

Test Report

Report Number: L21188

Date: Feb 22, 2022

Issued by:

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

Test of one BH Z1 CL CIR WW 3klm 230V
Unit manufacturer: Dialight Corporation
Unit model number: BxA4BWG3xxxxxx

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 17, 2022 through February 18, 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: L21188
Manufacturer: Dialight Corporation
Product Name: SafeSite Bulkhead
Description: BH Z1 CL CIR WW 3klm 230V
Model Number: BxA4BWG3xxxxxx

Report Summary

Sample number L21188
Dialight unit model number BxA4BWG3xxxxxx

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	2952 (lumens)	2940 (lumens)
Electrical Power:	26.3 (W)	26.3 (W)
Luminous Efficacy:	112.1 (lumens/W)	111.6 (lumens/W)

Electrical Measurements:

Input Power (240VAC): 26.3 (W)
Power Factor (240VAC): 0.8898
Current ATHD % (240VAC): 39.28
Input Power (120VAC): 26.3 (W)
Power Factor (120VAC): 0.9572
Current ATHD % (120VAC): 25.21

Color Measurements:

Correlated Color Temperature (CCT): 2925
Color Rendering Index (CRI): 82.88
Chromaticity Coordinate (x): 0.443
Chromaticity Coordinate (y): 0.407
Chromaticity Coordinate (u'): 0.253
Chromaticity Coordinate (v'): 0.524
DUV: 0.0005

Temperature Measurements:

In Situ LED Source Temperature: 35.7 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L21188.

Dialight unit model number BxA4BWG3xxxxxx

Test Conditions:

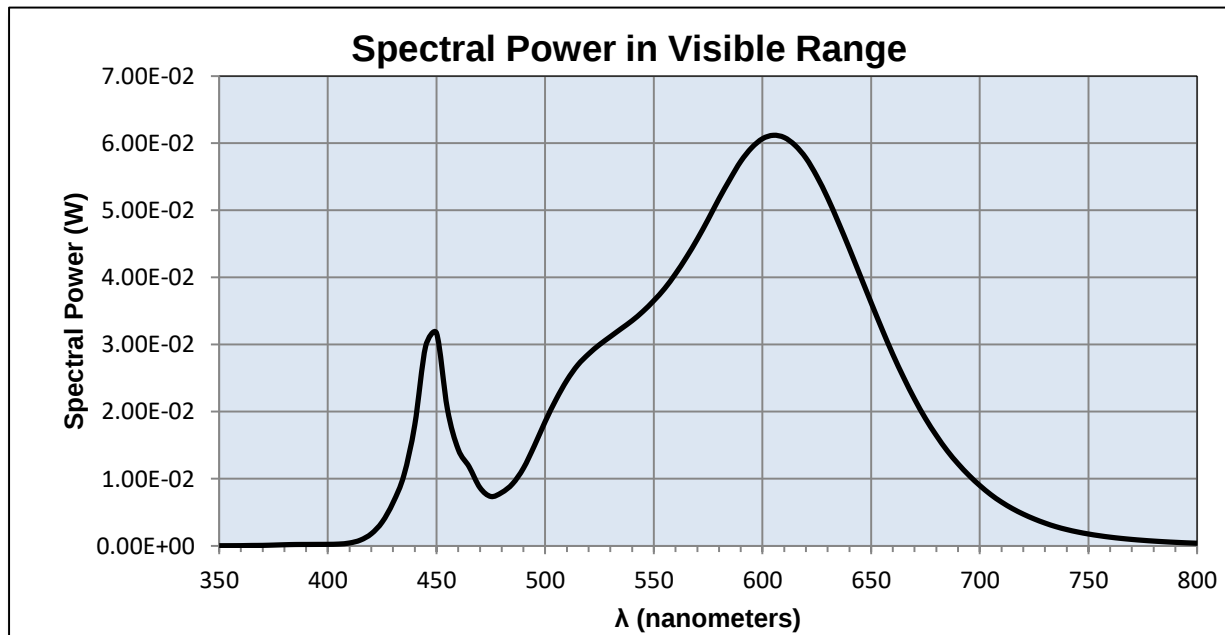
Ambient Temperature: 25 ± 1.0 (°C)

Electrical Measurements:

Input Voltage: 240.0 (VAC)
Input Current: 0.123 (A)
Input Power: 26.3 (W)
Input Power Factor: 0.8898
Current ATHD: 39.28 (%)

Photometric measurements:

Luminous Flux: 2951.9 (lumens)
Luminous Efficacy: 112.1 (lumens/W)
Correlated Color Temperature (CCT): 2925 (K)
CRI -Ra: 82.88
CRI -R9: 8.08
DUV: 0.0005
CIE Coordinate (x): 0.443
CIE Coordinate (y): 0.407
CIE Coordinate (u'): 0.253
CIE Coordinate (v'): 0.524
TM30_Rf: 84.2
TM30_Rg: 98.0
TM30_Rcs_hue1: -10.86 %



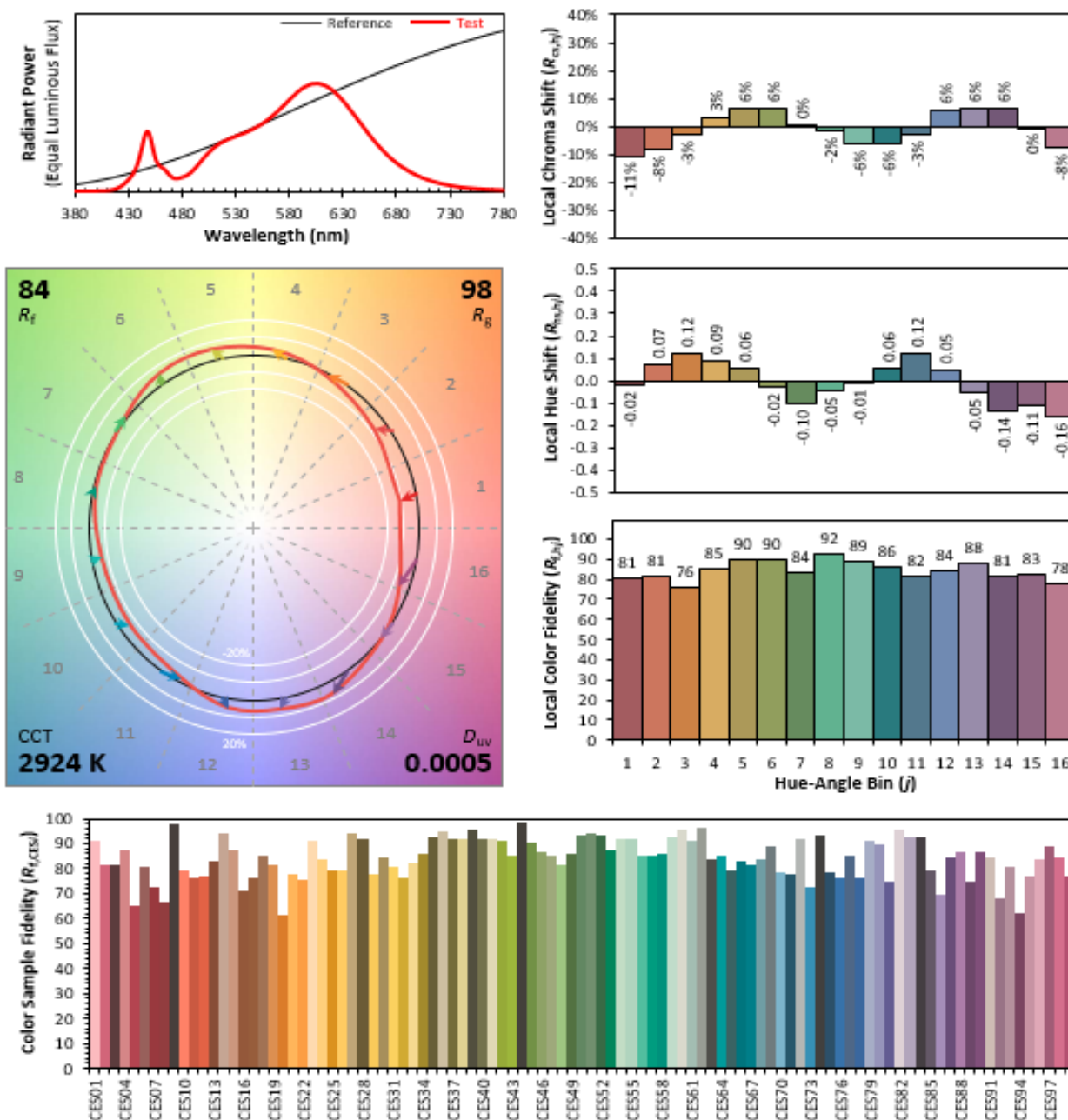
Test Results: Integrating Sphere

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	0.01157	630	0.05184	770	0.00096
355	0.00003	495	0.01489	635	0.04816	775	0.00083
360	0.00004	500	0.01852	640	0.04428	780	0.00072
365	0.00007	505	0.02181	645	0.04026	785	0.00062
370	0.00008	510	0.02467	650	0.03625	790	0.00053
375	0.00012	515	0.02695	655	0.03230	795	0.00046
380	0.00017	520	0.02860	660	0.02853	800	0.00040
385	0.00021	525	0.02998	665	0.02506		
390	0.00022	530	0.03118	670	0.02187		
395	0.00023	535	0.03237	675	0.01898		
400	0.00023	540	0.03356	680	0.01646		
405	0.00027	545	0.03494	685	0.01419		
410	0.00044	550	0.03655	690	0.01224		
415	0.00087	555	0.03836	695	0.01052		
420	0.00181	560	0.04055	700	0.00900		
425	0.00356	565	0.04301	705	0.00767		
430	0.00645	570	0.04570	710	0.00653		
435	0.01054	575	0.04865	715	0.00556		
440	0.01802	580	0.05174	720	0.00474		
445	0.02975	585	0.05461	725	0.00402		
450	0.03172	590	0.05730	730	0.00340		
455	0.02041	595	0.05932	735	0.00287		
460	0.01438	600	0.06067	740	0.00244		
465	0.01180	605	0.06118	745	0.00208		
470	0.00867	610	0.06086	750	0.00177		
475	0.00737	615	0.05969	755	0.00152		
480	0.00795	620	0.05779	760	0.00130		
485	0.00925	625	0.05508	765	0.00112		

IES TM-30-18 Color Rendition Report



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

x 0.4432
 y 0.4074
 u' 0.2532
 v' 0.5236

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 L21188.
Dialight unit model number BxA4BWG3xxxxxx

Electrical Measurements:

Input Voltage: 240.0 (VAC)
Input current: 0.12 (A)
Input Power: 26.34 (W)
Power Factor: 0.8876

Photometric measurements:

Absolute Luminous Flux: 2939.7 (lumens)
Luminous Efficacy: 111.6 (lumens/W)

Intensity Summary:

Candlepower Summary

H/V	0.00	45.00	90.00	135.00	180.00	Lumens
0.00	1233	1235	1240	1239	1233	
5.00	1235	1238	1244	1240	1233	125
15.00	1230	1237	1235	1233	1227	349
25.00	1223	1229	1229	1226	1218	566
35.00	1176	1178	1186	1177	1162	737
45.00	998	984	1010	1016	993	773
55.00	247	256	270	304	251	233
65.00	64	92	109	95	61	76
75.00	32	45	46	45	28	38
85.00	3	7	9	8	2	3
90.00	0	2	2	2	0	

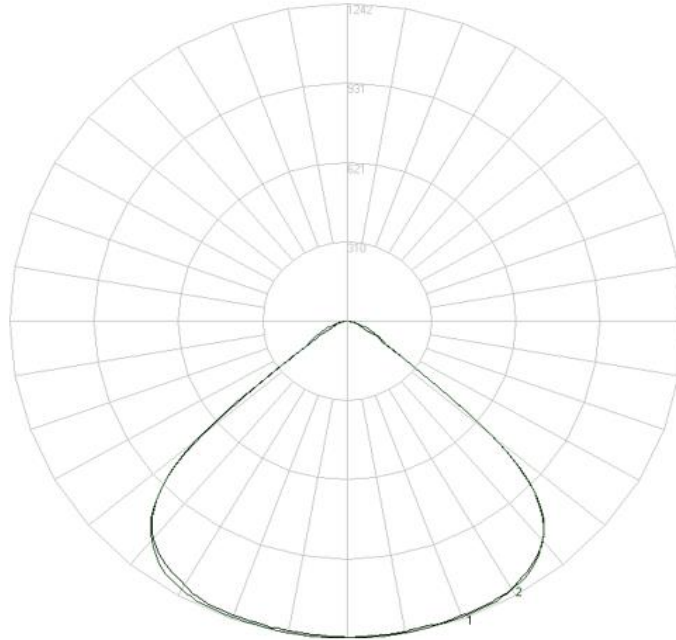
Zonal Lumen Summary

Zone	Lumens	% Lamp	% Fixture
0 to 30	1034.00	35.17	35.17
0 to 40	1770.95	60.24	60.24
0 to 60	2798.36	95.19	95.19
0 to 90	2939.74	100.00	100.00
90 to 180	0.00	0.00	0.00
0 to 180	2939.74	100.00	100.00

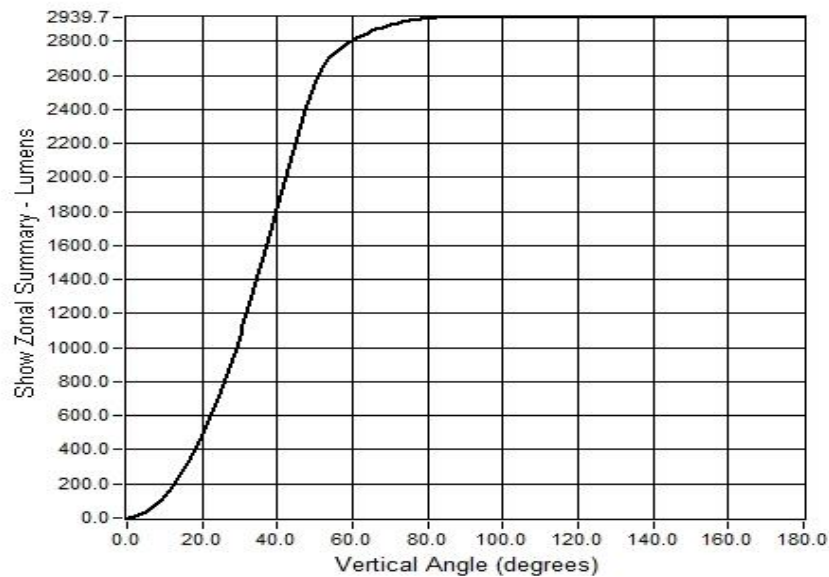
Test Results: Goniometer

Results continued from previous page.

Polar Plot:



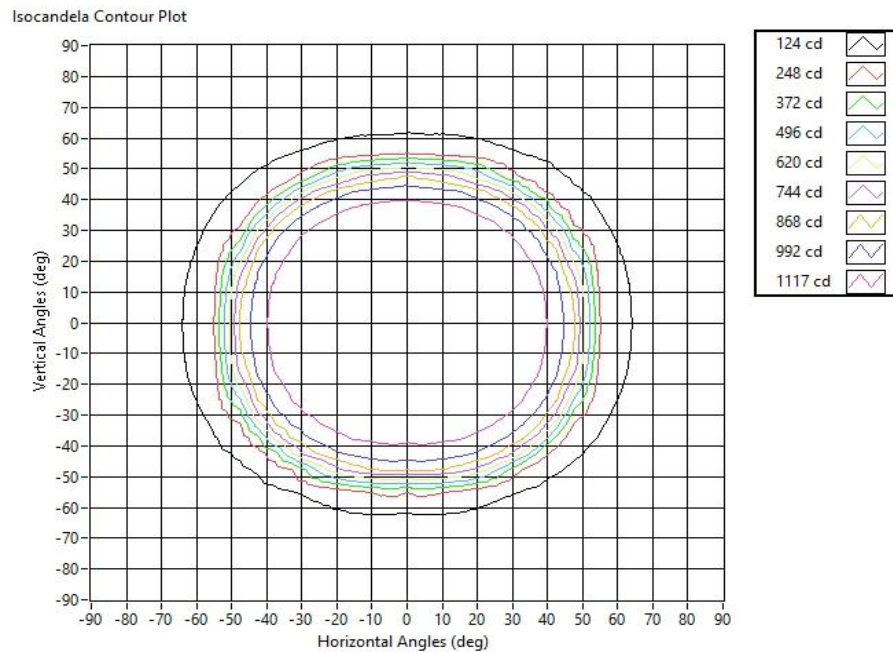
Zonal Flux Graph



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	4.96	4.82	309.4
4	9.93	9.64	77.4
6	14.89	14.46	34.4
8	19.86	19.28	19.3
10	24.82	24.10	12.4
12	29.78	28.91	8.6
14	34.75	33.73	6.3
16	39.71	38.55	4.8
18	44.68	43.37	3.8
20	49.64	48.19	3.1

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L21188.

Dialight unit model number BxA4BWG3xxxxxx

LED identified as Soul 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

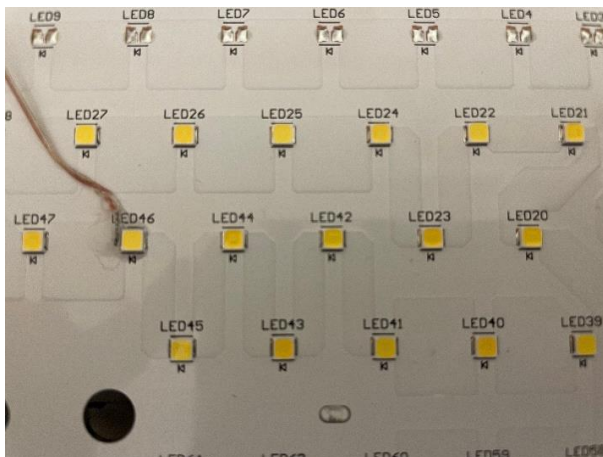
Ambient Temperature: $25^{\circ} \pm 5^{\circ}$ (°C)

Ambient temperature at time of measurement: 23.7 (°C)

Relative humidity at time of measurement: 27%

Results:

Measured LED source temperature: 35.7 (°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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