

Test Report

Report Number: L17083

Date: Nov 28, 2017

Issued by:

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

Test of one Vigilant Area Light
Unit manufacturer: Dialight Corporation
Unit model number: ALU7BC26-xxxxx-N

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: November 17, 2017 through November 21, 2017

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

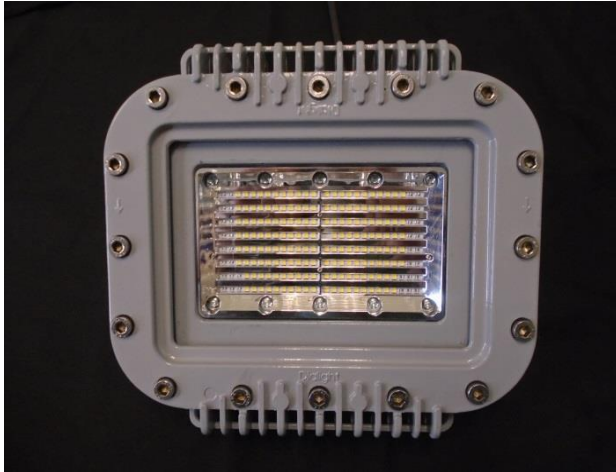
Description of sample:

Sample Number: L17083
Manufacturer: Dialight Corporation
Product Name: Vigilant Area Light
Description: Vigilant Area Light
Model Number: ALU7BC26-xxxxx-N

Report Summary

Sample number L17083
Dialight unit model number ALU7BC26-xxxx-N

Photograph(s) of sample:



*Photographs not to scale. For reference only.

Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	5620 (lumens)	5510 (lumens)
Electrical Power:	40.6 (W)	40.5 (W)
Luminous Efficacy:	138.6 (lumens/W)	135.9 (lumens/W)

Electrical Measurements:

Input Power (120VAC): 40.6 (W)
Power Factor (120VAC): 0.996
Current ATHD % (120VAC): 5.745
Input Power (277VAC): 39.4 (W)
Power Factor (277VAC): 0.956
Current ATHD % (277VAC): 17.68

Color Measurements:

Correlated Color Temperature (CCT): 5038
Color Rendering Index (CRI): 84.3
Chromaticity Coordinate (x): 0.344
Chromaticity Coordinate (y): 0.355
Chromaticity Coordinate (u'): 0.21
Chromaticity Coordinate (v'): 0.324
DUV: 0.0019

Temperature Measurements:

In Situ LED Source Temperature: 45.6 (°C)

Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L17083.

Dialight unit model number ALU7BC26-xxxxx-N

Test Conditions:

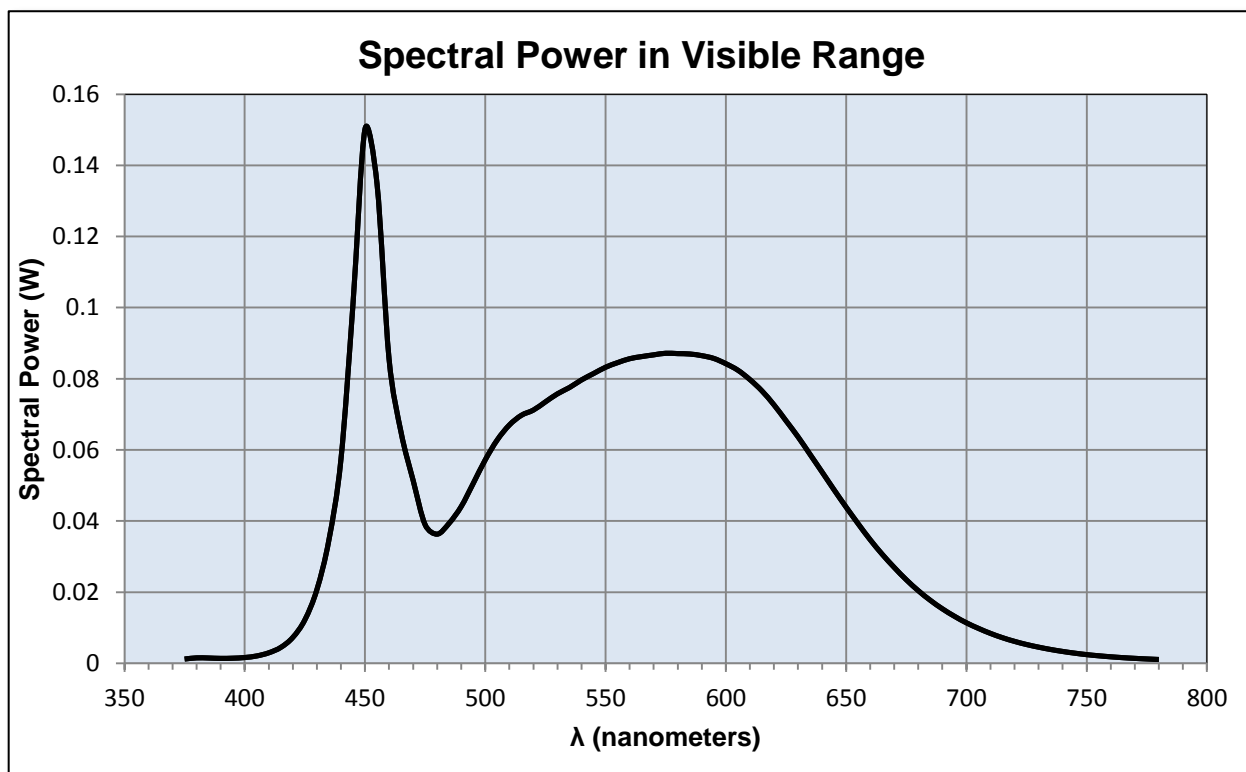
Ambient Temperature: 25 ± 1 (°C)

Electrical Measurements:

Input Voltage: 120 (VAC)
 Input Current: 0.339 (A)
 Input Power: 40.6 (W)
 Input Power Factor: 0.996
 Current ATHD: 5.745 (%)

Photometric measurements:

Luminous Flux: 5620 (lumens)
 Luminous Efficacy: 138.6 (lumens/W)
 Correlated Color Temperature (CCT): 5038 (K)
 CRI -Ra: 84.3
 CRI -R9: 15
 DUV: 0.0019
 CIE Coordinate (x): 0.344
 CIE Coordinate (y): 0.355
 CIE Coordinate (u'): 0.21
 CIE Coordinate (v'): 0.324



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	0.001	515	0.070	655	0.039
380	0.002	520	0.071	660	0.035
385	0.001	525	0.074	665	0.031
390	0.001	530	0.076	670	0.027
395	0.001	535	0.078	675	0.024
400	0.002	540	0.080	680	0.020
405	0.002	545	0.081	685	0.018
410	0.003	550	0.083	690	0.015
415	0.004	555	0.085	695	0.013
420	0.007	560	0.086	700	0.011
425	0.012	565	0.086	705	0.010
430	0.021	570	0.087	710	0.008
435	0.035	575	0.087	715	0.007
440	0.057	580	0.087	720	0.006
445	0.101	585	0.087	725	0.005
450	0.150	590	0.086	730	0.005
455	0.135	595	0.086	735	0.004
460	0.086	600	0.084	740	0.003
465	0.065	605	0.082	745	0.003
470	0.051	610	0.080	750	0.002
475	0.039	615	0.077	755	0.002
480	0.036	620	0.073	760	0.002
485	0.039	625	0.068	765	0.002
490	0.044	630	0.064	770	0.001
495	0.051	635	0.059	775	0.001
500	0.057	640	0.054	780	0.001
505	0.063	645	0.049		
510	0.067	650	0.044		

Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L17083.
Dialight unit model number ALU7BC26-xxxxx-N

Electrical Measurements:

Input Voltage: 120 (VAC)
Input current: 0.339 (A)
Input Power: 40.5 (W)
Power Factor: 0.996

Photometric measurements:

Absolute Luminous Flux: 5510 (lumens)
Luminous Efficacy: 135.9 (lumens/W)

Intensity Summary:

INTENSITY (CANDLEPOWER) SUMMARY						
ANGLE	ALONG	25	45	72.5	ACROSS	OUTPUT LUMENS
0	2176	2176	2176	2176	2176	
5	2179	2179	2186	2204	2216	81
15	2248	2245	2259	2259	2240	475
25	2300	2277	2255	2112	2033	866
35	2134	2154	2132	1942	1816	1159
45	1486	1676	1840	1720	1544	1263
55	358	633	1166	1412	1198	1019
65	37	34	147	863	724	501
75	0	1	7	68	177	138
85	0	0	0	0	0	6
95	0	0	0	0	0	0
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

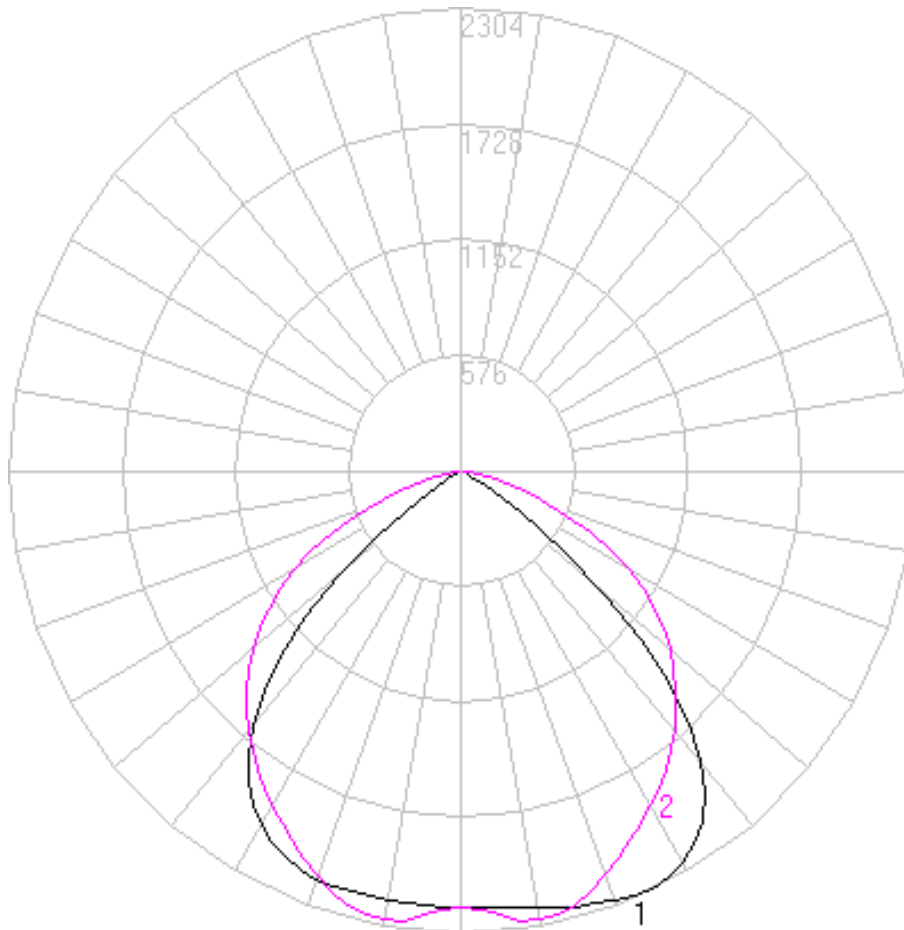
ZONAL LUMEN AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	1974.11	35.8%
0-40	3218.52	58.4%
0-60	5171.96	93.9%
60-90	474.57	8.6%
0-90	5509.77	100.0%
90-180	0	0.0%
0-180	5509.77	100.0%

Test Results: Goniometer

Results continued from previous page.

Polar Plot:

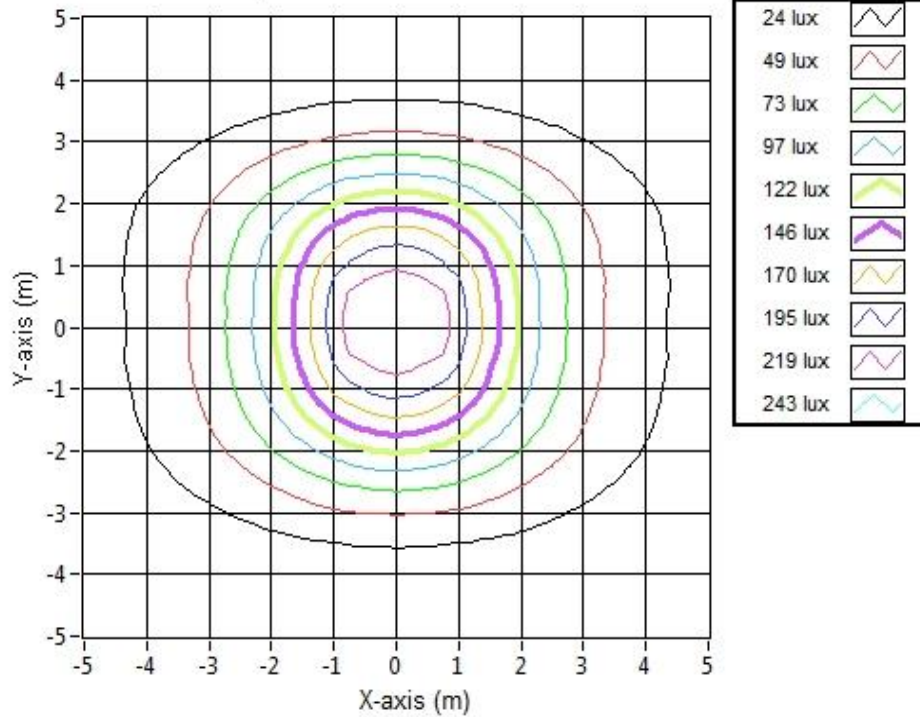


Test Results: Goniometer

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	6.79	9.60	234.2
6.096	13.58	19.21	58.5
9.144	20.38	28.81	26.0
12.192	27.17	38.42	14.6
15.24	33.96	48.02	9.4
18.288	40.75	57.62	6.5
21.336	47.55	67.23	4.8
24.384	54.34	76.83	3.7
27.432	61.13	86.44	2.9
30.48	67.92	96.04	2.3

Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L17083.
Dialight unit model number ALU7BC26-xxxxx-N

LED identified as Seoul part number SAW8C22B.

LED drive current (as indicated by customer): 38 (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:

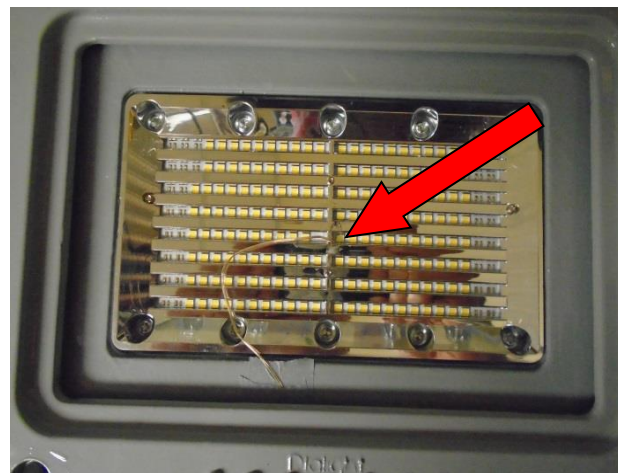
Maximum Power at Indicated Current: 0.228 (W)
Maximum Source Temperature: 121.1 (°C)

Test Conditions:

Temperature Measurement Location: See Photographs Below
Ambient Temperature: $25^{\circ} \pm 5^{\circ}$ (°C)
Ambient temperature at time of measurement: 23.9 (°C)
Relative humidity at time of measurement: 20%

Results:

Measured LED source temperature: 45.6 (°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
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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.

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Approved Signatory