

# Test Report

Report Number: L17030

Date: Jul 24, 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: ALU7BC23-xxxx-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:** July 13, 2017 through July 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: L17030  
Manufacturer: Dialight Corporation  
Product Name: Vigilant Area Light  
Description: Vigilant Area Light  
Model Number: ALU7BC23-xxxx-N

## Report Summary

Sample number L17030  
Dialight unit model number ALU7BC23-xxxxx-N

### Photograph(s) of sample:



\*Photographs not to scale. For reference only.

### Summary of Results:

	<u>Integrating Sphere</u>	<u>Goniophotometer</u>
Luminous Flux:	2925 (lumens)	2892 (lumens)
Electrical Power:	23.6 (W)	23.6 (W)
Luminous Efficacy:	124.5 (lumens/W)	122.6 (lumens/W)

### Electrical Measurements:

Input Power (120VAC): 23.6 (W)  
Power Factor (120VAC): 0.992  
Current ATHD % (120VAC): 7.406  
Input Power (277VAC): 23.4 (W)  
Power Factor (277VAC): 0.92  
Current ATHD % (277VAC): 16.86

### Color Measurements:

Correlated Color Temperature (CCT): 4875  
Color Rendering Index (CRI): 83  
Chromaticity Coordinate (x): 0.35  
Chromaticity Coordinate (y): 0.361  
Chromaticity Coordinate (u'): 0.211  
Chromaticity Coordinate (v'): 0.327  
DUV: 0.003

### Temperature Measurements:

In Situ LED Source Temperature: 39.8 (°C)

## Test Results: Integrating Sphere

Results include unit color, flux, efficacy and electrical power for sample number L17030.

Dialight unit model number ALU7BC23-xxxxx-N

### Test Conditions:

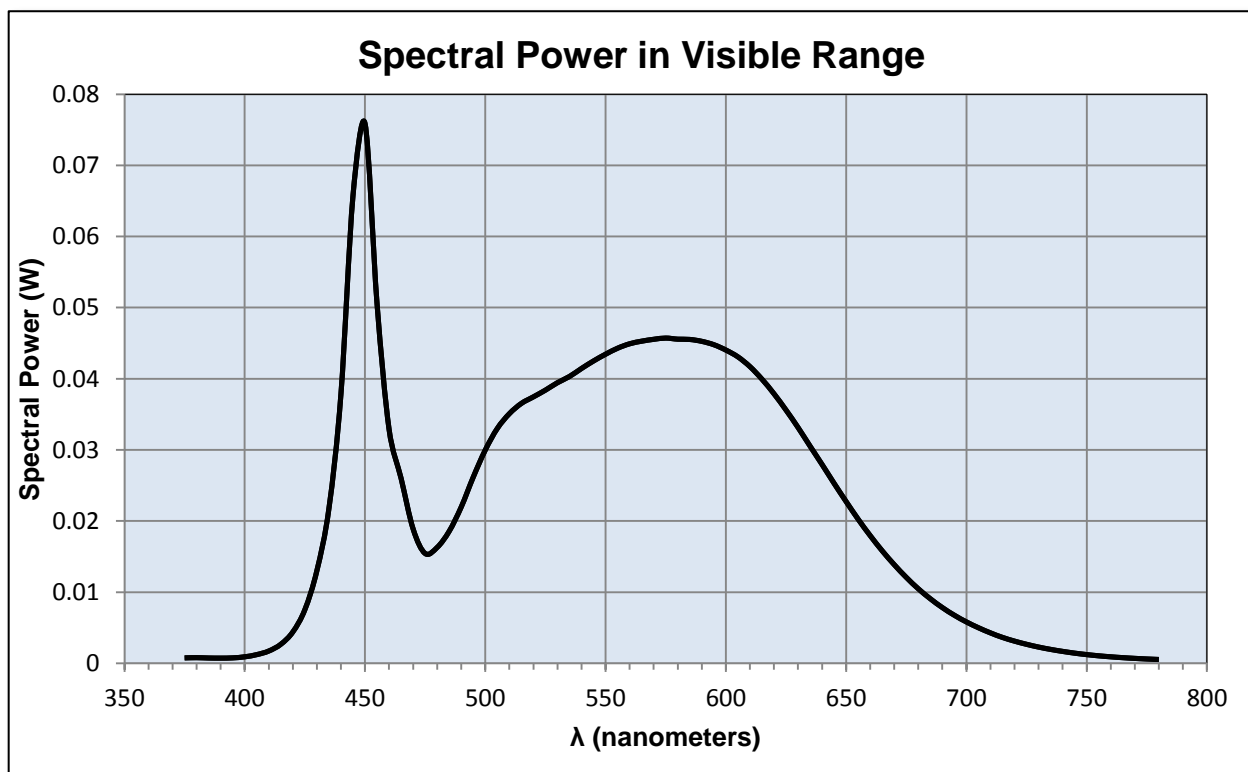
Ambient Temperature:  $25 \pm 1$  (°C)

### Electrical Measurements:

Input Voltage: 120 (VAC)  
 Input Current: 0.198 (A)  
 Input Power: 23.6 (W)  
 Input Power Factor: 0.992  
 Current ATHD: 7.406 (%)

### Photometric measurements:

Luminous Flux: 2925 (lumens)  
 Luminous Efficacy: 124.5 (lumens/W)  
 Correlated Color Temperature (CCT): 4875 (K)  
 CRI -Ra: 83  
 CRI -R9: 12  
 DUV: 0.003  
 CIE Coordinate (x): 0.35  
 CIE Coordinate (y): 0.361  
 CIE Coordinate (u'): 0.211  
 CIE Coordinate (v'): 0.327



## 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)
375	0.001	515	0.037	655	0.020
380	0.001	520	0.037	660	0.018
385	0.001	525	0.038	665	0.016
390	0.001	530	0.039	670	0.014
395	0.001	535	0.040	675	0.012
400	0.001	540	0.041	680	0.010
405	0.001	545	0.043	685	0.009
410	0.002	550	0.043	690	0.008
415	0.003	555	0.044	695	0.007
420	0.004	560	0.045	700	0.006
425	0.008	565	0.045	705	0.005
430	0.013	570	0.046	710	0.004
435	0.022	575	0.046	715	0.004
440	0.038	580	0.046	720	0.003
445	0.066	585	0.046	725	0.003
450	0.076	590	0.045	730	0.002
455	0.051	595	0.045	735	0.002
460	0.033	600	0.044	740	0.002
465	0.026	605	0.043	745	0.001
470	0.019	610	0.042	750	0.001
475	0.015	615	0.040	755	0.001
480	0.016	620	0.038	760	0.001
485	0.019	625	0.036	765	0.001
490	0.022	630	0.033	770	0.001
495	0.026	635	0.031	775	0.001
500	0.030	640	0.028	780	0.001
505	0.033	645	0.025		
510	0.035	650	0.023		

## Test Results: Goniometer

Results include unit flux, distribution, efficacy, and electrical power for sample number L17030.  
Dialight unit model number ALU7BC23-xxxxx-N

### Electrical Measurements:

Input Voltage: 120 (VAC)  
Input current: 0.197 (A)  
Input Power: 23.6 (W)  
Power Factor: 0.991

### Photometric measurements:

Absolute Luminous Flux: 2892 (lumens)  
Luminous Efficacy: 122.6 (lumens/W)

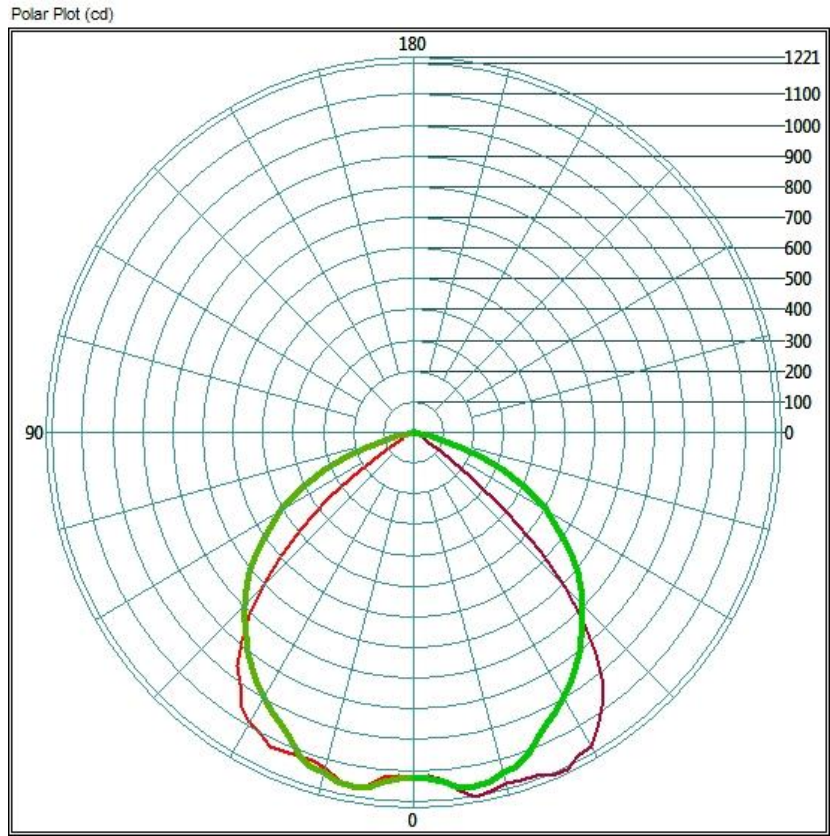
### Intensity Summary:

<b>INTENSITY (CANDLEPOWER) SUMMARY</b>						
ANGLE	ALONG	25	45	72.5	ACROSS	OUTPUT LUMENS
0	1120	1120	1120	1120	1120	
5	1125	1124	1124	1134	1143	42
15	1129	1148	1186	1170	1147	251
25	1130	1119	1113	1106	1048	455
35	1003	1033	1035	978	937	609
45	709	775	868	847	795	659
55	221	331	554	675	611	525
65	36	36	110	397	397	266
75	9	9	13	44	95	79
85	0	0	1	1	1	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	1037.1	35.9%
0-40	1689.25	58.4%
0-60	2700.88	93.4%
60-90	262.95	9.1%
0-90	2891.42	100.0%
90-180	0	0.0%
0-180	2891.42	100.0%

**Polar Plot:**

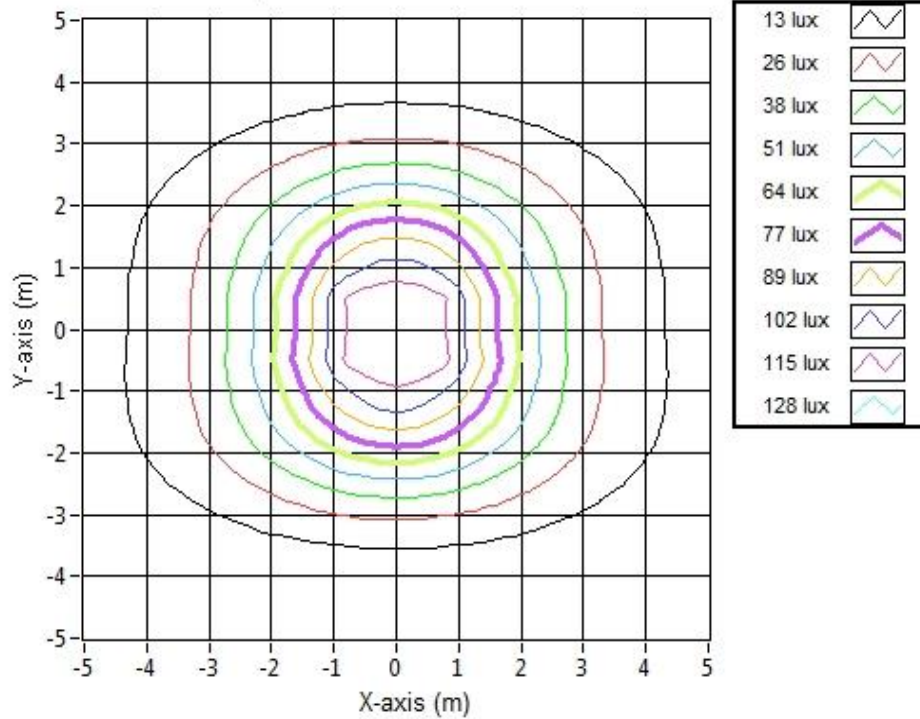


## Test Results: Goniometer

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	6.80	9.58	120.5
6.096	13.60	19.16	30.1
9.144	20.41	28.74	13.4
12.192	27.21	38.31	7.5
15.24	34.01	47.89	4.8
18.288	40.81	57.47	3.3
21.336	47.61	67.05	2.5
24.384	54.41	76.63	1.9
27.432	61.22	86.21	1.5
30.48	68.02	95.79	1.2

## Test Results: In Situ Temperature Measurement Test

Results include maximum LED chip temperature for sample number L17030.

Dialight unit model number ALU7BC23-xxxxx-N

LED identified as Seoul part number SAW8C22B.

LED drive current (as indicated by customer): 48 (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: 0.288 (W)  
Maximum Source Temperature: 120.1 (°C)

### Test Conditions:

Temperature Measurement Location: See Photographs Below

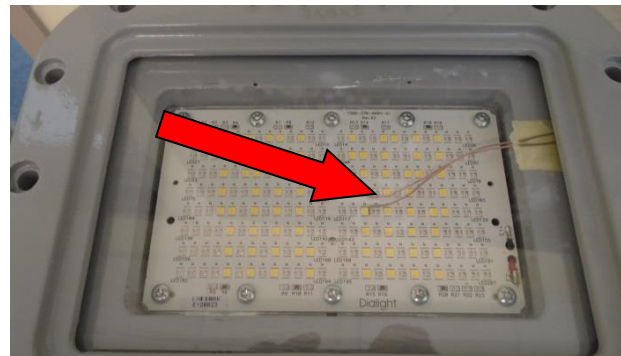
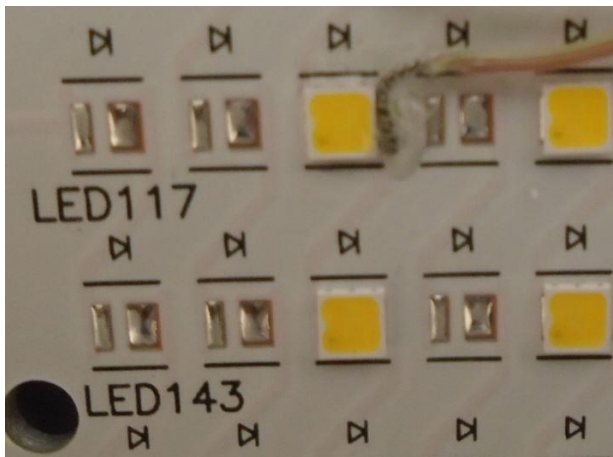
Ambient Temperature:  $25^{\circ} \pm 5^{\circ}$  (°C)

Ambient temperature at time of measurement: 24.6 (°C)

Relative humidity at time of measurement: 30%

### Results:

Measured LED source temperature: 39.8 (°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 Precision	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. This report shall not be reproduced, except in full, without the express written permission of Dialight Optics Laboratory.

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