition Report



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

x 0.3383
 y 0.3488
 u' 0.2079
 v' 0.4823

CIE 13.3-1995
(CRI)

R_a 82
 R_g -4

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L21186.
Dialight unit model number BxA4UCG3xxxxxx

Electrical Measurements:

Input Voltage: 240.0 (VAC)
Input current: 0.12 (A)
Input Power: 26.01 (W)
Power Factor: 0.8881

Photometric measurements:

Absolute Luminous Flux: 3120.2 (lumens)
Luminous Efficacy: 120.0 (lumens/W)

Intensity Summary:

Candlepower Summary

H/V	0.00	45.00	90.00	135.00	180.00	Lumens
0.00	870	870	878	886	870	
5.00	914	907	881	852	814	88
15.00	927	943	906	787	683	236
25.00	800	914	945	726	528	342
35.00	555	853	1034	663	395	387
45.00	390	715	1197	556	329	413
55.00	281	465	1464	420	311	429
65.00	109	196	2214	221	103	392
75.00	36	79	693	81	32	135
85.00	4	16	33	15	3	6
90.00	0	3	10	3	0	

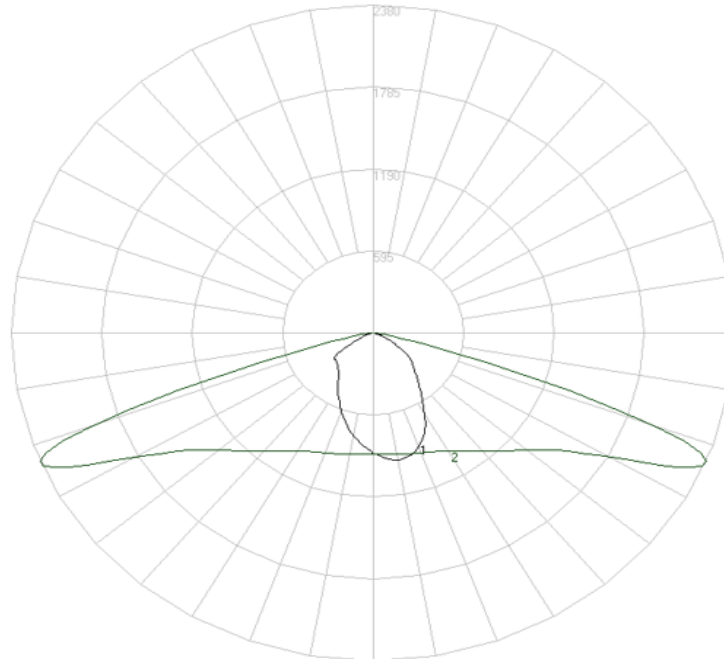
Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0 to 30	701.71	22.49	22.49
0 to 40	1179.84	37.81	37.81
0 to 60	2400.31	76.93	76.93
0 to 90	3120.24	100.00	100.00
90 to 180	0.00	0.00	0.00
0 to 180	3120.24	100.00	100.00

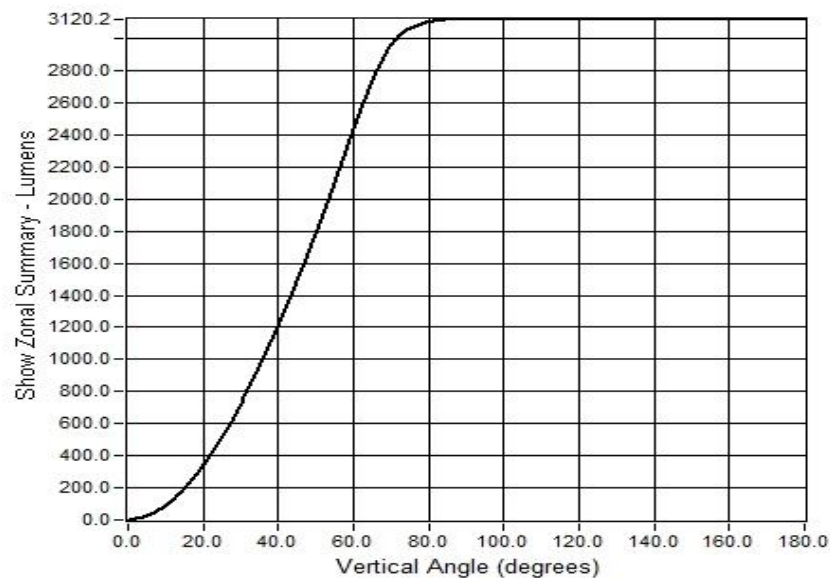
Test Results: Goniometer

Results continued from previous page.

Polar Plot:



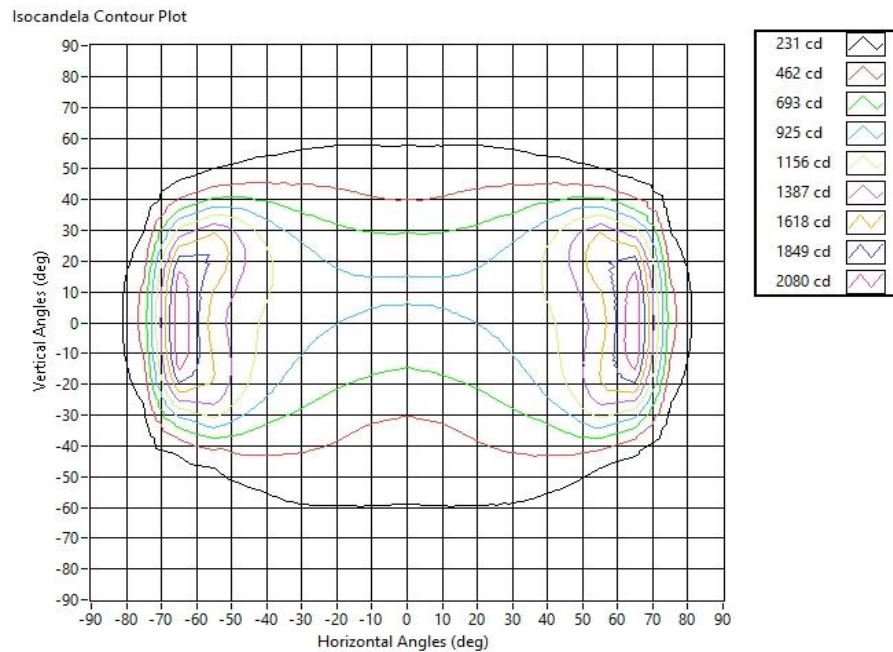
Zonal Flux Graph



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	2.98	15.23	219.6
4	5.96	30.46	54.9
6	8.94	45.69	24.4
8	11.92	60.93	13.7
10	14.90	76.16	8.8
12	17.88	91.39	6.1
14	20.86	106.62	4.5
16	23.84	121.85	3.4
18	26.82	137.08	2.7
20	29.80	152.31	2.2

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L21186.

Dialight unit model number BxA4UCG3xxxxxx

LED identified as Seoul part number STW8C12C-E0.

LED drive current (as indicated by customer): 75 (mA)

LED Specifications:

LED specifications are taken from LED manufacturer datasheet:

Maximum Forward Current (If): 200 (mA)
Maximum Rated Power Dissipation: 0.6 (W)
Maximum Junction Temp. (Tj): 125 (°C)
Thermal Resistance (Rth): 7.5 (°C/W)

Derived Specifications:

Maximum Power at Indicated Current: 0.225 (W)
Maximum Source Temperature: 123.3125 (°C)

Test Conditions:

Temperature Measurement Location: See Photographs Below

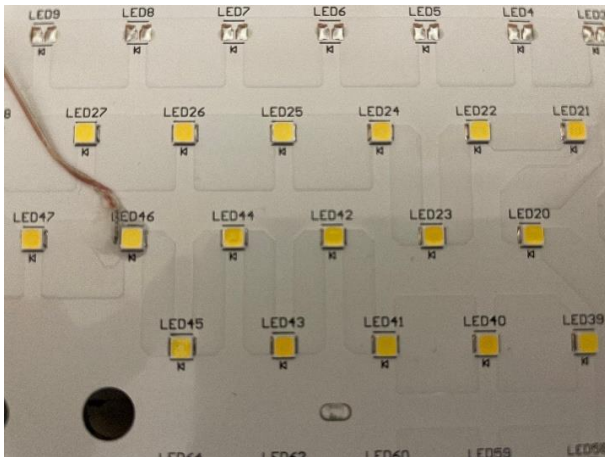
Ambient Temperature: $25 \pm 5^\circ$ (°C)

Ambient temperature at time of measurement: 23.8 (°C)

Relative humidity at time of measurement: 24%

Results:

Measured LED source temperature: 34.8 (°C)



Equipment Used:

Equipment Name	Model Number
Omega TC	DPi8
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
Omega Thermocouple	5TC-TT-K
Fluke 971 Humidity Meter	971
GwINSTEK DC Power Supply	GEP172679
Dialight Confirmation Sample	
Omega TC	TC-08
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	XT2640
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
Xitron Power Analyzer	XT2640
LPS-525 DC Power Supply	LPS-525
Omega Temperature Controller	DP41-RTD-A
YOKOGAWA Digital Power Meter	WT310E

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

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