

Test Report

Report Number: L21189

Date: Mar 2, 2022

Issued by:

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

Test of one BH Z1 CL W WW 3klm 230V
Unit manufacturer: Dialight Corporation
Unit model number: BxA4UWG3xxxxxx

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 28, 2022 through March 1, 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: L21189
Manufacturer: Dialight Corporation
Product Name: SafeSite Bulkhead
Description: BH Z1 CL W WW 3klm 230V
Model Number: BxA4UWG3xxxxxx

Report Summary

Sample number L21189
Dialight unit model number BxA4UWG3xxxxxx

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	2826 (lumens)	2814 (lumens)
Electrical Power:	26.4 (W)	26.3 (W)
Luminous Efficacy:	107 (lumens/W)	107 (lumens/W)

Electrical Measurements:

Input Power (240VAC): 26.4 (W)
Power Factor (240VAC): 0.8875
Current ATHD % (240VAC): 40.15
Input Power (120VAC): 26.4 (W)
Power Factor (120VAC): 0.9561
Current ATHD % (120VAC): 25.64

Color Measurements:

Correlated Color Temperature (CCT): 2959
Color Rendering Index (CRI): 82.94
Chromaticity Coordinate (x): 0.441
Chromaticity Coordinate (y): 0.407
Chromaticity Coordinate (u'): 0.252
Chromaticity Coordinate (v'): 0.523
DUV: 0.0008

Temperature Measurements:

In Situ LED Source Temperature: 35.6 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L21189.

Dialight unit model number BxA4UWG3xxxxxx

Test Conditions:

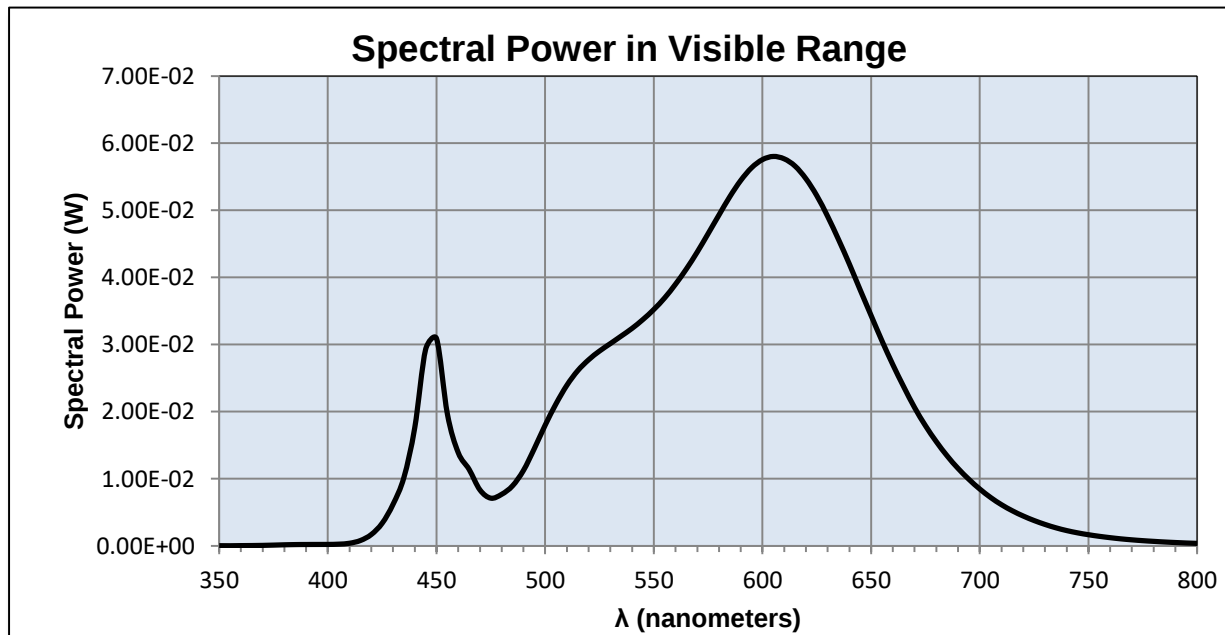
Ambient Temperature: 25 ± 1.0 (°C)

Electrical Measurements:

Input Voltage: 240.0 (VAC)
Input Current: 0.124 (A)
Input Power: 26.4 (W)
Input Power Factor: 0.8875
Current ATHD: 40.15 (%)

Photometric measurements:

Luminous Flux: 2826.1 (lumens)
Luminous Efficacy: 107.0 (lumens/W)
Correlated Color Temperature (CCT): 2959 (K)
CRI -Ra: 82.94
CRI -R9: 8.43
DUV: 0.0008
CIE Coordinate (x): 0.441
CIE Coordinate (y): 0.407
CIE Coordinate (u'): 0.252
CIE Coordinate (v'): 0.523
TM30_Rf: 84.3
TM30_Rg: 98.0
TM30_Rcs_hue1: -10.79 %



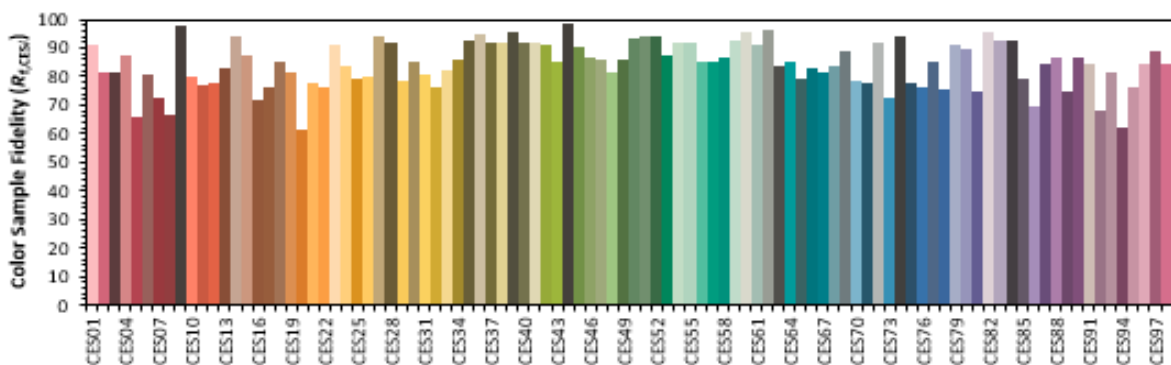
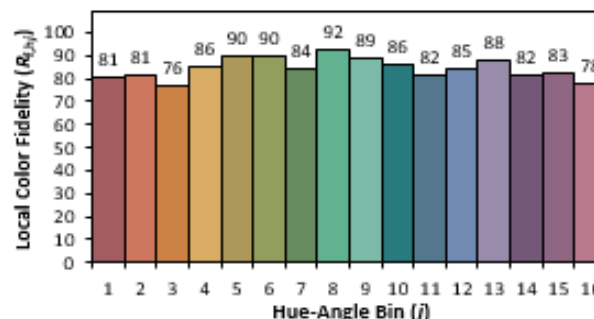
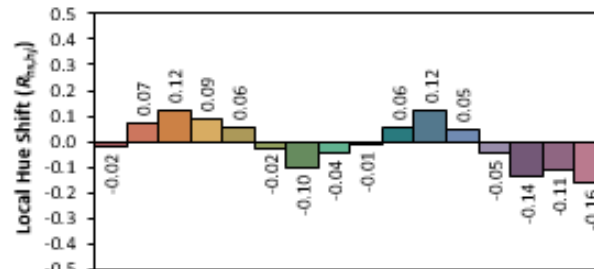
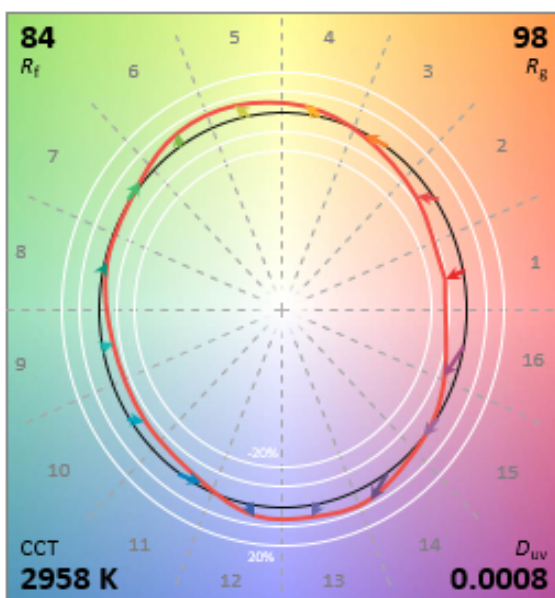
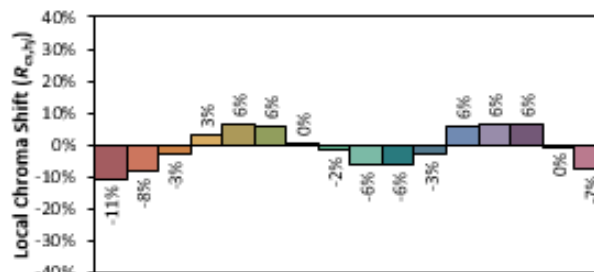
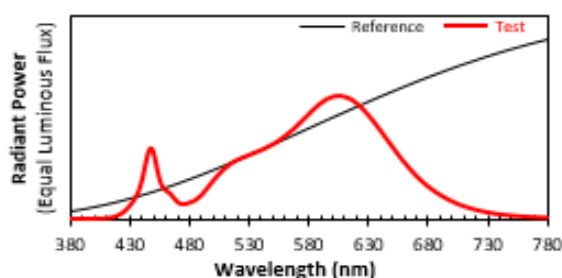
Test Results: Integrating Sphere

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	0.00003	490	0.01124	630	0.04909	770	0.00091
355	0.00003	495	0.01449	635	0.04565	775	0.00078
360	0.00004	500	0.01799	640	0.04198	780	0.00068
365	0.00006	505	0.02117	645	0.03812	785	0.00058
370	0.00008	510	0.02394	650	0.03432	790	0.00051
375	0.00012	515	0.02611	655	0.03054	795	0.00043
380	0.00017	520	0.02773	660	0.02700	800	0.00038
385	0.00020	525	0.02904	665	0.02371		
390	0.00021	530	0.03015	670	0.02061		
395	0.00022	535	0.03127	675	0.01791		
400	0.00022	540	0.03242	680	0.01553		
405	0.00026	545	0.03374	685	0.01340		
410	0.00040	550	0.03523	690	0.01155		
415	0.00081	555	0.03696	695	0.00992		
420	0.00170	560	0.03900	700	0.00848		
425	0.00338	565	0.04128	705	0.00722		
430	0.00620	570	0.04380	710	0.00614		
435	0.01020	575	0.04654	715	0.00523		
440	0.01763	580	0.04932	720	0.00445		
445	0.02930	585	0.05205	725	0.00378		
450	0.03090	590	0.05445	730	0.00320		
455	0.01966	595	0.05635	735	0.00270		
460	0.01390	600	0.05756	740	0.00229		
465	0.01140	605	0.05803	745	0.00195		
470	0.00834	610	0.05767	750	0.00167		
475	0.00711	615	0.05659	755	0.00143		
480	0.00769	620	0.05471	760	0.00123		
485	0.00896	625	0.05219	765	0.00105		

IES TM-30-18 Color Rendition Report



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

x 0.4411
 y 0.4074
 u' 0.2518
 v' 0.5233

CIE 13.3-1995
(CRI)
 R_a 83
 R_g 8

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L21189.
Dialight unit model number BxA4UWG3xxxxxx

Electrical Measurements:

Input Voltage: 240.0 (VAC)
Input current: 0.12 (A)
Input Power: 26.31 (W)
Power Factor: 0.8862

Photometric measurements:

Absolute Luminous Flux: 2814.1 (lumens)
Luminous Efficacy: 107.0 (lumens/W)

Intensity Summary:

Candlepower Summary

H/V	0.00	45.00	90.00	135.00	180.00	Lumens
0.00	779	779	779	779	779	
5.00	733	746	784	821	837	80
15.00	606	693	815	866	848	213
25.00	459	636	852	838	716	305
35.00	346	580	934	777	472	340
45.00	289	485	1085	649	328	364
55.00	280	365	1327	410	231	379
65.00	100	179	2057	167	87	356
75.00	32	65	436	69	27	95
85.00	3	11	26	14	2	4
90.00	0	0	0	0	0	

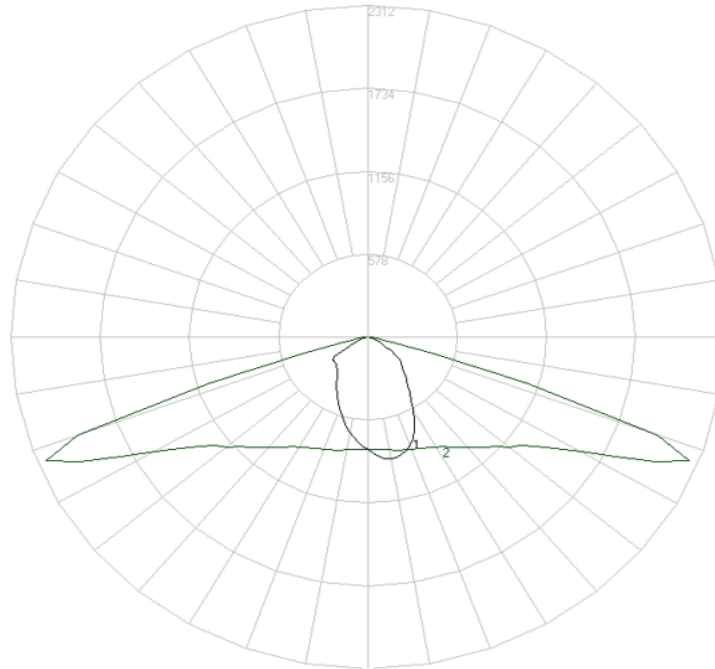
Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0 to 30	631.14	22.43	22.43
0 to 40	1060.39	37.68	37.68
0 to 60	2159.61	76.74	76.74
0 to 90	2814.14	100.00	100.00
90 to 180	0.00	0.00	0.00
0 to 180	2814.14	100.00	100.00

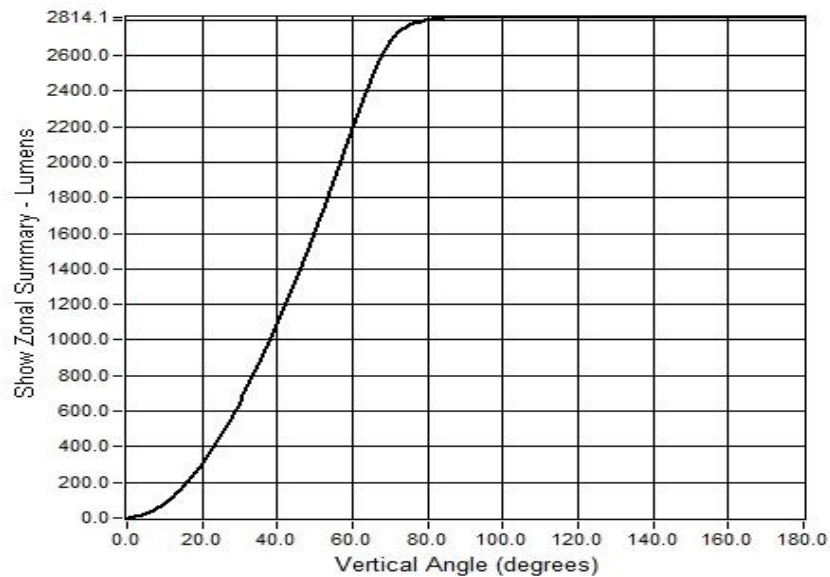
Test Results: Goniometer

Results continued from previous page.

Polar Plot:



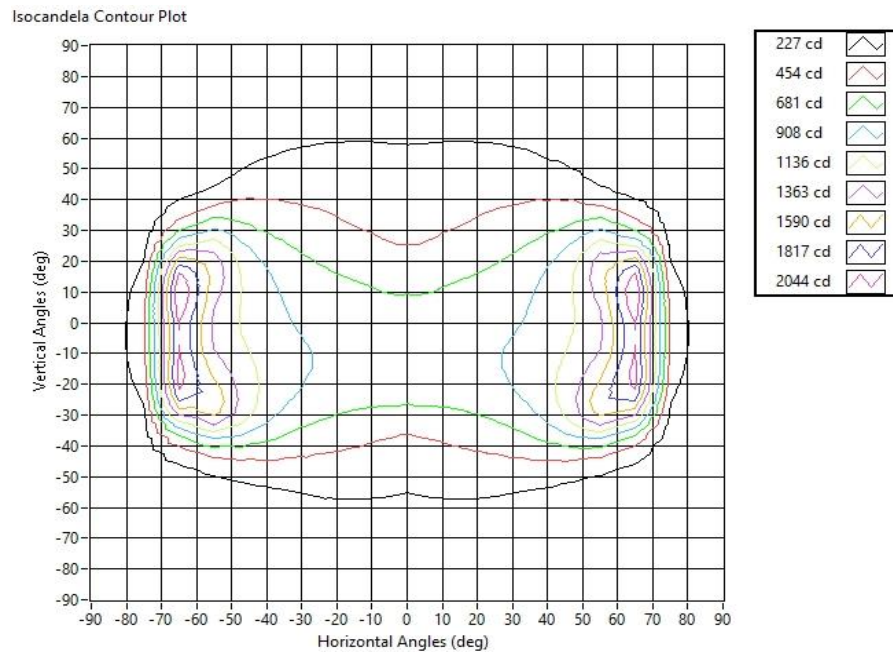
Zonal Flux Graph



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	2.84	15.63	194.8
4	5.68	31.26	48.7
6	8.52	46.90	21.6
8	11.36	62.53	12.2
10	14.20	78.16	7.8
12	17.04	93.79	5.4
14	19.88	109.42	4.0
16	22.72	125.06	3.0
18	25.56	140.69	2.4
20	28.40	156.32	1.9

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L21189.

Dialight unit model number BxA4UWG3xxxxxx

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

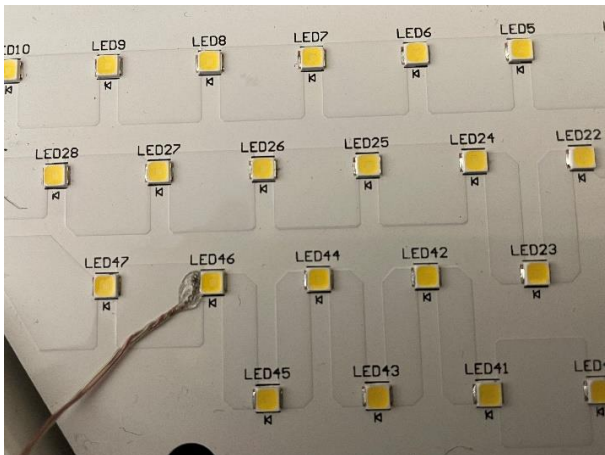
Ambient Temperature: $25^{\circ} \pm 5^{\circ}$ (°C)

Ambient temperature at time of measurement: 24.1 (°C)

Relative humidity at time of measurement: 26%

Results:

Measured LED source temperature: 35.6 (°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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Approved Signatory